🌵 NYU

Data Profiling & Data Cleaning

Heiko Mueller

Research Engineer – Center for Data Science heiko.mueller @ nyu.edu



Cleaning Big Data: Most Time-Consuming, Least Enjoyable Data Science Task, Survey Says

🛛 🕧 🕤 🕤 🔞



GII Press, CONTRIBUTOR I write about technology, entrepreneurs and innovation. FULL BIO
Opinions expressed by Forbes Contributors are their own.

TWEET THIS

🈏 data scientists found that they spend most of their time massaging rather than mining or modeling data.

😏 76% of data scientists view data preparation as the least enjoyable part of their work

A new survey of data scientists found that they spend most of their time massaging rather than mining or modeling data. Still, most are happy with having the sexiest job of the 21st century. The survey of about 80 data scientists was conducted for the second year in a row by CrowdFlower, provider of a "data enrichment" platform for data scientists. Here are the highlights:

Least enjoyable part of Data Science?

Collecting data (21%) Cleaning and organizing data (57%)

Spend most time doing

Collecting data (**19%**) Cleaning and organizing data (**60%**)



- Cleaning and organizing data: 609
- Collecting data sets; 19%
- Mining data for patterns: 9%
- Refining algorithms: 4%
- Other: 5%

Bad Data Costs the U.S. \$3 Trillion Per Year

by Thomas C. Redman

SEPTEMBER 22, 2016



Consider this figure: \$136 billion per year. That's the research firm IDC's estimate of the size of the big data market, worldwide, in 2016. This figure should surprise no one with an interest in big data.

But here's another number: \$3.1 *trillion*, IBM's estimate of the yearly cost of poor quality data, in the US alone, in 2016. While most people who deal in data every day know that bad data is costly, this figure stuns.

While the numbers are not really comparable, and there is considerable variation around each, one can only conclude that right now, improving data quality represents the far larger data opportunity. Leaders are well-advised to develop a deeper appreciation for the opportunities improving data quality present and take fuller advantage than they do today.

The reason bad data costs so much is that decision makers, managers, knowledge workers, data scientists, and others must accommodate it in their everyday work. And doing so is both time-consuming and expensive. The data they need has plenty

https://hbr.org/2016/09/bad-data-costs-the-u-s-3-trillion-per-year

Organizational **data is a critical resource** that supports business processes and managerial decision making. As data volumes increase, so does the complexity of managing it and the **risks of poor data quality**.

NYU













... data is generally considered high quality if it is "fit for [its] intended uses in operations, decision making and planning"

Thomas C. Redman, Data Driven: Profiting from Your Most Important Business Asset. 2013

Even though quality cannot be defined, you know what it is.

Robert M. Prisig, Zen and the Art of Motorcycle Maintenance, 1975

Data of poor quality is lacking rich metadata.

Divesh Srivastava, AT&T Research

Data cleansing or **data cleaning** is the process of detecting and repairing corrupt or inaccurate records from a data set in order to improve the quality of data.

https://en.wikipedia.org/wiki/Data_cleansing & Erhard Rahm, Hong Hai Do: Data Cleaning: Problems and Current Approaches, IEEE Data Engineering Bulletin, 2000.

Fate of the NASA Mars Climate Orbiter (1999)



https://en.wikipedia.org/wiki/Mars_Climate_Orbiter

Fate of the NASA Mars Climate Orbiter (1999)

LOS Angeles Times california & local entertainment sports business technology nation politics world more

YOU ARE HERE: LAT Home \rightarrow Collections \rightarrow Mistakes



FROM THE ARCHIVES

Math Error Exaggerated TriZetto Loss Estimate March 7, 2001

Math Error Inflated Ventura Blvd. Cost : Traffic: Mistake...

Mars Probe Lost Due to Simple Math Error October 01, 1999 | ROBERT LEE HOTZ | TIMES SCIENCE WRITER



NASA lost its \$125-million Mars Climate Orbiter because spacecraft engineers failed to convert from English to metric measurements when exchanging vital data before the craft was launched, space agency officials said Thursday.

A navigation team at the Jet Propulsion Laboratory used the metric system of millimeters and meters in its calculations, while Lockheed Martin Astronautics in Denver, which designed and built the spacecraft, provided crucial acceleration data in the English system of inches, feet and pounds.

As a result, JPL engineers mistook acceleration readings measured in English units of pound-seconds for a metric measure of force called newton-seconds.

In a sense, the spacecraft was lost in translation.

"That is so dumb," said John Logsdon, director of George Washington University's space policy institute. "There seems to have emerged over the past couple of years a systematic problem in the space community of insufficient attention to detail."

http://articles.latimes.com/1999/oct/01/news/mn-17288

Why is Data Cleaning so Difficult and Time Consuming?



1) One of the most 'annoying' parts of data analysis is the variety of data formats one must deal with.

Different Serializations

JSON, YAML, XML, CSV, Text

Different Data Models and System

- Relational Databases (e.g., PostgreSQL, MySQL, Oracle, IBM DB2, MS SQL Server)
- Document Stores (e.g., CouchDB, MongoDB)
- Key-Value Stores (e.g., LevelDB, Oracle NoSQL Database)
- Column Stores (e.g., MariaDB)
- Triplestores & Graph Databases (e.g., Jena, Neo4j)

Legacy Formats

- dBase
- MS Access
- Lotus Notes

Why is Data Cleaning Time Consuming? (cont.)

- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge



FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	М
Bob	Smith	4.5.1978	45k	-
Jonez	Claire	May 4, 1978	\$45000	F
Dave C	Adams		32	М



- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge



FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	М
Bob	Smith	4.5.1978	45k	-
Jonez	Claire	May 4, 1978	\$45000	F
Dave C	Adams		32	М

Timeliness: Is the data up-do-date?



- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge

FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	М
Bob	Smith	4.5.1978	45k	-
Jonez	Claire	May 4, 1978	\$45000	F
Dave C	Adams		32	М

Syntactical Consistency: Are all values (in a column) represented in the same format?



- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge

	FIrstnar
RUDIO	Alice
	Bob
	Jonez

FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	-
Bob	Smith	4.5.1978	45k	М
Jonez	Claire	May 4, 1978	\$45000	F
Dave C	Adams		32	М

Uniqueness: Is each entity represented only once?



- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge



FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	М
Bob	Smith	4.5.1978	45k	-
Jonez	Claire	May 4, 2012	\$45000	F
Dave C	Adams		32	М
Emily	Brown	11/5/1971	55000	F

Completeness: Is the data set a compete representation of the universe of discourse?



- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge

	T II SU
RADOPT	Alice
	Bob
	Jonez
TO THE REAL	Dava

FirstName	LastName	BDate	Salary	Gender
Alice	Smith	5/4/1978	45.000	М
Bob	Smith	4.5.1978	45k	-
Jonez	Claire	May 4, 1978	\$45000	F
Dave C	Adams		32	М

Consistency: Are all business rules (constraints) satisfied?

Classification of Data Quality Issues



Column

Illegal Values, Missing Values (encodings of NULL), Value Representation



Record

Violation of attribute dependencies.



Record Type

Uniqueness Violations (Functional Dependency Violations), Conflicting Values, Missing Records.



Source

Referential Integrity Violation.

See for example [Rahm, Do. 2000]

Why is Data Cleaning Time Consuming? (cont.)

1) One of the most 'annoying' parts of data analysis is the variety of data formats one must deal with.



CIA World Factbook

THE WORLD FACTBOOK 1990

Country: Afghanistan - Geography Total area: 647,500 km2; land area: 647,500 km2

Comparative area: slightly smaller than Texas

Land boundaries: 5,826 km total; China 76 km, Iran 936 km, Pakistan 2,430 km, USSR 2,384 km

Coastline: none--landlocked

Maritime claims: none--landlocked

Disputes: Pashtun question with Pakistan; Baloch question with Iran and Pakistan; periodic disputes with Iran over Helmand water rights; insurgency with Iranian and Pakistani involvement; traditional tribal rivalries

Climate: arid to semiarid; cold winters and hot summers

Terrain: mostly rugged mountains; plains in north and southwest

Natural resources: natural gas, crude oil, coal, copper, talc, barites, sulphur, lead, zinc, iron ore, salt, precious and semiprecious stones

Land use: 12% arable land; NEGL% permanent crops; 46% meadows and pastures; 3% forest and woodland; 39% other; includes NEGL% irrigated

Environment: damaging earthquakes occur in Hindu Kush mountains; soil degradation, desertification, overgrazing, deforestation, pollution

Note: landlocked

1990





















CIA World Factbook





CIA World Factbook

Geography	Afghanistan	Top of Page	Factbook	Image: Second secon
Location:				
	Southern Asia, north and west of Pakistan, east of Iran	2005		Aid
Geographic coordinates:		\square	International States and States and States	
	33 00 N, 65 00 E		(3) = The World Facibook 1987	World Factbook
Map references:				1989
	<u>Asia</u>			
Area:				62
	total: 647,500 sq km			(T)
	land: 647.500 sq km		World Factbook	World Factbook
Area -				1999
comparative:	slightly smaller than Teyas			
l and boundaries:				Contraction for
Lana boandanes.	tetal: 5 500 lem		FACTBOOK	WORLD
	border countries: China 76 km. Iran 936 km. Pakistan 2.	430 km. Tajikistan 1.206	2002	FACTBOOK
	km, Turkmenistan 744 km, Uzbekistan 137 km		W - E	CR.S.
Coastline:			s	
	0 km (landlocked)			Conservation and the second se
Maritime claims:			WÖŘLD	The WORLD FACTBOOK 2007
	none (landlocked)		FACIBOOK 2005	(db)
Climate:				
	arid to semiarid; cold winters and hot summers		a	Confidence for

See [https://www.cia.gov/library/publications/the-world-factbook/]

Why is Data Cleaning Time Consuming? (cont.)

- 1) One of the most 'annoying' parts of data analysis is the variety of data formats one must deal with.
- 2) Many different quality issues (databases try to fit a complex world into a simple abstraction).
- 3) Cleaning the data requires domain knowledge

4) Big Data

Volume of data requires automated methods that encode what high quality data looks like.

Variety and heterogeneity of data sources requires specific scripts for individual sources.



The data cleaning workflow is a sequence of steps. Each step addresses one quality issue. Steps are divided into **detect** and **repair**.





Things to Keep in Mind

Purpose

What is the intended use of the data?

Domain Knowledge

Learn as much as possible about data (generation process)

Attention

Be mindful and pay attention to details

If you don't need it, don't clean it!



Cleaning Tabular Data

Data Quality Problems and Quality Assessment

Detect and Repair

Examples from NYC Open Data

Data Exploration & Data Profiling

Get to know your data



311 Service Requests for 2005

| | Witnesda Insuita Inc

 | And PERSON NAMES | and Linguist

 | had linguist brint

 | a data a la |
 | and the second s | Auto Vanian Chapter III | destrate inspector
 | test area
 |
 | and Assessments area | a Paratethink | TIMELANETATION | ALCORD TO A CONTRACTOR
 | NAMES OF TAXABLE PARTY AND DESCRIPTION OF TAXABLE PARTY. | and compared | | |

--
---|---
--

--
--
---	--
--
--
---|---|--|--
--|---|--|------------------|---
---|
| a fai | Milliogented Despited Disp

 | andre Disk propins | Angented Stepsiles

 | Seet Degelled BROOKIN

 | A MATERIA CONTRACTOR COMPANY | A DATE:
 | Manufact National Nat | Promposition & Property Stationers Language N | REPORT Propulse
 | test Hits
 | ALC: ALC: ALC: ALC: ALC: ALC: ALC: ALC:
 | ALCONOMICAL CONTRACTOR | | |
 | | | | |
| a da | William Internet

 | and management | ARTIGUE Company Company

 | Test Description Processo

 | A STATEMENT OF A STATEMENT | 14 11 11 11
 | With Leaster Inc. | Manual and Chapters In | And and a strength of the second seco
 | test Million
 | 103 6.00
 | No. A NUMBER OF STREET | - | |
 | | | | |
| 11 | States in the local states

 | and the second | Marghan Linguistics

 | ter limite Married

 | And a state of the | VALUE AND A
 | Manufacture International Inte | Pagetoni d Tala ad Tanada 10 | and the second s
 | 14 M
 | | And in case of the local division of the loc | |
 | | | | | |
| and all all all all all all all all all al | Indicated Description

 | | INCOME Linguistics

 | And Descript Marcore

 | A TYLENA Lines Lines |
 | With Assessed in the | DESCENSION of Fails as New York Agence 10 | M. AUTUIN Insender
 | Particle Tubbylines Mills

 | 10 8.330 | A MARCHINE ALCONG | a attas | ATTERA
 | AATTE STOLET | CONTRACTOR AND A | | | |
| and the second sec | Milliogented Visionited Vision

 | and a local second seco | APPENDIX Linguistics

 | Sant Ungested BEURATE

 | Linguit Ungen |
 | Unperford NA | Togetons of False and Tocontine 107
Unsetting of False and Tocontine 107 | Council of
 | Tab. 800
 | | ALC: NO. OF CO. | |
 | | |
 | | | |
| and | Millionales Description

 | and ALLINGS | DATE Streets

 | Sent Departed Roberts

 | A TORONO AND A TORONO AND A TORONO | MATER .
 | Manufacture National State | Hill set of Augustan (1) | REPRINT Computer
 | Data D.A.

 | A.100 | AND A NUMBER OF A DESCRIPTION | a Dansassa | Carlo Enderson
 | NOGRAMME | NUMBER OF STREET | | | |
| and | Millionales Description

 | partial Distances of the local distance of t | CONTRACT Committee

 | Sent Depended SWISHAM

 | A DESCRIPTION AT N. 8 Lines | CRACK TRACES
 | MUNI-Installed NA | MUCE and an Amaginetics State | WEIGHT Comparison
 | and All
 | NAME ALCORN
 | NO A DEPENDING AN ADDRESS | a Massia | PRINTER BANKS |
 | Nor Anna result to be a | | | |
| 22 | and installed Disputed Disp

 | parties and a second | And A Linguist (

 | And Departed Management

 | A TOAL PROPERTY Lingue | - CONTRACT
 | And all important and | Differential Case Fairs Department No. 1997 | BERGEL Proposite
 | Na Maria Parata Series

 | A 100 | Annual Conception of the latter | a Anna Anna Anna Anna Anna Anna Anna An | NUMBER OF STREET
 | BARANNA | No. of Concession, Name | | | |
| ad Labor J-H 12 Columb Comm | International Property No.

 | patha i | pasta Linguidad

 | hand Disagended Malary In

 | a sector bigs |
 | and division in the | REAL Parties of Annual Statement of Statement of Statement of Table and Televantees Statement of Table and Televantees Statement of Statement of Table and Table | MAPERA Mapping
 | Team (al. 1993)
Team (al. 1994)
 | 1 A.160
 | Anno Anno Anno Anno Anno Anno Anno Anno | a hartertert | 1411/11111 | SACE ACCES
 | Party and a state | | - | |
| | Manufacture Linguistics Linguistics

 | parties and a second | Introduct Linguistics

 | And Depute Marcas

 | a to the second second | MARCELE MEET
 | White Angeling State | And Description of Construction (1997) and Constructio | REAL Property
 | NR MAN
 | CON 6.305
 | The Assessment of the state of | 1 | |
 | | | | Chen . |
| | Manufacture Linguistics Linguistics

 | parties (| Internet Linguistics

 | And Depute MCCAT

 | Assessed Linguist |
 | with the second | Milli The Int Co. Faire Department No.
1870/Dear Not Faire Faire Department No. | BARRAN Deputer
 | NA MO
 | 101 A.C.
 | and A showing only a few | a becker | MARKAN AND A TOTAL OF A DECK | NATURAL OF CONTRACTOR OF CONTA | No Post
 | | | |
| a fai | Malinguist County Cou

 | and a second second | BARANA Linguista

 | Seat Degender MANYA St.
Sand Degender Manya Pro-

 | a technologie Ungen | a base
 | Manufact National Nat | Party of the second sec | REDUCT Complete
 | Tel Man
 | 4 500 | 1100-01-01-01-01-01-01-01-01-01-01-01-01
 | | | |
 | | | |
| a fai | Without Tourist

 | and a second sec | Annual Constant

 | And Supplied MULTIN

 | And Street Street | MATLA.
 | With Logarithm | 1980 Ne ad Leaster Textbook No. | Name - Company
 | 100
 | ALC: ALC: N
 | And Annual Concession | | ROOM PRO DES | and the second s | and other searching and se
 | | | 184 |
| a fai | William Revealed Topology

 | and a state of the | Lagendra Marca Allandra

 | ter freedo warrante

 | ARAMAN ST Lings | an a transmission of the second
 | Manufact Inter | Pastar Pageta | Trapelar
Trapelar
 | Man Mar
 |
 | and on some of | a househouse | | A CONTRACTOR OF
 | NAME OF A DESCRIPTION OF A | | | |
| a da | William Internet

 | and a second second | Incodes Liquidad

 | The Deside Manual

 | a man big |
 | Machine Passe | Billion and Capital State | Automatic Strends
 | NR MIT

 | 1 A. 100 | THE ADDRESS OF THE OWNER | a Manualana | 10.11.11.11.1
 | MATER | ALCONTON TO ALCONTON | | | |
| p. No. | Withouthd Deputy Inc.

 | AND DESCRIPTION OF | ante Coperate

 | See Separate Million

 | AAAVNI Harris | - Acce
 | With Lands | All Constant Completes III | ATTELL Linguist
 | test HTT

 | | THE OWNERS AND ADDRESS | C DIALWARDAN | COLUMN AND
 | AACCOUNTS AND | STRAINE STRAFT | | | |
| p. No. | Millioned Insuite Ins

 | sold Distriction of | Internet Linguistic

 | Seed Degended MCNUTS

 | A STREET ASSA | RACTURES T
 | With Appendix | TETE patent Chapter III | A STATE Company
 | test Mil

 | 100 A.507 | an Americante | a patta | atte
 | | | | | |
| pille | Millionald Deputy In

 | and statements | Data Linguista

 | Desi Depute Strategia

 | A STREET |
 | HUGhanler M | ICAL STREET, S | ALTELL Logade
 | hand DA
 | A 31
 | DATE OF TAXABLE PARTY O | and Address to be | 11.10 | DATES | VALUE AND A
 | | | |
| and the formation of the second second | Millioned Insuited Ins

 | | Dates Linguist

 | Desi Degelet 225338-0

 | A TRUE TO BLOW THE REAL ARE | MAXIN .
 | All the second s | ESSE September 21 August 1995 | AND ALL AND
 | lest QA
 | A 300
 | 12 CAMPROCESSION | | |
 | | | - | |
| of 73 30 Data land | NOT TRACTING

 | | LATOREN DA

 | Desi 13.28 BECKSY

 | ACCREASE ACC | Ci i tau
 | March Conception Int | Will and Department of Annual State | Render of Congradient
 | Deeld NO
 | 100 8108
 | CANCENCES A LEGAL | INCLUSION CONTRACTOR OF CONTRACTOR OFON OFONTO OFONTO OFONTO OFONTO OFONTO OFONTO OFONTO OFONTO OFON | ATTACKS. | CANDALINA | TRO ADD DATES
 | | 14 | |
| patra | Millioned Insuite Inc.

 | and a second second | Departer Departer

 | See Search

 | A SHARE SHARE SHARE |
 | Description Mathematical State | Competition & and competition (1) | RAPELI County
 | testatus line
 | And Annual Property of the local data
 | 10.0.000 | a contractivest | PROPERTING | amazariana
 | Alternation and | | | |
| particular second se | Millionalds Deputy Inte

 | And Distances of | Internation Internation

 | See Search

 | KIN Lines | ALL
 | Linguistics No. | Eventual of the art formation of the | Reputs Supples
 | int NO

 | COLUMN ADDRESS | 10.110.00 | 8 044110 | IL MOLLON
 | CALSES AND A | an an an an an an | | | |
| al /1 We beings filter | Millionald Venetal Ven

 | | mirdhi logolot

 | Desi Departe Million

 | 6.55/200 | -
 | Millingenter MA | DODE and Department of Austin Street August 201 | M. ALTERS Logarded
 | And Market

 | 6.35 | THE COMPANY AND LODGE | d Mout | KONCOASNA.
 | MACTING AND A | STRAATE STRAT | | | |
| a la | Millioned Vessel

 | AND DESCRIPTION OF | 24155 Linguistic

 | See Searche Subset

 | S. MORTON CARRANT | JALLE
 | All and a second | TANK sature Property Internation | NUMBER OF STREET
 | 0.6
 |
 | NET CHILDREN HALFER | | and a residence of the second s | and a second
 | | | | |
| of J3 367 millions | And Salada and No.

 | patha . | MUDUS M

 | Desi UKB BECKEN

 | 6-COUNT BOOM | G LANGUNG
 | And | Mill Cold Contract Of Section (1) | ALCOURS IN COMPANY OF A COMMANY
 | -14 HO

 | AN 847.00 | | C RUBICALINA | FALTHANKS.
 | INTERNAL CONTRACTOR | HE WHITTACK | | No. | - |
| ad Allega Concludege Property, School and | Millionald Vegetal Veg

 | THE DESIGNATION OF | LABORDARD Longendret

 | Deel Dearder (1855).610

 | A MORE REPORTED AND LONG | CALMAN THAT
 | KAN International Name | USU Control Chapters of Academ 10 | Related Weige Loss Long Payments Total
 | test 18

 | NAME ADD | A DOM THE MAKES THE | a histolation | ALL PASSATES
 | AMALINIO . | CH CAPTURE THE T | | | |
| of J'S 23 Light Local | And Incident Street

 | period . | AND A Linguistic

 | Desi UKIN MULIKAN

 | A CARL AND A CARL | a
 | March Conservation of March 199 | Milli Cold Department of Academa (1) | Report of Conception
 | feed and

 | ALC: ALC: NO | And Descendence and | di Paris Funcis | STRAINE FLACE
 | CANDATNA | To Camera Man | | jua . | - |
| | Additionality Councils

 | | Avenue Country

 | See Separate SPECKEN

 | And No. of Address of Concession, Name | CONTRACATION
 | Marchael Parcel | Million Into Cognition 1 | B BOACH Country
 | 1 HO

 | 12'S 8.4276 | IN ADDRESS OF A DESCRIPTION OF | 1 |
 | | | | | Take 1 |
| | Additionality Councils

 | paint and a second second |

 | Intel Computer Process

 | A MARKED LINE LINE | - Contraction
 | And Annual Annua | Differential Constant No. | ALTERN Committee
 | a 0.4
 |
 | | a habeat | San Ban I | NORTHER ADDRESS
 | IN A DOCTOR OF A DATA | | | |
| 22 | Additionality Country Inc.

 | paint and a local division | andre Galante Country

 | Intel Competition Management

 | ARCINE Lines | Landau I
 | Department Nat | The Sector Objection St. | AUTOIN Complete
 | and U.A.

 | | | - |
 | AMERICAN | PROPERTY OF CONTRACTOR OF | | | |
| 22 | Addressed linguist

 | paint and all and a lot | Includes Departure And Associ

 |

 | A MARKED CAS INCOME OF A LONG | Caractura .
 | And Address of the Ad | A Distance Chapters III | REPORT Company
 | and Mill
 | A 100
 | And American Advantages | | ILANI VISTILI | ananana
 | announ | | | |
| ad /1 Viking lagram | Real Property No.

 | and statistics | ILANCIAN Linguist

 | Inel Dispute (1811).010

 | A Social States and Linguist | ABOTAB
 | Million March 199 | UNIT and Department of Academ 101 | REPORT Vicentia
 | Test 14

 | 10.4% A.M. | Inter A statement of the state | a hijoratsu | TOUTDATING
 | MUSERANNA | al we set a ve a | | | |
| 22 | References Country Inc.

 | and Annual and | California Companies

 | And Departure Management

 | a National Lingue | -
 | and based in | Difference of half an Boat Agent Bill | ALTERN Linguist
 | New Joseph Tables; March

 | 1 A.140 | And Annual states | a kapasi | N. 6 PER 1
 | CARD NE BOLLY APE | NUCLEAR AND ADDRESS OF COMPANY | | | |
| 22 | Addressed Streets Streets

 | parties (State States) | Interaction Comparison

 | And Depute Management

 | a history Lingue | - HOLFWING
 | mail franks | And a st insuit internal | ALPELL Logistic
 | And Add

 | 1.1.1.C | and Annual states | a laves | ALLA
 | BALCONDON 1 | MARKAGE CONTRACT. | | | Life |
| a ha | Automatical Dispersion Disp

 | and a second sec | Distan

 | And Separated Laboration

 | a waturd Lingu |
 | and dispersion Presser | annual New York Cap Palan Capatrons No. | a married linguists
 | ta Uta
 |
 | AN ADDRESS OF A PROPERTY | | MALIFUR STOLEY | MANDOLANIA
 | STAR BUTCHER AND A STAR | | | |
| | Andreastic Disease

 | and an | All Linguist

 | And Disantia Manual

 | a Landon Lington | RAINET CONTRACT
 | mand transfer hit | 1200 be of location Constants (1 | Red and Company
 | O.R.

 | | and Astronomical Action | a | and the local distance of the local distance |
 | | | | in. |
| of Ph 18 hand field | Real Amountainings of Mill

 | - | and an

 | And Main Street

 | A MARKANNA BALAN |
 | statistical dependence has | Antonio anti Carl I dia Capitani Ni
Atti Cara Capitani di Acato St | Adult 75 18 Long Field
 | Passid Int

 | | A RANGE A REAL PROPERTY AND INCOME. | a Possiana | INPERIOR NO.
 | LANDTRACTOR | | | he . | |
| a na an ailtigean | Automatical No.

 | and a | patter Linester

 | And Disputed Lifetime Prints

 | a ta |
 | annum one Fait Plan hill | Millioned Organizat all Academ (6)
Millioned Statement of Telescole (7) | ALL THE ALL AND ALL AN
 | Seat and A
 | 1 A. 191
 | | a bernert | WARTER . | MATTER
 | MARY LIBRING | | | |
| - | Anticipation Disputer line

 | ALLANDSO | BALLAND Linguist Martinet

 | And Dispute Marces

 | a range Linge |
 | mail together | 2000 satisfies despites bit | MATRIX Depute
 | 100 Mar

 | - | Anne Anne and Anne | a balancarta | LANTINGAR MAN
 | MARTINET. | A MANTANAN | | | |
| and a | And instant instant

 | and manyment | Dates Unperfect

 | And Disputed Printing

 | automatic Lingui |
 | annual land | Department of Table and Technology (1)
174000 Property of Computing | ALL PROPERTY AND A DESCRIPTION OF A DESC
 | Test U.S.
 | -
 | and in contrast of the local | a barrent | A COMPANY | A
 | | | | |
| a fai | And in the local division of the local divis

 | ALL TRACT | Intration Unputer

 | test Depute Marces

 | a to the local |
 | and second ball | All Without Stations and All Stations an | annual Unpublic
 | La Ma
 | - | Annual Content of the local division of the | a harring
 | CALL STORE | MATER . | C MANNA
 | | | |
| and a | And the local division of the local division

 | ALL HEART | Internet Linguistic

 | test Depute Marces

 | A TATUET |
 | man opposited bak | 1014 Department of Respectation (2017) | PLATER Supplier
 | and Mark
 | A 100
 | And Designation of the local division of the | a la rearrana | MACHINES AND ADDRESS | oness (TASKA | and over CASIF MARKA
 | OTAGE LES TARTEN | | the local |
| and a | And the local division of the local division

 | and a | Annual Disector

 | has branded Brookers

 | Analysis Lines |
 | With Land and Land | All National Academic and American States States | WITTELS Dispublic
 | Parameter Building Parameter Building
 | A.4.1
 | And Address of the other | IN DATES | MARKAGE PLACE | INTER P
 | MR TO TRAT | | | |
| | Millinguist Ungested Ung

 | profest (| TRUERS Linguist

 | South Engenheit 1 Bill 5 All

 | Annual Contract Lingue | August 1
 | William Int | Weight and Transistic Territories (2) | And State of Computer
 | Fail 1 80

 | 111 8.00.00 | A REAL PROPERTY AND INCOME. | |
 | | | | | 7.But |
| | Millinguist Ungested Ung

 | paint and painting of | INTERACTOR Comparison

 | Inst Deputer 1983 0.410

 | A terminated Stream |
 | Watter Logaritation | Tester Produce (1) | Marriella Linguides
 | 100

 | NAME ADDRESS | THE ADDRESS OF ADDRESS | a biat their | RECORDER AND
 | BURNERATINE | STATUS AND A VIEW | | | |
| | Additionantics Linguists Linguists

 | gented in the | Dated Linguist

 | Josef Linguided No. 6 (2019)

 | a terminication to a terminication of the second se | CARACINA STREET
 | Millingenter Pariet | UKAL/Res/Mak Cap Palas Engelment No
100 TERMan Dad Cap Palas Engelment No | Balling Company
 | ta U.A
 | 1 8.104
 | And American Article State | a Lucarda | CAULS. | La chest
 | NAME OF A PARTY | | | |
| | And imposted to a first the second se

 | parties (ARCALONNAL) | Data Lighter

 | Inst Linguist Paramote

 | a hasan'a kaa | NAPES!
 | second reported but | Web Institut Propheter (1) | WERE UNDER STORE
 | 0.0
 | 10 A. 194
 | THE REPORT OF LAND | | TATION OF STREET, STRE | 1112111 | NAMES OF COMPANY
 | | | |
| | Advinguished longuished long

 | parts and and a second | Ingenter DATIO Linguiter

 | Inal Ingelief HTLES

 | STATUS Lines | CLARKE ALTERNAN
 | Linguist Int | Parties Prophere St. | REAL REAL Transler
 | New OA

 | | And Annual Contract New | a Destarrassia | and the state sta | BRARDAR AND
 | ART BURDER AT MA | | | |
| | Anti-Ingented Vergented Verg

 | gented and | Contraction Linguistics

 | And Ingenter ALANCE STATE

 | a hour of Linear Linear | CALCULATE AND A DESCRIPTION OF A DESCRIP
 | MARK Installed | TOTAL and investor Constants No. 100 | MARKET Longender
 | LL A
 | 1 A. 1000
 | THE CONTRACTOR OF LESS | a bassa | AANKA | N R PRAT
 | ALL TO PART | | | Cites . |
| | Americanstat Inspirited Insp

 | and MARCHINE | Data Linguited

 | Annal Dispersion Lotter April A

 | a temate Unput |
 | annesi basa ha | 1990 Paper of Progetties (1990) | MINUTE LA Companies
 | - 0.4

 | A 1000 | | di sintata ana | PARTICIPATION AND
 | MALLA | THE R DOG TIME | | | |
| of 13 littles 1 lite | And Inspirite Ling

 | paths. | Linguista Linguistar

 | And Ingents America

 | AURODAN BOOM | -
 | And Address of State | 1990 Nuclish Lig. 7 dis Engelsent NY
1990 Lond Department of Academ 201 | WOULD Inter Think Date
 | - 14 MA

 | A 40.00 | And Annual and a star | d Research | BOODATHATHA
 | 37563318 | STATUTE STREET, MARK | | No. | |
| of F3.86 (W | Articlescentral Insurantian Man

 | units. | AND DO DO

 | And Insuite Marries

 | A PARAMETRY LINE AND A PARTY LINES. |
 | ACCOUNT AND ADDRESS OF ADDRESS | 1000 No. and Sections Concession. No.
2014 Control Organization (Characteria) (Charact | WORKS Wingshield
 | Territe Million
 | A.000 | CARLANDER CARLANDER
 | a Managamana | NAME OF TAXABLE | A RECORDER OF | DE REPERSION NO.
 | | No. | 18a |
| | Articlasuitat Inspiritat United

 | and a second | Instruction Linguistics

 | And Supplied March 20

 | a becard a service and the service of the service o | A MANAGED PROVINCE
 | Magnified National | Kanakan dikenakan bir
Kili Masilah Capitala Dapatent Ni | ALCOLD Langested
 | Marine U.A.
 | A 100
 | And Address of the local division of the loc | a lates | ALLA | ALCONTRACT. | NAMES OF TAXABLE PARTY.
 | | | |
| | Artification Institute Inst

 | and Distant and | Antonio Magazia

 |

 | ACANDAL Linguis |
 | and the second s | Real Procession Procession No. 2010 Transferrer Strengtheory Do | REPERT Inspector
 | 14 HIL
 |
 | the Astronomics and a state | a brack a street | TRACTOR | FORBAUCH
 | Derivation actions | | | |
| | Witnesses Insurant Insurant

 | and the state | Dates Magnitud

 | test linguist brins

 | a conception in a loss 1 Unique | LINE RECEIPTING
 | All Party in the second | 10 With quarkers of South are Minist Papers (10)
2020 Constraint of Respirators (2) | WERE COMPANY
 | Paulines Rubbyllion Dia
 |
 | Intel Street Street, Lotter, | a lateries | CONCINCTION AND A DESCRIPTION OF A DESCR | AAT WATER OF A DECK | MARKAN STREET
 | | | |
| | Noticeaster Country In-

 | public distances in | 18100 Linguistics

 | Iner Ingenied STORY

 | And Address of Concession, Name | 1
 | And Annual and Annual and Annual Annua | 100 Constant Company Internation | ALTELL Logender
 | 100 HT
 | 44.00
 | and Amazon Statistics and | a Dubatta | HANDRENA | AATOO PART
 | Contact and a local | | | (dee |
| 222 | All Insuited Disputed Lines

 | and Annual I | Internet Second

 | had Deputed Marcella

 | A NUMERICAL ADDRESS CONTRACTOR | ALC: NOTE: N
 | Real Property lines | The first and investigation in the second se | N 1714 / Thioppoled
 |
 | |
 | | | |
 | | | 7 Ref |
| | Strengthe Installed Lines

 | |

 |

 | |
 | and the second s | ALL Virgener allergeben (1) | PERFORCE Comproduce
 |
 |
 | The second second second second | | |
 | | | | |
| paired . | Millinguist Singulat Sing

 | paint and and a second second | Internet Linguistics

 | and Install Married

 | a National State State State | in a new
 | Millingenter MA | 1000 Operations of Records 00
1000 Description (Records 00
1000 Description Operations) Description | W 2014 C W Cognide
W 2014 C W Cognide
W 2014 C W Cognide
 | test Mit

 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ALCONOMA DA | R Rama COLM | ILCON.
 | AALG AREAT | CALLS IN THE PARTY | | | |
| | A Monachel Ungester Ung
R Minachel Degester Ung
R Minachel Ungester Ung

 | andre Allen andre | INTERN Depender
INTERN Depender
Unternet Mittel II
INTERN Depender
INTERN Depender

 | han Dopola MICON
Ann Dopola BICAN
Market BICAN
Ann Dopola
Ann Dopola

 | E-MATCHINE MATCHINE COMPANY | and a second sec
 | WHICH Applied MA
WHICH APPLIE | IDA - Vicuation of Regulation Dis-
Distributions of Regulation Dis-
Distributions of Article Computers No.
Distributions of Article architect Argument Dis-
Distributions of Article architect Argument Dis-
Distributions of Article architect Argument Dis- | NEXALL Viception
NEXALL Viception
EXCRANT Viception
Exception
Exception
Net SECOND
 | tan Mit
Ma Hou
Ma Mit
Ma Mit
 | | Alternational and a state | NUMBER COUNT
 | TRACING
TOPE TREET | AANG KINET
KANNET
METERALA | COLORN DU O POLO
A SURVEY
MERCIPLACE
 | | | Da |
| nini
nini
nini
nini
nini | Alformatic Unputs In
Alformatic In-

 | andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
andar
an
an
an
an | RECENT Linguister
INCOME Ungester
Income USER
Income U

 | had Dopola MYCHE
And Dopola MYCHE
Michael MYCHE
And Dopola MYCHE
And Dopola MYCHE
Michael MYCHE
Michael MYCHE

 | A SALAWAYAYAYAYAYAYAYAYAYAYAYAYAYAYAYAYAYAY | NATE:
 | MARTIN Comparison
Martin Comparison
Martin Comparison
Name of Comparison
Martin Comp | Idea Vicense and Amaginetics Idea Vicense | W KARA (W symbol
R (1997) Symbol
KARA (Symbol
KARA (Symbol
R (1997) Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbol
Symbo
 | National Market Street
 | | | E LANS COUNT
MANYS COUNT
MANYS STATE
MANYS STATE
PUTMEND STATE
PUTMEND STATE
 | IFACTOR
IPE STREET
MELOCOLOGIC PERT | | Distanti Content
1937-1937
Manufi La | | | 19m
 |
| anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
anited
an | E-Minigenited Unspected Uns
NUMEricanities Unspected
NUMEricanities Unspected
NUMEricanities Unspected
NUMEricanities Unspected
NUMEricanities Unspected
NUMEricanities Unspected
NUMEricanities Unspected
NUMERicanities Unspected
NUMERicanities Unspected
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERICANITIES
NUMERIC

 | and and an article and a second | INVERSI Loganiza
INVERSI Loganiza
Invente Milli XIX.
Invente Milli XIX.
Invente Milli XIX.
Invente Milli XIX.
Invente Loganiza
INVERSI LOGANIZA
INVE

 | Nant Supplie BETTER
South Supplies BECOM
New Supplies BECOM
South Supplies Allowing
South Supplies Allowing
South Supplies BECOM
South Supplies BECOM
South Supplies BECOM
South Statements
South Supplies BECOM
South Statements

 | A SALA AND AND AND A SALA AND A S | VALUE | Jaho Superson De Constanti de C | III. Visuation characteria (Comparison (Comparison Characteria (Comparison Characteria (Comparison Characteria (Comparison Characteria (Comparison (Compariso | BLOOK L'Ungeber BORNEL'S Supplie BLOOK L'Ungeber
 | National Market Ma
Market Market Mark
 | | A STATUS MAN AND A STATUS AND A | Rans COM
MATTER
MATTER
MATTER
PURAMATINA
PURAMATINA
NOT AMERICAN AND
 | IRACINO
TRE STRET
RECOLLER DE 1
RECOLLER DE 1
ANOLES EN 1911 | MANUAL MANY
MANYANA
MANYANA
MANYANA
MANYANA
MANYANA | Distantic Past
References
Manuertais
Manuertais
Manuertais
 | | NA. | Die |
| anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter
anter | A comparing Sector 1 and Sector

 | | BOLEN. Depute September Septemb

 | Net Description EVENDER Longenber EVENDER Name EVENDER

 | | NATE AND A DECEMBER OF A DECEM | Intel Augusta Maria
Mana Angela Mana Mana Mana Angela Mana Angela Maria
Mana Mana Mana Mana Mana Mana Mana Man | Idea of Segurities of Seg | N 1033 (V) register
N 1033 (V) register
 | Teach Mills
 |
 | | Ramin Clark
Marcine
Marcine
Published
Published
Rev American
Rev Ameri | LAN ING | AAN IG KINGST
RICH STREET
MARKET FLACH
MARKET FLACH
MARKET FREET
MARKET
MARKET | DELEN DI PEST
E STREET
METROPALS
METROPALS
METROPALS
METROPALS
METROPALS
METROPALS
METROPALS
METROPALS
 | | bal. | The . |
| nta
nta
nta
nta
nta
nta
nta
nta | Al Scientific Unspected Unspected Al Scientific Unspected Unspected Al Scientific Unspected Unspected Al Scientific Unspected Al Scientific Unspected Al Scientific Unspected Scientific Unspect

 | and and an and a second | INVERSI Iopenini
CALCULE Iopenini
Inventu MEREN Iopenini
Iopenini MEREN
Iopenini Iopenini
Iopenini Iopenini
Iopenini
Iopenini Iopenini
Iopenini Iopenini
Iopenini Iopenini
Iopenini Iopenini
Iopenini Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iopenini
Iop

 | Next: Despected REFERE
Next: Despected REFERENCE
Next: Next:
 | а самонарти на слата Сора
в слата с со стата Сора
в слата с со стата Сора
в слата с со стата Сора
в слата Сор | MATER
MATER
 | JACO Samolo Paris
Mana Samolo Paris
Namba Paris
Mala Angelo Paris | Exception Advantation Exception | K 4000 UP opplie
 | Teach Million
 | COL C | | Kanto CANE MATCIN MATCIN MATCIN MATCIN PURMAR SINA PURMAR SINA NO MATCIN SING
 | In ALCON
DEPENDENT
MELLOCALIPHENT
MELLOCALIPHENT
MELLOCALIPHENT
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
ACCOLUMN
AC | A A CO A DAYO I
A SANDAT
MARKAN PALIA
MARKAN PALIA
MARKAN
MARKAN
A CO A DAYA
A CO A DAYA | DE LAN LET PER I
L AL VELT
AL VELT ALS
MARTIN FALS
MARTIN FALS
MARTIN FALS
MARTIN FALS
MARTIN FALS
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MARTIN
MAR | | - | Dis
 |
| an An
an An
an
an An
an
an
an
an
an
an
an
an
an
a | 1.01 Complete Complete <td< td=""><td>and a set of the set o</td><td>REVERSING Imputite SELECT Marginite SELECT Marginite SELECT Lampite SELECT Lampite</td><td>Number MACCURE Standard MACCURE Standard MACCURE Name MACUUE Name MACUUE <td>A GARDAN CALL STATE A GARDAN CALL STATE A GARDAN A GA</td><td>AND AND AND AND AND AND AND AND AND AND</td><td>Interference 04 Interference 04 Standard 04</td><td>All of Sector Advantation of Parameters and Paramet</td><td>NASAL STransfeld NASAL STransfeld MASAL STransfeld Stransfeld MASAL Stransfeld Stransfeld MASAL Stransfeld</td><td>Territoria de la constante de</td><td>CENTRAL ACCOUNTS AND ACCOUNTS ACCOUNTS</td><td></td><td>American American Ances Ances</td><td>STANISTO
TOTAL TOTAL
TOTAL TOTAL
TOTAL TOTAL
TOTAL
STANISTICS TOTAL
AND AND AND AND AND
AND AND AND AND
AND AND
AND AND
AND AND
AND AND
AND AND AND AND AND
AND AND AND AND AND
AND AND AND AND AND AND
AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND</td><td>A NUL OBER 1
E TESTET
MERTER FALL
NUL OF HELE STATE
NUL OF HELE STATE
ALTER F
ALTER F
ALTER F
ALTER F
ALTER F</td><td>DELENSION PERI
REFERENCE
METHOD PERI
METHOD PERI
METH</td><td></td><td>N#</td><td>78-</td></td></td<> | and a set of the set o | REVERSING Imputite SELECT Marginite SELECT Marginite SELECT Lampite

 | Number MACCURE Standard MACCURE Standard MACCURE Name MACUUE Name MACUUE <td>A GARDAN CALL STATE A GARDAN CALL STATE A GARDAN A GA</td> <td>AND AND AND AND AND AND AND AND AND AND</td> <td>Interference 04 Interference 04 Standard 04</td> <td>All of Sector Advantation of Parameters and Paramet</td> <td>NASAL STransfeld NASAL STransfeld MASAL STransfeld Stransfeld MASAL Stransfeld Stransfeld MASAL Stransfeld</td> <td>Territoria de la constante de</td> <td>CENTRAL ACCOUNTS AND ACCOUNTS ACCOUNTS</td> <td></td> <td>American American Ances Ances</td> <td>STANISTO
TOTAL TOTAL
TOTAL TOTAL
TOTAL TOTAL
TOTAL
STANISTICS TOTAL
AND AND AND AND AND
AND AND AND AND
AND AND
AND AND
AND AND
AND AND
AND AND AND AND AND
AND AND AND AND AND
AND AND AND AND AND AND
AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND</td> <td>A NUL OBER 1
E TESTET
MERTER FALL
NUL OF HELE STATE
NUL OF HELE STATE
ALTER F
ALTER F
ALTER F
ALTER F
ALTER F</td> <td>DELENSION PERI
REFERENCE
METHOD PERI
METHOD PERI
METH</td> <td></td> <td>N#</td> <td>78-</td> | A GARDAN CALL STATE A GARDAN CALL STATE A GARDAN A GA | AND
 | Interference 04 Interference 04 Standard 04 | All of Sector Advantation of Parameters and Paramet | NASAL STransfeld NASAL STransfeld MASAL STransfeld Stransfeld MASAL Stransfeld Stransfeld MASAL Stransfeld
 | Territoria de la constante de
 | CENTRAL ACCOUNTS AND ACCOUNTS | | American American Ances | STANISTO
TOTAL TOTAL
TOTAL TOTAL
TOTAL TOTAL
TOTAL
STANISTICS TOTAL
AND AND AND AND AND
AND AND AND AND
AND AND
AND AND
AND AND
AND AND
AND AND AND AND AND
AND AND AND AND AND
AND AND AND AND AND AND
AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND
AND AND AND AND AND AND AND AND AND AND
 | A NUL OBER 1
E TESTET
MERTER FALL
NUL OF HELE STATE
NUL OF HELE STATE
ALTER F
ALTER F
ALTER F
ALTER F
ALTER F | DELENSION PERI
REFERENCE
METHOD PERI
METHOD PERI
METH | | N# | 78- |
| and
and
and
and
and
and
and
and | X 20 CompAtion Com

 | and a second sec | NUCLEAR Language
Table Control of the second
NUCLEAR CONTROL

 | Desc Description Constant Des
 | A GEORGET SUCCESS |
 | 1000000000000000000000000000000000000 | ECCOUNT And Annual | Original Constraints Original Statements
 | ten Mill
Mill Bill
And Bill
Mill
Mill
Mill
Mill
Mill
Mill
Mill
 | Control of the c |
 | Auris CODE
MORE
AURIS
VICE
VICE
VICE
VICE
VICE
VICE
VICE
VICE | HALLED
THE CONSTRUCT
MILLION FROM
MILLION FROM
AUTOMATION
AUTOMATION
MILLION FROM
MILLION FROM
M | ANGUNESI
NGANGANA
NGANGANA
NGANGANA
NGANGANA
ANGUNESI
NGANA
NGANA | DE LEN DE HELT
N. MORT
N. MORT
NEL DE LES DE LES DE LES DE
LES DE LES DE LES DE LES DE
LES DE LES DE LES DE
LES DE
LES DE LES DE
LES DE | | N# | 78m |
| and a second sec | Add particle Upperfile Upperfile Upperfile Upperfile

 | ALL WALLSTEER | NUCLY Logical Control

 | Image Secold MEXTER Image Secold Secold Image Secold <td>A CONTROL OF SUCCESS A CONTROL OF SUC</td> <td></td> <td>Attribute Mathematical Mathematical Attribute Attribute Mathemati</td> <td>A second second</td> <td>0 0.0000 0 0.0000</td> <td>Inst. Mill Star Star Star<!--</td--><td>J. 100 J. 100 CPU A color CPU A color</td><td></td><td>Kana GAN Kana GAN</td><td>ANALINE
TOPE TOPET
MELLONGUE MELL
MELLONGUE MELL
MELLONGUE MELL
ANALINE
ANALINE
MELLONGUE MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONE</td><td>AAUGUNET
AUREN
AURENAU
AURENAU
AURENAU
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUR</td><td>Source and the second s</td><td></td><td>54
54</td><td>Dan</td></td> | A CONTROL OF SUCCESS A CONTROL OF SUC |
 | Attribute Mathematical Mathematical Attribute Attribute Mathemati | A second | 0 0.0000
 | Inst. Mill Star Star Star </td <td>J. 100 J. 100 CPU A color CPU A color</td> <td></td> <td>Kana GAN Kana GAN</td> <td>ANALINE
TOPE TOPET
MELLONGUE MELL
MELLONGUE MELL
MELLONGUE MELL
ANALINE
ANALINE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONE</td> <td>AAUGUNET
AUREN
AURENAU
AURENAU
AURENAU
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUR</td> <td>Source and the second s</td> <td></td> <td>54
54</td> <td>Dan</td> | J. 100 J. 100 CPU A color | | Kana GAN
 | ANALINE
TOPE TOPET
MELLONGUE MELL
MELLONGUE MELL
MELLONGUE MELL
ANALINE
ANALINE
MELLONGUE MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONGUE
MELLONE | AAUGUNET
AUREN
AURENAU
AURENAU
AURENAU
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUREN
AUR | Source and the second s | | 54
54 | Dan |
| and a second sec |

 | All (19.17) All (19.1 | North M. North M. Nort M. North M. </td <td>Image Section Image Section Image</td> <td></td> <td>ALCONTRACTOR</td> <td></td> <td>The Second According to the Second Se</td> <td>OFFICE OFFICE OFFICE</td> <td>Test Mill Star Dial Star<td>0.1 0.1 0.1 0.1 0.0 0.1</td><td></td><td>Kara CAM Kara CAM</td><td>A ALLAND
THE A DEAL
THE A DE</td><td></td><td>COLLEGATION CONTRACTOR
NAMES OF A CONTRACTOR
NAMES OF A CONTRACTOR
DESCRIPTION OF A CONTRACTOR
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTIO</td><td></td><td>54
54</td><td>Ba</td></td>
 | Image Section Image
 |
 | ALCONTRACTOR |
 | The Second According to the Second Se | OFFICE OFFICE
 | Test Mill Star Dial Star <td>0.1 0.1 0.1 0.1 0.0 0.1</td> <td></td> <td>Kara CAM Kara CAM</td> <td>A ALLAND
THE A DEAL
THE A DE</td> <td></td> <td>COLLEGATION CONTRACTOR
NAMES OF A CONTRACTOR
NAMES OF A CONTRACTOR
DESCRIPTION OF A CONTRACTOR
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTIO</td> <td></td> <td>54
54</td> <td>Ba</td> | 0.1 0.1 0.1 0.1 0.0 0.1 |
 | Kara CAM | A ALLAND
THE A DEAL
THE A DE | | COLLEGATION CONTRACTOR
NAMES OF A CONTRACTOR
NAMES OF A CONTRACTOR
DESCRIPTION OF A CONTRACTOR
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTION
DESCRIPTIO | | 54
54 | Ba
 |
| ning of the second seco |

 | All (0.1/0.000 All (0.1 | North North North <td>Image Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Secon</td> <td>A CONTROL OF A CATALON AND A CATALON AN</td> <td>MATERIA</td> <td></td> <td>The second secon</td> <td>Bit 2011 Parallel
2012 Parallel
2012</td> <td>Inst. MI. Var. Status Var.</td> <td>0.0 0.0 0.0 0.0</td> <td></td> <td>Auto Cole
Auto Cole</td> <td>A ALLAN
THE CONTACT
ALLAND AND AND A
MILLION ALLAND A
MILLION</td> <td>AANGLINEST
TURNET
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN</td> <td></td> <td></td> <td>54
54</td>
<td>Ba.</td> | Image Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Second
Secon
 | A CONTROL OF A CATALON AND A CATALON AN | MATERIA
 | | The second secon | Bit 2011 Parallel
2012
 | Inst. MI. Var. Status Var.
 | 0.0 0.0
 | Auto Cole
Auto Cole | A ALLAN
THE CONTACT
ALLAND AND AND A
MILLION ALLAND A
MILLION | AANGLINEST
TURNET
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN
MURICIALSAN | | | 54
54 | Ba.
 |
| 6 |

 | | North A Sender A

 | Non- Non- <th< td=""><td>A CONTROL STATUT A CO</td><td></td><td>Mathematical Mathematical Mathematical 1000000000000000000000000000000000000</td><td>The Second Processing Second S</td><td>000000 Paratelete 000000 Paratelete 0000000 Paratelete 00000000000 Parat</td><td>Nut Mit Card game March Mit</td><td>0.0 0.0 0.0</td><td></td><td>Autor Load
Autor Load</td><td>HALLING
THE DESIGN FUEL
MERICA FUEL
MERICA FUEL
AND ALLING
AND ALI</td><td>ALICE INFO</td><td></td><td></td><td>54
54</td><td>Da.</td></th<>
 | A CONTROL STATUT A CO | | Mathematical Mathematical Mathematical 1000000000000000000000000000000000000
 | The Second Processing Second S | 000000 Paratelete 0000000 Paratelete 00000000000 Parat
 | Nut Mit Card game March Mit
 | 0.0 0.0 0.0 | | Autor Load
Autor Load | HALLING
THE DESIGN FUEL
MERICA FUEL
MERICA FUEL
AND ALLING
AND ALI | ALICE INFO |
 | | 54
54 | Da. |
| a (a) (b) (b) (b) (b) (b) (b) (b) (b) (b) (b |

 | |

 | Image Image Image Image Image Image <td< td=""><td>A CAREFORM CAREFUL CAREFU</td><td></td><td>Alter Control Control Status Control Control</td><td>International Approximation of the second se</td><td>1 2</td><td>Not Mit Cord agent Margin Mit Margin Margin Mit</td><td>0 0</td><td></td><td>A ANY LOAD
ANY LOAD
A</td><td>I AL LINE
INCLUDENCE AND AND AND AND AND AND AND AND AND AND</td><td>ALTO TRACT
ALTO TRACE
RELEVANT
RELEVANT
ALTO TRACE
ALTO TRACE
ALTO</td><td></td><td></td><td>54</td><td>54</td></td<>
 | A CAREFORM CAREFUL CAREFU |
 | Alter Control Control Status Control Control | International Approximation of the second se | 1 2
 | Not Mit Cord agent Margin Mit Margin
 | 0 | | A ANY LOAD
ANY LOAD
A | I AL LINE
INCLUDENCE AND | ALTO TRACT
ALTO TRACE
RELEVANT
RELEVANT
ALTO TRACE
ALTO
 | | | 54 | 54 |
| 1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000
1000 |

 | | 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2021 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024 2024

 | No. No. No.

 | Advanced International Constraints Advanced Inte |
 | | The second second | 1 2012 2013 20
 | Number Mail Carl generation Mail Carl generation Mail Marrier Mai
 | 0.0 0.0 0.0 | | Printer College
Microsoft
Printer College
Microsoft
Printer College
Microsoft
Microsoft
Printer College
Microsoft
Printer | Hard Late
Machine Market
Machine Market
Machine Market
All Market
All Market
All
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Market
Marke | A LEAST NEEDS AND A LEAST NEED | | | 4 | Sec. |
| A provide a second seco |

 | | 200244 20044 200245 20044 <td>No. No. No.<td></td><td></td><td></td><td></td><td>10000 10000 10000<td>Not Mit Carl agent Margin Mit Carl agent Margin Mit Margin Margin Mit</td><td>0 0 0 0 0 0</td><td></td><td>A
CLARK
MERCE
ACCESSION
PLANAERINA
PLANAERINA
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINAERINAERINAERINAERINAER</td><td>I AL LINE
MALE AND A DESCRIPTION
MALE AND A DESCRIPTION
ADDRESS AND A DE</td><td>A LO DE MAI
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
ALLES MARCENTALS
ALLES M</td><td></td><td></td><td>54
54</td><td>16a
</td></td></td> | No. No. <td></td> <td></td> <td></td> <td></td> <td>10000 10000 10000 10000 10000 10000 10000 10000 10000
 10000 10000 10000 10000<td>Not Mit Carl agent Margin Mit Carl agent Margin Mit Margin Margin Mit</td><td>0 0 0 0 0 0</td><td></td><td>A CLARK
MERCE
ACCESSION
PLANAERINA
PLANAERINA
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINAERINAERINAERINAERINAER</td><td>I AL LINE
MALE AND A DESCRIPTION
MALE AND A DESCRIPTION
ADDRESS AND A DE</td><td>A LO DE MAI
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
ALLES MARCENTALS
ALLES M</td><td></td><td></td><td>54
54</td><td>16a
</td></td>
 | |
 | | | 10000 10000 10000 <td>Not Mit Carl agent Margin Mit Carl agent Margin Mit Margin Margin Mit</td> <td>0 0 0 0 0 0</td> <td></td> <td>A
CLARK
MERCE
ACCESSION
PLANAERINA
PLANAERINA
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINAERINAERINAERINAERINAER</td> <td>I AL LINE
MALE AND A DESCRIPTION
MALE AND A DESCRIPTION
ADDRESS AND A DE</td> <td>A LO DE MAI
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
ALLES MARCENTALS
ALLES M</td> <td></td> <td></td> <td>54
54</td> <td>16a
</td> | Not Mit Carl agent Margin Mit Carl agent Margin Mit Margin
 | 0 0 0 0 0 0 | | A CLARK
MERCE
ACCESSION
PLANAERINA
PLANAERINA
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
ACCESSION
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINA
PLANAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINA
PLANAERINAERINAERINAERINAERINAERINAERINAER
 | I AL LINE
MALE AND A DESCRIPTION
MALE AND A DESCRIPTION
ADDRESS AND A DE | A LO DE MAI
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
MARCENTALS
ALLES MARCENTALS
ALLES M | | | 54
54 | 16a
 |
| |

 | |

 | Sec. Sec. Sec.

 | |
 | | | 30000 30000 30000 <td></td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td>Antonio
California
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marc</td> <td>Hard Hall
Machine Market
Machine Market
Machine Market
Ampune Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampu</td> <td></td> <td></td> <td></td> <td>54
54
54</td> <td>18m</td> |
 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 | | Antonio California
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marcia
Marc | Hard Hall
Machine Market
Machine Market
Machine Market
Ampune Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampune
Ampu |
 | | | 54
54
54 | 18m |
| |

 | |

 | No. No. <td></td> <td></td> <td></td> <td>Comparing a second second</td> <td>40000 30000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 <td< td=""><td>No.1 Million Strateging Strateging Strateging Straeging Strategi</td><td>1 0</td><td></td><td>A
CLARK
MERCE
MERCE
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT</td><td>Market Market Ma</td><td></td><td></td><td></td><td>54
54
54</td><td>364
264
264</td></td<></td>
 | | |
 | Comparing a second | 40000 30000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 30000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 40000 <td< td=""><td>No.1 Million Strateging Strateging Strateging Straeging Strategi</td><td>1 0</td><td></td><td>A CLARK
MERCE
MERCE
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT</td><td>Market Market Ma</td><td></td><td></td><td></td><td>54
54
54</td><td>364
264
264</td></td<> | No.1 Million Strateging Strateging Strateging Straeging Strategi

 1 0 | | A CLARK
MERCE
MERCE
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT
PERCENT | Market Ma |
 | | | 54
54
54 | 364
264
264 |
| |

 | ALL DATABAT
ALL D |

 |

 | |
 | | | Second
 |
 | 1 3 |
 | And Annual Annua | And State
State 2014
State 2 | | | | 54
54
54 | 54
12
14
 |
| |

 | ALL DATABAS
ALL DATASAS
ALL D |

 |

 | |
 | | Construction of the second secon | Second
 | March March March <td></td> <td></td> <td>Values and a second sec</td> <td>And the
much state of the
much state of the
state of th</td> <td></td> <td></td> <td></td> <td>54
54
54</td> <td>54
(55
(55</td> |
 | | Values and a second sec | And the
much state of the
much state of the
state of th | |
 | | 54
54
54 | 54
(55
(55 |
| |

 | |

 |

 | |
 | | Bit States of Applications of | 2000 2000 2000
 | Norm Norm Contractional Science Contractio
 | 1 0.000 1 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 2 0.000 3 0.000 3 0.000 4 0.000 4 0.000 4 0.000 4 0.000 4 0.000 4 0.000 4 0.000 4 0.000 4 0.0000 4 0.0000 4 0.0000 4 0.0000 4 0.0000 4 0.0000 4 0.0000 4 0.0000 4< |
 | A CARACTERICA CONTRACTOR OF CO | | |
 | | 54
54
54
54
54
54
54
54
54
54
54
54
54
5 | |
| |

 | |

 |

 | |
 | | | 3
 |

 | | | A Des Calificación de la construcción de la constru | A DE LE DE L | |
 | | 54
54
54
54
54
54
54
54
54
54
54
54
54
5 | 25.
26.
26. |
| |

 | |

 |

 | |
 | | | Bit (1) Bit (2) Bit (2) <t< td=""><td>Total 200 Total Total 200 Total Total Total Total 200 Total Tota</td><td></td><td></td><td> Jacobie Marcine Science Vietnami Control Con</td><td></td><td></td><td></td><td></td><td>54
54
54
54
54
54
55
55
55
55
55
55
55
5</td><td>25.
26.
26.</td></t<>
 | Total 200 Total Total Total Total 200 Total Tota
 | | | Jacobie Marcine Science Vietnami Control Con |
 | | | | 54
54
54
54
54
54
55
55
55
55
55
55
55
5 | 25.
26.
26.
 |
| |

 | |

 |

 | |
 | | | 3
 | Taria Sec. Taria Mat. Mat. Mat. <t< td=""><td></td><td></td><td>Apple of the second secon</td><td></td><td></td><td></td><td></td><td>-</td><td>55
56
56</td></t<>
 |
 | | Apple of the second secon | | |
 | | - | 55
56
56 |
| |

 | |

 |

 | |
 | | | 3
 |

 | | | Jacobi Collimation (Collimation) Collimation (Collimation) <l< td=""><td></td><td></td><td></td><td></td><td>4
9
9</td><td>Na la la</td></l<> | |
 | | | 4
9
9 | Na la |
| |

 | |

 |

 | |
 | | |
 |

 | | | Jacobi Material Control of Cont | |
 | | | | NA |
| |

 | |

 |

 | |
 | | | 3 2000
 2000 2000 2000 2000 2000 2000 2000 2000 20 |

 | | | Anderson (1999) A | |
 | | | 9
9
9 | No |
| |

 | |

 |

 | |
 | | | 3
 |

 | | | Marcine Control of C | |
 | Automatical Automatiter Automatical Automatical Automatical Automatical | | - | NA |
| |

 | |

 |

 | |
 | | |
 |

 | | | a production of the second sec | |
 | | | -
-
-
-
- | No |
| |

 | |

 |

 | |
 | | | 3
 |

 | | | |
 | | ADDER A | | - | 50
50
50
50
50
50
50
50
50
50
50
50
50
5 |
| |

 | |

 |

 | |
 | | | 1 1000
 1000 1000 1000 1000 1000 10000 1000 1000 1 |

 | | | Jane Jane Jane Jane Jane Jane Jane Jane |
 | | | | -
-
-
- | |
| |

 | |

 |

 | |
 | | | 1
 | Mathematical Mathematical Mathematical Tardination 100 100 Tardination
 |
 | | a particular
a | |
 | and and an and an | | | 50 |
| |

 | |

 |

 | |
 | | | 1
 | Mathematical Mathematical Mathematical Standball Standball Standball Standball Standball
 |
 | | January Mathematical Sciences January January Janu | |
 | ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
ananya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
anya
ananya
ananya
ananya
ananya
ananya
ananya | | | |
| |

 | |

 |

 | |
 | | | 100 200 100
 | And Spin Status S
 |
 | | Jane Jane Jane Jane Jane Jane Jane Jane | |
 | and and an and an and an and an | | | Sea |
| |

 | |

 |

 | |
 | | | 100 200 100
 |

 | | | |
 | | and and an and an | | | |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | |
 | | autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
autoritation
au | | -
-
- | |
| |

 | |

 |

 | |
 | | | 100 200 200
 | Y Y A A

 | | | a particular
a | |
 | and and an and an and an and an and an and an | | -
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
- | |
| |

 | |

 |

 | |
 | | | 1 100 2
 |

 | | | a production of the sector of | |
 | Automation A | | 4
4
4
4
4
4
4
4
4
4
4
4
4
4
4
4
4
4
4 | |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | Ansate of the sector of t | | La control de la | a conservation
a conservation
 | | | No. No. No. |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | Antipation < | |
 | Augustantes Augustant | | -
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
- | Same |
| |

 | |

 |

 | | Martine Martine <td< td=""><td></td><td></td><td>100 100</td></td<> <td></td> <td></td> <td></td> <td> Antipation Antipation</td> <td></td> <td></td> <td>Extension Extension Extension</td> <td></td> <td></td> <td>An An An An</td> |
 | | 100
 |
 | | | Antipation Antipation
 | | | Extension | | | An An |
| |

 | |

 |

 | |
 | | | 100 200 200
 | An and a set of a set
 |
 | | Antipation | | La control de la | additional and a second an | |
 | |
| |

 | |

 |

 | |
 | | | 100 200 200 200 200 200
 |

 | | | Antipation Antipation | |
 | and and an and an and an and an and an and an | | -
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
- | |
| |

 | |

 |

 | |
 | | | 100 200 100
 |

 | | | Additional and a second an | |
 | | | | |
| |

 | |

 |

 | | A series of the
 | | | 100 100 <td>Set Set Set Set Set</td> <td></td> <td></td> <td> Anteriori, Campanya, Ca</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>
 | Set Set Set
 | | | Anteriori, Campanya, Ca
 | | | | | |
 |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | Additional and a second an | |
 | | | | |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | Additional and a second an | |
 | Enclose E | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Additional and a second an</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Image: Section of the sectio</td> |
 | |
 | Additional and a second an | | |
 | | | Image: Section of the sectio |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Additional and a second an</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Additional and a second an | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Automatical and automatical and automate and automatical and automatical and automatical and automatical</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Automatical and automate and automatical and automatical and automatical and automatical | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 200 200
 |

 | | | Additional and a second an | |
 | | | | |
| |

 | |

 |

 | |
 | | | 100 200
 200 200 200 200 200 200 <td></td> <td></td> <td></td> <td>Additional and a second an</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Additional and a second an | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Additional and a second an</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Additional and a second an | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Automatical and automatical and automate and automatical and automatical and automatical and automatical</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Automatical and automate and automatical and automatical and automatical and automatical | | |
 | | | |
| |

 | |

 |

 | |
 | | | 1 100 20
 20 20 20< |

 | | | Additional and a second an | |
 | Energy and a second secon | | | |
| |

 | |

 |

 | | Bartonico Bartonico
 | | | 100 100 <td></td> <td></td> <td></td> <td>Automatical and automatical and automate and automatical and automatical and automatical and automatical</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>
 |
 | |
 | Automatical and automate and automatical and automatical and automatical and automatical | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Autors Autors Autor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> |
 |
 | | Autors Autor | | |
 | | | |
| |

 | |

 |

 | |
 | | | 100 100
 100 100 100 100 100 100 <td></td> <td></td> <td></td> <td>Autors of the sector of t</td> <td></td> <td>Australiant Australiant Australia</td> <td></td> <td></td> <td></td> <td></td> |
 | |
 | Autors of the sector of t | | Australiant Australia | | | |
 |

Data profiling refers to the activity of creating small but informative summaries of a database.

Ted Johnson, Encyclopedia of Database Systems

Category	Task	Description
Cardinalities	num-rows	Number of rows
	value length	Measurements of value lengths (min, max, median, and average)
	null values	Number or percentage of null values
	distinct	Number of distinct values; aka "cardinality"
	uniqueness	Number of distinct values divided by number of rows
Value distributions	histogram	Frequency histograms (equi-width, equi-depth, etc.)
	constancy	Frequency of most frequent value divided by number of rows
		Three points that divide the (numeric) values into four equal
	quartiles	groups
	soundex	Distribution of soundex codes
	first digit	Distribution of first digit in numeric values (Benford's law)
Patterns, data		
types, and domains	basic type	Generic data type: numeric, alphabetic, date, time
	data type	Concrete DBMS-specific data type: varchar, timestamp, etc.
	decimals	Maximum number of decimal places in numeric values
	precision	Maximum number of digits in numeric values
	patterns	Histogram of value patterns (Aa9)
		Semantic, generic data type: code, indicator, text, date/time,
	data class	quantity, identifier, etc.
		Classification of semantic domain: credit card, first name, city,
	domain	phenotype, etc.

© Felix Naumann. Data Profiling, New York, 2017 (http://stats.research.att.com/nycseminars/slides/naumann.pdf)



Benford's law, also called the law of anomalous numbers, is an observation about the frequency distribution of leading digits in many reallife sets of numerical data.

The law states that the leading significant digit is likely to be small. That is, the number 1 appears as the leading significant digit about 30% of the time, while 9 appears as the leading significant digit less than







2019 Campaign Contributions 2019 Campaign Expenditures

Count frequency of first digit for values in attribute *amnt* (amount) in the 2017 Campaign Contributions and Expenditures tables.

```
SELECT fd, COUNT(*)
FROM (
    SELECT LEFT(CAST(amnt AS VARCHAR), 1) AS fd
    FROM ds_s9d3_x4fz WHERE amnt >= 0
) q GROUP BY fd ORDER BY fd;
```







Data profiling

Classification of Data Profiling Tasks

Single column	Cardinalities		
	Patterns and data types	See Abedjan, Golab,	
	Value distributions	Relational Data – A Survey	
Г	Correlations & association rules	for overview on Data Profiling.	
- Multiple columns -	Clusters & outliers		
	Summaries & sketches		
		Key discovery	
Γ	Uniqueness	Conditional	
Dependencies		Partial	
		Foreign key discovery	
	Inclusion dependencies	Conditional	
		Partial	
		Conditional	



Query optimization

Counts and histograms, functional dependencies, ...

Data cleaning

Patterns, rules, and violations

Data integration

Cross-DB inclusion dependencies

Data analytics and mining

Profiling as preparation to decide on models and questions Discover datasets that meet certain requirements

Database reverse engineering

See [Abedjan, Golab, Naumann. 2015] for overview on Data Profiling.

Simple Steps

Sorting and Cardinalities



DOB Job Application Filings (ic3t-wcy2)

https://data.cityofnewyork.us/Housing-Development/DOB-Job-Application-Filings/ic3t-wcy2



About this Dataset

Updated October 9, 2019			Update		
			Update Frequency	Daily	
Data Last Updated	Metadata	Last Updated	Automation	Yes	
	June 20, 2	,2015	Date Made Public	4/26/2013	
Date Created April 18, 2013			Dataset Information		
Views	Downloa	ds	Agency	Department of Buildings (DOB)	
2.22M	26.4K	Detroit	Attachments		
Department of Build	dings	Owner	DD_DOB Job Application Filings_	_2019-06-19.xlsx	
(DOB)		NYC OpenData	Topics		
			Category	Housing & Development	
			Tags	job, dob, buildings	

What's in this Dataset?

Rows Columns

🌾 NYU	D	OB Jo	b Ap	Owner's First Name	First Name of property owner
				Owner's Last Name	Last Name of property owner
https://data.cityofnewyork.us/Ho	ousing-Development/D	OB-Job-Applic	ation-Filings/i	Owner's Business Name	Business Name of Property Owner
NYC OpenData	Home Data	About \checkmark Learn \checkmark	Alerts Contact U:	Owner's House Number	House Number of Property Owner
				Owner'sHouse Street Name	House Street Name of Property Owner
DOB Job Application Filing	Housing & Development	View	/ Data Visualize 🗸	City	City
This dataset contains all job applications subm eFiling, or through the HUB, which have a "Lat	itted through the Borough Office est Action Date" since January 1,	s, through 2000. This	Updated October 9, 2019	State	State
dataset does not include jobs submitted throug Application Filings dataset for DOB NOW jobs.	gh DOB NOW. See the DOB NOW	/: Build – Job	Data Provided by Department of Bu	Zip	Zip
Less				Owner'sPhone #	Owner's Phone #
About this Dataset				Job Description	Job Description
Updated	Update			DOBRunDate	Date when query is run and pushed to Open Data.
October 9, 2019	Update Frequency	Daily	-	JOB_S1_NO	JOB_S1_NO
October 9, 2019 June 20, 2019	Automation	Yes			
Date Created	Date Made Public 4/26/2013		-	TOTAL_CONSTRUCTION_FLOOR_AREA	Total Construction Floor Area
April 18, 2013	Dataset Information		WITHDRAWAL_FLAG	Withdrawal Indicator	
2.22M 26.4K	Agency	Department of Building	gs (DOB)	SIGNOFF_DATE	Sign-off Date
Data Provided by Dataset Department of Buildings Owner (DOB) NYC OpenData	DD_DOB Job Application Filings	_2019-06-19.xlsx	-	SPECIAL_ACTION_STATUS	Special Action Status
	Topics		SPECIAL_ACTION_DATE	Special Action Date	
	Category	Housing & Developmer	nt		
	Tags	job, dob, buildings		BUILDING_CLASS	Building Class
			- 1	JOB_NO_GOOD_COUNT	Job No Good Count
What's in this Dataset?				GIS_LATITUDE	Latitude
RowsColumns1.7M96				GIS_LONGITUDE	Longitude



Distinct values for attribute *business name (of property owner)* sorted in **ascending** order.

SELECT DISTINCT(owner_s_business_name) FROM ds_ic3t_wcy2
ORDER BY owner_s_business_name LIMIT 50;

owner_s_business_name	
??	



Distinct values for attribute *business name (of property owner)* sorted in **ascending** order.

SELECT DISTINCT(owner_s_business_name) FROM ds_ic3t_wcy2
ORDER BY owner s business name LIMIT 50;

////////		
/////////		
///////////////////////////////////////		

+++++++++++++++++++++++++++++++++++++++		
0		
000		
0000		
000000		
000 ENTERPRISE		
0010 WHITE STREET CORP		
0059 OWNERS CORP C/O HALSTEAD		
(50 rows)		

Distinct values for attribute *business name (of property owner)* sorted in **descending** order.

SELECT DISTINCT(owner_s_business_name) FROM ds_ic3t_wcy2
ORDER BY owner s business name DESC LIMIT 25;

owner s business name ZZZ HOME HOLDING LLC ZZZ CARPENTRY INC. Z & Z Spectacular Creation inc. ZZSI CORP. Z.Z.''S FOOD COURT Z. ZINDEL INC Z. Zindel Inc. Z&Z GROUP INC. Z & Z EXPRESS INC ZZELLENT, LLC Z & Z Development LLC Z&Z888 PROPERTY LLC Z & Y REALTY MANAGEMENT LLC ZYO LLC ZYP INC ZYP Inc. ZYP Inc Z.Y.P. ZYP Z YOUNG INC Z&Y NYC INC. ZY MANAGEMENT LLC (25 rows)


Distinct values for attribute *city* sorted in ascending order.

SELECT DISTINCT(city) FROM ds_ic3t_wcy2 ORDER BY city LIMIT 25;

city		
//////		
0000		
00000		
0ZONE PARK		
1		
100		
10010		
10012		
10013		
10016		
10017		
10021		
10022		
10023New York		
10025		
10036		
10036NY		
10153		
10314		
1041 Third Ave		
10452		
10462		
(25 rows)		



Distinct values for attribute *city* sorted in **descending** order.

SELECT DISTINCT(city) FROM ds_ic3t_wcy2 ORDER BY city DESC LIMIT 25;

city			
ZURICH			
ZONE PARK			
ZONE 1LONG ISLA			
ZIONSVILLE			
ZCOLLEGE POINT			
YSTATEN ISLAND			
YPNKERS			
YOURBA LINDA			
YOUNKERS			
YOUNGSTOWN			
YORNKERS			
YORKTOWN HTS			
Yorktown Hts.			
VORKEOWN HES			
YORK TOWN HIGHT			
YORKTOWN HGTS			
YORKTOWN HGHTS			
YORKTOWN HEIGTS			
YORKTOWN HEIGHT			
Yorktown Height			
yorktown height			
YORK TOWN HEIGH			
YORKTOWN			
(25 rows)			



Distinct values for attribute US state sorted in ascending order.

SELECT DISTINCT(state) FROM ds_ic3t_wcy2 ORDER BY state;

state	MT
	NC
AK	ND
AL	NE
AR	NH
AZ	NJ
CA	NM
CN	NV
CO	NY
CT	OH
DC	OK
DE	ON
FL	OR
FQ	PA
GA	PR
HI	RI
IA	SC
ID	SD
IL	SW
IN	TN
KS	TX
KY	UT
LA	VA
MA	VT
MD	WA
ME	IM
MI	WV
MN	WY
MO	
MS	(57 rows)

Frequency of distinct values for attribute US state sorted in ascending order.

SELECT DISTINCT(state), COUNT(*) FROM ds_ic3t_wcy2 GROUP BY state ORDER BY state;

state	count	МТ		2	
+		NC		1086	
AK	13	ND		10	
AL	12	NE		24	
AR	42	NH		118	
AZ I	201	NJ		26603	
CA	2704	NM		72	
CN	9	NV		304	
CO	241	NY		1649491	
CT	2722	OH		1076	
DC	320	OK		18	
DE	76	ON		7	
FL	2509	OR		15	
FQ	1	PA		1649	
GA	509	PR			
HI	29	RI		407	
IA	45	SC		147	
ID	3	SD		13	
IL	1932	SW		2	
IN	61	TN		245	
KS	109	TX		729	
KY	72	UT		158	
LA	23	VA		1016	
MA	1141	VT		62	
MD	892	WA		224	
ME	31	WI		96	
MI	269	WV		3	
MN	259	WY		13	
MO	96			60	
MS	3	(57 r	ows)		

Use master data as reference for correct values

https://simple.wikipedia.org/wiki/List_of_U.S._states

List [change | change source]

States of the United States of America								
	a sector between the sector of the	Ci	ties	=	Population	Total area ^[4]		
Name 🔶		Capital +	Largest ^[5] \$	Established(oppervaiping 1) ♦	[upper-alpha 2][3] •	mi ²	km² ≑	
🗙 Alabama	AL	Montgomery	Birmingham	Dec 14, 1819	4,874,747	52,420	135,767	
SJT Alaska	AK	Juneau	Anchorage	Jan 3, 1959	739,795	665,384	1,723,337	
🎬 Arizona	AZ	Pho	penix	Feb 14, 1912	7,016,270	113,990	295,234	
🐟 Arkansas	AR	Little	e Rock	Jun 15, 1836	3,004,279	53,179	137,732	
🙇 California	CA	Sacramento	Los Angeles	Sep 9, 1850	39,536,653	163,695	423,967	
Colorado	со	De	nver	Aug 1, 1876	5,607,154	104,094	269,601	
Sonnecticut	СТ	Hartford	Bridgeport	Jan 9, 1788	3,588,184	5,543	14,357	
👧 Delaware	DE	Dover	Wilmington	Dec 7, 1787	961,939	2,489	6,446	
🔀 Florida	FL	Tallahassee	Jacksonville	Mar 3, 1845	20,984,400	65,758	170,312	
🚾 Georgia	GA	Atl	anta	Jan 2, 1788	10,429,379	59,425	153,910	
🚝 Hawaii	н	Hor	nolulu	Aug 21, 1959	1,427,538	10,932	28,313	
💽 Idaho	ID	B	pise	Jul 3, 1890	1,716,943	83,569	216,443	
Illinois	IL	Springfield	Chicago	Dec 3, 1818	12,802,023	57,914	149,995	
👫 Indiana	IN	India	napolis	Dec 11, 1816	6,666,818	36,420	94,326	
a lowa	IA	Desi	Moines	Dec 28, 1846	3,145,711	56,273	145,746	
👲 Kansas	KS	Topeka	Wichita	Jan 29, 1861	2,913,123	82,278	213,100	
Kentucky ^[upper-alpha 3]	KY	Frankfort	Louisville	Jun 1, 1792	4,454,189	40,408	104,656	
😹 Louisiana	LA	Baton Rouge	New Orleans	Apr 30, 1812	4,684,333	52,378	135,659	
Maine	ME	Augusta	Portland	Mar 15, 1820	1,335,907	35,380	91,633	
🥦 Maryland	MD	Annapolis	Baltimore	Apr 28, 1788	6,052,177	12,406	32,131	
 Massachusetts^[upper-alpha 3] 	MA	Во	ston	Feb 6, 1788	6,859,819	10,554	27,336	
8 Michigan	MI	Lansing	Detroit	Jan 26, 1837	9,962,311	96,714	250,487	
Minnesota	MN	St. Paul	Minneapolis	May 11, 1858	5,576,606	86,936	225,163	
🚾 Mississippi	MS	Jac	kson	Dec 10, 1817	2,984,100	48,432	125,438	
💼 Missouri	МО	Jefferson City	Kansas City	Aug 10, 1821	6,113,532	69,707	180,540	
👅 Montana	MT	Helena	Billings	Nov 8, 1889	1,050,493	147,040	380,831	
Nebraska	NE	Lincoln	Omaha	Mar 1, 1867	1,920,076	77,348	200,330	
Nevada	NV	/ Carson City Las Vegas		Oct 31, 1864	2,998,039	110,572	286,380	
New Hampshire	NH	Concord Manchester		Jun 21, 1788	1,342,795	9,349	24,214	
New Jersey	NJ	Trenton Newark		Dec 18, 1787	9,005,644	8,723	22,591	
New Mexico	NM	Santa Fe Albuquerque		Jan 6, 1912	2,088,070	121,590	314,917	
a New York	NY	Albany New York		Jul 26, 1788	19,849,399	54,555	141,297	
North Carolina	NC	Raleigh	Charlotte	Nov 21, 1789	10,273,419	53,819	139,391	
😹 North Dakota	ND	Bismarck	Fargo	Nov 2, 1889	755,393	70,698	183,108	





Distinct values for attribute *US state* that are **not included in the master data**.

SELECT DISTINCT(state) FROM ds_ic3t_wcy2 EXCEPT SELECT abbrev FROM us_states;

state			
PR			
CN			
DC			
FQ			
ON			
SW			
(7 rows)			

Data Repair

Modify the Data to eliminate Quality Flaws

City and ZIP code for records where US state is FQ.

SELECT city, zip FROM ds_ic3t_wcy2 WHERE state = 'FQ';



City and ZIP code for records where US state is **sw**.

```
SELECT city, zip FROM ds_ic3t_wcy2 WHERE state = 'sw';
```

city	zip
Stockholm Stockholm (2 rows)	



City and ZIP code for records where US state is **ON**.

SELECT city, zip FROM ds_ic3t_wcy2 WHERE state = 'ON';

city_	zip
THORNHILL	 11240
THORNHILL	11240
QUEENS	11101
VAUGHAN	09865
VAUGHAN	09865
VAUGHAN	04011
VAUGHAN	11111
(7 rows)	

City and ZIP code for records where US state is CN.

SELECT city, zip FROM ds_ic3t_wcy2 WHERE state = 'CN';





Replace all incorrect spellings

Challenge: Identify all incorrect spellings

How many different spellings of Brooklyn are there in the dataset?

- Use fuzzy matching (string similarity search)
 - Soundex
 - String Edit Distance (Levenshtein Distance)

OpenData

DOB Job Application Fillings

City names that have same 'sound index' as BROOKLYN.

SELECT DISTINCT(UPPER(city)) AS name
FROM ds_ic3t_wcy2
WHERE SOUNDEX(city) = SOUNDEX('BROOKLYN')
ORDER BY UPPER(city);

B2ROOKLYN B4ROOKLYN BBBROOKLYN BBROOKLYN BERKELEY BERKELEY HEIGHT BERKELEY HTS BERKELEY HTS. BERKLEY HTS. BERKLEY HTS. BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BORRKLYN BORSALOM BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRICLIFF MANOR	name
B4ROOKLYN BBBROOKLYN BBROOKLYN BERKELEY BERKELEY HEIGHT BERKELEY HTS BERKELEY HTS BERKLEY HTS BERKLEY HTS BERKLEY HTS. BERNLEY HEIGHTS BERNOKLYN BFROOKLYN BOORKLYN BOOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN	B2ROOKLYN
BBBROOKLYN BBROOKLYN BERKELEY BERKELEY HEIGHT BERKELEY HTS BERKELEY HTS BERKLEY HTS. BERKLEY HTS. BERKLEY HTS. BERNOKLYN BFROOKLYN BOORKLYN BOOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN	B4ROOKLYN
BBROOKLYN BERKELEY BERKELEY HEIGHT BERKELEY HTS BERKLEY HTS BERKLEY BERKLEY HTS. BERKLEY HTS. BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLYN BOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN	BBBROOKLYN
BERKELEY BERKELEY HEIGHT BERKELEY HTS BERKLEY HTS. BERKLEY BERKLEY HEIGHTS BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLYN BOOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN	BBROOKLYN
BERKELEY HEIGHT BERKELEY HTS BERKLEY HTS. BERKLEY HTS. BERKLEY HEIGHTS BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BOORKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BERKELEY
BERKELEY HTS BERKELEY HTS. BERKLEY HTS. BERKLEY HEIGHTS BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BOORKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BERKELEY HEIGHT
BERKELEY HTS. BERKLEY HEIGHTS BERKLEY HEIGHTS BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BORRKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BERKELEY HTS
BERKLEY HEIGHTS BERKLEY HEIGHTS BERCOKLYN BERCOKLYN BFROOKLYN BOORKLY BOORKLYN BORSALOM BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BERKELEY HTS.
BERKLEY HEIGHTS BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BOORKLYN BORSALOM BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BREOOKLYN BRIIKLYN BRIOKLYN BRIOKLYN BRIOKLYN	BERKLEY
BERKLEY HTS. BEROOKLYN BFROOKLYN BOORKLY BOORKLYN BORSALOM BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BREOOKLYN BRIIKLYN BRIOKLYN BRIOKLYN BRIOOKLYN	BERKLEY HEIGHTS
BEROOKLYN BFROOKLYN BOORKLY BORRKLYN BORSALOM BROOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BERKLEY HTS.
BFROOKLYN BOORKLY BORRKLYN BORSALOM BROOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOKLYN	BEROOKLYN
BOORKLY BORRKLYN BORSALOM BROOKLYN BROOKLYN BR4OOKLYN BRAOOKLYN BREOKLYN BRIIKLYN BRIOKLYN BRIOKLYN	BFROOKLYN
BORRKLYN BORSALOM BROOKLYN BROOKLYN BRAOOKLYN BRAOOKLYN BREOOKLYN BRIIKLYN BRIOKLYN BRIOKLYN	BOORKLY
BORSALOM BROOKLYN BRAOOKLYN BRAOOKLYN BRAOOKLYN BREOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BORRKLYN
BR00KLYN BR400KLYN BR400KLYN BRA00KLYN BREO0KLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIO0KLYN	BORSALOM
BROOKLYN BRAOOKLYN BRAOOKLYN BREOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BROOKLYN
BR400KLYN BRAOOKLYN BREOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BROOKLYN
BRAOOKLYN BREOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BR400KLYN
BREOOKLYN BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BRAOOKLYN
BRIACLIFF MANOR BRIIKLYN BRIOKLYN BRIOOKLYN	BREOOKLYN
BRIIKLYN BRIOKLYN BRIOOKLYN	BRIACLIFF MANOR
BRIOKLYN BRIOOKLYN	BRIIKLYN
BRIOOKLYN	BRIOKLYN
	BRIOOKLYN

BRKKLYN BRKLLYN BRKLN BRKLY BRKLYN BROOKLYNTCHEN BROOKLYNY BROOKT YON BROOKLYTN BROOKLYU BROOKLYYN BROOKOLYN BROOKYL BROOKYLN BROOKYLYN BROOOKKLYN BROOOKLN BROOOKLYN BROOYKLN BRROKLY BRROKLYN BRROOKLYN BRRRKLYN BRUUKLYN BVROOKLYN (172 rows)

Soundex is a phonetic algorithm for indexing names by sound, as pronounced in English, ... so that they can be matched despite minor differences in spelling. The Soundex code for a name consists of a letter (the first letter of the name) followed by three numerical digits that encode the remaining consonants.

https://en.wikipedia.org/wiki/Soundex

SELECT SOUNDEX('BROOKLYN') = B624 SELECT SOUNDEX('QUEENS') = Q520

True Positive: Misspelling that is identified as such.

False Positive: Not a misspelling that is falsely identified as one.

True Negative: Not a misspelling that is not identified as one.

False Negative: Misspelling that is not identified as one.



name

DOB Job Application Fillings

City names that have are similar spellings to BROOKLYN.

```
SELECT DISTINCT(UPPER(city)) AS name FROM ds_ic3t_wcy2
WHERE LEVENSHTEIN (city, 'BROOKLYN', 1, 1, 1) < 3
ORDER BY UPPER(city);</pre>
```

B4ROOKLYN
BBBROOKLYN
BBOOKLYN
BBROOKLYN
BDOOKLYN
BEOKLYN
BEOOKLYN
BEOOKYN
BEROOKLYN
BFROOKLYN
BKOOKLYN
BKOOLYN
BLOOKLYN
BLOOKYN
BNROOKLYN
BOOKLYN
BOOOKLYN
BR00KLYN
BR00KLYN
BR400KLYN
BRAOOKLYN
BREOOKLYN
BRIIKLYN
BRIOOKLYN

BROOKLEN BROOKLEY BROOKLIN BROOKLINE BROOKLING BROOKLIYN BROOKLKN BROOKLKY BROOKLKYN BROOKLLYN BROOKLN BROOKLNM BROOKLNY BROOKLNYN BROOKLOYN BROOKLRN BROOKLTN BVROOKLYN

BVROOKLYN CROOKLYN NBROOKLYN NROOKLYN ROOKLYN ROOKLYN S BROOKLYN (171 rows) Edit Distance ... the minimum number of single-character edits (insertions, deletions or substitutions) required to change one word into the other.

https://en.wikipedia.org/wiki/Levenshtein_distance

levenshtein('BROOKLYN', 'BROOYKLN')?

BROOKLYN |||| | | BROOYKLN

3 x Replace

BROO-KLYN |||| || | BROOYKL-N

1 x Insert 1 x Delete



Imputation is the process of replacing missing data with substituted values

There have been many theories embraced by scientists to account for missing data but many of them introduce large amounts of bias.

Delete rows: "... the most common means of dealing with missing data is deletion."

Hot-deck: "... a missing value is imputed from a randomly selected similar record."

Mean substitution: "...replace a missing value with the mean of that variable for all other cases."

Regression: "A regression model is estimated to predict observed values of a variable based on other variables."

https://en.wikipedia.org/wiki/Imputation_(statistics)

F. Biesseman et al., "Deep" Learning for Missing Value Imputation in Tables with Non-Numerical Data, CIKM 2018.



Sometimes different text representations of NULL encode different semantics

"unknown"

There is a value, but I do not know it.

E.g.: Unknown date-of-birth

"not applicable"

There is no meaningful value.

E.g.: Spouse for singles

"withheld"

There is a value, but we are not authorized to see it.

E.g.: Private phone line

Frequency & Length Outliers

Identify values with different frequency or value length



Values in attribute phone number sorted by decreasing number of characters.

SELECT phone FROM ds_43nn_pn8j GROUP BY phone
ORDER BY LENGTH(phone) DESC LIMIT 20;

phone			
914 255 1158			
718 322 8500			
607 227 5536			
718 898 1900			
19175617545			
90172017170			
7189392800			
7189497446			
2123589800			
7187888001			
/18/889699			
91/0980449			
2124/30110			
3476491326			
7182720301			
2125875389			
3477036610			
7187227200			
(20 rows)			





school_sports





Values that frequently occur as high frequency outliers

Values that occur with frequency >50% in + 15,000 columns of NYC Open Data datasets (in Nov. 2016).

0	262	Co]	Lur	nns
N/A	71	-	″	-
UNSPECIFIED	67	-	″	-
S	57	-	"	-
-	50	-	″	-
0.00	47	-	″	-
NY	38	-	"	-
1	25	-	"	-
0.0	20	-	"	-
IND	12	-	″	-
CLOSED	10	-	″	-
100	8	-	″	-
NOT AVAILABLE	8	-	″	-
0 UNSPECIFIED	6	-	″	-
NONE	5	-	"	_

Feature-based Outliers

Use vector of value features to mine distance-based outliers



Example features derived from column values Value Frequency Value length Unique characters Digits (%) Letters (%) Whitespaces (%) **Special Characters (%) Character frequency**

Find outliers using the nested-loop algorithm described in [Knorr and Ng, VLDB 1998]. A value is considered an outlier if at least fraction **p** of the values in a column lies greater than distance **D** from the value.

VYU

Distance-based Outliers

A value is considered an outlier if at least fraction **p** of the values in a column lies greater than distance **D** from the value.







DOB Permit Issuance

owner_s_house_nr

- 100 A
- 100 W
- 100-01
- 100-02
- 100-04
- 100-05
- 100-08
- 100-09
- 100-10
- 100-106



DOB Permit Issuance

owner_s_house_nr



Value Frequency	0.1
Value length	0.71
Unique characters	0.8
Digits (%)	0.6
Letters (%)	0.2
Whitespaces (%)	0.2
Special Characters (%)	0
Character frequency	0.66

Value Frequency	0.1
Value length	0.86
Unique characters	0.5
Digits (%)	0.83
Letters (%)	0
Whitespaces (%)	0
Special Characters (%)	0.16
Character frequency	0.96



Distance-based Outliers for D = 0.4 and p = 0.75

NYU

...

A value is considered an outlier if at least fraction **p** of the values in a column lies greater than distance **D** from the value.

& SCHWAB	4	NORTH MGMT.	13
-C/O GOODMAN	3	NY REAL	3
1 PEN PLAZA	2	OF JESUS	1
1 UNION SQ.	4	OF THE CHURC	1
11 NEW STREE	2	One	13
c/o	1597	P O BOX	3
C/O 1ST SVS	1	P O BOX 313	7
C/O A.S.	2	P,O. BOX	1
C/O ABC	15	P. O.	44
C/O ABC PROP	4	WOODCREST	2
N/A	9	YELLOWSTONE	2
NARROWS MGMT	3	ZUCKERBROT	6
NEWMARK	1		1
		$\overline{c/o}$ Urban	1

c/o Urban

Different Representations

Same set of entities represented using different sets of terms

Frequency of distinct values for attribute borough.



Bureau of Fire Prevention - Certificates of Fitness

SELECT borough, COUNT(*) FROM ds_pdiy_9ae5
GROUP BY borough ORDER BY borough;

borough		count
 BK	+-	19699
BX		14314
MN		73381
QN		16843
SI		3726
		330
(6 rows)		



SELECT borough, COUNT(*) FROM ds_bty7_2jhb
GROUP BY borough ORDER BY borough;

borough	count	
BRONX	2150	035
BROOKLYN	5323	384
MANHATTAN	10080	004
QUEENS	5179	986
STATEN ISLAND	1551	117
(5 rows)		

Frequency of distinct values for attribute *borough*.



DOB Violations

boro		count
`	т- 	3
0		3
1		808657
2		239280
3		610038
4		365333
		57400
в		1091
Μ		1849
Q		396
		44
		2
(12 ro	ws	5)



Bureau of Fire Prevention - Certificates of Fitness

borough	!	count
BK		19699
BX	I	14314
MN		73381
QN		16843
SI		3726
		330
(6 rows)		

Historical DOB Permit Issuance

borough	count
BRONX	215035
BROOKLYN	532384
MANHATTAN	1008004
QUEENS	517986
STATEN ISLAND	155117
(5 rows)	

Integrity Constraints

Constraint violations highlight quality issues



Integrity constraints are a mechanism to define 'good' data



A dataset that satisfies all constraints is of high quality Constraint violations are indicators of quality problems

Challenge: Need a powerful language to express constraints

Data Type Constraints

Determine the type of each value in the attribute

Data Quality Problems



Column

Illegal Values, Missing Values (encodings of NULL), Value Representation

We have an assumption about the valid values in a column, i.e., the domain

Data Type (INT, DECIMAL, TEXT, DATE)

Defined at the schema level (if using a RDMBS)

Simple test for INTEGER in Python

```
def is_int(val):
    try:
        int(val)
        return True
    except ValueError:
        return False
```





FY03 – FY12 MMR Agency Performance Indicators

agency
311
ACS
BIC
BPL
CCHR
CCRB
CUNY
DCA
DCAS
DCLA

Not all data type 'outliers' are quality flaws!



MELBOURNE Data Parking Events

arrivaltime

2011-11-04T14:39:11

2011-11-04T14·39·13

2011-11-04T14:39:26

2012-03-11T02:00:11

2012-03-11T02:03:24

2012-03-11T02:05:04

2012-03-11T03:01:23

}

2012-17-45T34:99:82

. . .

```
public boolean isDate(String val) {
    String format = "yyyy-MM-dd'T'HH:mm:ss";
    SimpleDateFormat df;
    df = new SimpleDateFormat(format);
    try {
        df.parse(val);
        return true;
    } catch (java.text.ParseException ex) {
        return false:
    ł
```



MELBOURNE Data Parking Events

arrivaltime

2011-11-04T14:39:11

2011-11-04T14·39·13

2011-11-04T14:39:26

2012-03-11T02:00:11

2012-03-11T02:03:24

2012-03-11T02:05:04

2012-03-11T03:01:23

}

2012-17-45T34:99:82

. . .

```
public boolean isDate(String val) {
    String format = "yyyy-MM-dd'T'HH:mm:ss";
    SimpleDateFormat df;
    df = new SimpleDateFormat(format);
    try {
        df.parse(val);
        return true;
    } catch (java.text.ParseException ex) {
        return false:
    ł
```

2013-06-15T11:40:22



MELBOURNE Parking Events

arrivaltime

2011-11-04T14:39:11

2011-11-04T14:39:13

2011-11-04T14:39:26

2012-03-11T02:00:11

2012-03-11T02:03:24

2012-03-11T02:05:04

2012-03-11T03:01:23

2012-17-45T34:99:82

. . .

```
public boolean isDate(String val) {
   String format = "yyyy-MM-dd'T'HH:mm:ss";
   SimpleDateFormat df;
   df = new SimpleDateFormat(format);
   try {
      Date date = df.parse(val);
      return df.format(date).equals(val);
   } catch (java.text.ParseException ex) {
      return false;
   }
}
```
Functional Dependencies

Use Functional Dependencies for Data Cleaning

Use Functional Dependencies (FD) to detect and repair inconsistencies

FD is a constraint that describes the relationship

between sets of attributes in a relation

NYU

Detect pairs of records that violate FD

Repair FD violations by applying data modifications (delete record or modify values)

Use minimal number of modifications as measure for 'good' repair

Problem: FD's are often unknown for a data set

See [Papenbrock et al. 2016] for evaluation of FD discovery algorithms.





	Name	Street	Zip	City	Phone
t ₁	James Smith	5 th Ave	10011	Manhattan	351-344-5671
2	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
3	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
4	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



Zip → City

Phone \rightarrow Name, Street, Zip, City

	Name	Street	Zip	City	Phone
t ₁	James Smith	5 th Ave	10011	Manhattan	351-344-5671
t ₂	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₃	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
t ₄	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



Zip → City

Phone → Name, Street, Zip, City

	Name	Street	Zip	City	Phone
1	James Smith	5 th Ave	10011	Manhattan	351-344-5671
2	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
3	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
4	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
5	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



	Name	Street Zip		City	Phone
1	James Smith	5 th Ave	10011	Manhattan	351-344-5671
2	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
3	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
4	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



	Name	Street	Zip	City	Phone
t ₁	James Smith	5 th Ave	10011	Manhattan	351-344-5671
t ₂	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₃	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
t ₄	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



	Name	Street	Zip	City	Phone
t ₁	James Smith	5 th Ave	10011	Manhattan	351-344-5671
t ₂	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₃	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
t ₄	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



Repair by value modification

	Name	Street	Zip	City	Phone
t ₁	James Smith	5 th Ave	10011	Manhattan	351-344-5671
t ₂	Jane Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₃	James L. Smith	5 th Ave	10011	NYC	+1 351.344.5671
t ₄	Jane R. Smith	6 th Ave	10012	Manhattan	351-244-4674
t ₅	Rebecca Ryan	2 nd Ave	10043	Manhattan	455-231-0872



DOE High School Directory 2013-2014

District Borough Number (DBN)

Every public school in New York City is assigned a unique "District Borough Number", commonly referred to as its "DBN".

http://teachnyc.net/assets/2017_Job_Search_Guide.pdf

DBN is a unique identifier for public schools in the dataset ?=> The number of unique values equals the number of rows.

SELECT COUNT(*) AS rows, SELECT COUNT(DISTINCT dbn) AS dist_dbn
FROM ds_u553_m549;





DOE High School Directory 2013-2014

Are there violations for FD **Postcode** \rightarrow **City** ?

For each **post code** count the number of distinct **cities** they occur with in database records. If the number is greater than one the FD is violated.

```
SELECT postcode FROM ds_u553_m549
GROUP BY postcode HAVING COUNT(DISTINCT city) > 1;
```



Get the **post codes** that violate the FD together with the different city names that cause the violation.

```
SELECT DISTINCT t1.postcode, t1.city, t2.city
FROM ds_u553_m549 t1, ds_u553_m549 t2
WHERE t1.postcode = t2.postcode AND t1.city <> t2.city AND t1.city < t2.city;</pre>
```

postcode	city	l	city	
11106 10468 (2 rows)	Astoria Bronx		Long Island South Bronx	City



Postcode \rightarrow City ?

Use external knowledge bases to gather further information about the **post codes** and city names that violate the FD.

postcode city city	
11106 Astoria Long Island City 10468 Bronx South Bronx (2 rows)	
=	https://m.usps.com/m/ZipLookupAction
ZIP Code™ 10468 is in: BRONX, NY	
But don't use these: JEROME. NY	ZIP Code™ 11106 is in: ASTORIA, NY
	You could also use these for the city: LONG IS CITY, NY LONG ISLAND CITY, NY
	But don't use these: QUEENS, NY

Duplicate Records

Identify and Merge Different Representations of the same Entity



Problem

Given one or more data sets, find all sets of records that represent the same real-world entity.

Main Difficulties

- (1) Duplicates are not identical
- (2) Large volume, cannot compare all pairs





Ironically "Duplicate Detection" has many Duplicates

Record Linkage Entity resolution **Object Identification** Doubles Object Consolidation Entity Clustering Fuzzy Match Approximate Match Reference reconciliation Reference matching Merge/Purge





Decide if two records represent the same entity

Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
Smith, J.	Fifth Avenue	10011	NYC	+1 351.344.5671

Standardize data

Apply different similarity measures

Similarity measures – Levenshtein, Soundex, Jaccard, etc.

Tokenize values

Different weights for attributes

Two records with the same telephone number are more likely to be duplicates than records with the same (ZIP, City).



Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
Smith, J.	Fifth Avenue	10011	NYC	+1 351.344.5671
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Rebecca Ryan	2 nd Avenue	10043	MN	455-231-0872
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Jane R. Smith	6 th Ave		Manhattan	351.244.4674



Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane R. Smith	6 th Ave		Manhattan	351.244.4674
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Rebecca Ryan	2 nd Avenue	10043	MN	455-231-0872
Smith, J.	Fifth Avenue	10011	NYC	351.344.5671



Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane R. Smith	6 th Ave		Manhattan	351.244.4674
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Rebecca Ryan	2 nd Avenue	10043	MN	455-231-0872
Smith, J.	Fifth Avenue	10011	NYC	351.344.5671



Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane R. Smith	6 th Ave		Manhattan	351.244.4674
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Rebecca Ryan	2 nd Avenue	10043	MN	455-231-0872
Smith, J.	Fifth Avenue	10011	NYC	351.344.5671



Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane R. Smith	6 th Ave		Manhattan	351.244.4674
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Rebecca Ryan	2 ^{na} Avenue	10043	MN	455-231-0872
Smith, J.	Fifth Avenue	10011	NYC	351.344.5671



Sort Key is crucial for high recall

Compose key (e.g., First 3 letters of Name + Seq. of digits in Phone) Multiple passes with different keys

Name	Street	Zip	City	Phone
James Smith	5 th Ave	10011	Manhattan	351-344-5671
Jane Smith	6 th Ave	10011	Manhattan	351-244-4674
Smith, J.	Fifth Avenue	10011	NYC	+1 351.344.5671
L. Smith, James	5 th Ave	10011	Manhattan	351-344-5671
Rebecca Ryan	2 nd Avenue	10043	MN	455-2312-0872
Peter Cox	Broadway	10003	Manhattan	255-781-3280
Jane R. Smith	6 th Ave		Manhattan	351.244.4674



Conflict Resolution Functions

Function	Description	Examples
Min, Max, Sum, Count, Avg	Standard aggregation	NumChildren, Salary, Height
Random	Random choice	Shoe size
Longest, Shortest	Longest/shortest value	First_name
Choose(source)	Value from a particular source	DoB (DMV), CEO (SEC)
ChooseDepending(val, col)	Value depends on value chosen in other column	city & zip, e-mail & employer
Vote	Majority decision	Rating
Coalesce	First non-null value	First_name
Group, Concat	Group or concatenate all values	Book_reviews
MostRecent	Most recent (up-to-date) value	Address
MostAbstract, MostSpecific, CommonAncestor	Use a taxonomy / ontology	Location
Escalate	Export conflicting values	gender

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann



Z. Abedjan, X. Chu, D. Deng, R.C. Fernandez, I.F. Ilyas, M. Ouzzani, P. Papotti, M. Stonebraker, N. Tang. **Detecting data errors: where are we and what needs to be done?.** VLDB, 2016.

Z. Abedjan, L. Golab, F. Naumann. Profiling relational data: a survey. VLDB Journal, 2015.

P. Bohannon, W. Fan, M. Flaster, R. Rastogi. A cost-based model and effective heuristic for repairing constraints by value modification. SIGMOD, 2005.

J. Chomicki, J. Marcinkowski. **Minimal-change integrity maintenance using tuple deletions**. Information and Computation, 2005.

M.A. Hernández, S.J. Stolfo. **Real-world Data is Dirty: Data Cleansing and The Merge/Purge Problem**. Data Mining and Knowledge Discovery, 1998.

I.F. Ilyas, X. Chu. **Trends in Cleaning Relational Data: Consistency and Deduplication**. Foundations and Trends in databases, 2015.

E.M. Knorr, RR.T. Ng. Algorithms for Mining Distance-Based Outliers in Large Datasets. VLDB, 1998.

R. Marsh. Drowning in dirty data? It's time to sink or swim: A four-stage methodology for total data quality management. Database Marketing & Customer Strategy Management, 2005.

F. Naumann. Quality-Driven Query Answering for Integrated Information Systems. Springer 2002.

T. Papenbrock, J. Ehrlich, J. Marten, T. Neubert, J.-P. Rudolph, M. Schönberg, J. Zwiener, F. Naumann. **Functional dependency discovery: an experimental evaluation of seven algorithms**. VLDB, 2016.

E. Rahm, H.H. Do. Data cleaning: Problems and current approaches. IEEE Data Eng. Bull., 2000.

T.C. Redman. Data Quality for the Information Age. Artech House, 1996.

R.Y. Wang, D.M. Strong. **Beyond accuracy: What data quality means to data consumers**. J. Management of Information Systems, 1996.



The End

The Impact of Poor Data Quality



Because of poor data quality ...

88% of data integration projects fail or significantly over-run budgets

75% of organizations have additional costs

33% of organizations delayed or cancelled new IT systems

\$611bn per year is lost in the US

In [Marsh 2005] summarizing reports by Gartner Group, PriceWaterhouseCoopers, and The Data Warehousing Institute.



How to Measure the Quality of a Dataset?



Data Quality is Measured as Vector of Quality Criteria Completeness

Quotient of number of missing values and records over all represented entities

Uniqueness

Number of records that represent the same entity

Timeliness

Number of records and values that are out of date

Schema Conformance (Syntactic Integrity)

Number of values that violate format constraints

Integrity (Semantic Integrity)

Number of records that violate integrity constraints

Accuracy

Quotient of number correct values and the overall number of values.

See for example [Naumann. 2002] [Redman. 1996] [Wang, Strong. 1996]



Friday Afternoon Measurement

Step 1. Assemble at least 100 data records your group used or created

- Step 2. Ask two or three people with domain knowledge to join
- **Step 3**. Mark obvious errors in a noticeable color.
- **Step 4**. Summarize the results by counting the records that are perfect or not.

Rule of Ten

Based on observation that '*it costs 10 times as much to complete a unit of work when the input data are defective as it does when they are perfect.*'



DOHMH New York City Restaurant Inspection Results

dba	street	zip	phone	PERFECT
O'HARA'S	CEDAR ST	10006	2122673032	YES
TAVOLA	9 AVE	10018	2122731181	YES
CHEBURECHNAYA	63 DRIVE	11374	7188979080	YES
SAM'S PIZZA	_WEST 231 ST	ONE	7185489070	NO
CAFE CON AMOR	ROOSEVELT AVE	11377	7182055707	YES
SHILLA UNION	UNION ST	11354	0000000000	NO
CAFE PRAGUE	WEST 19 ST	10000	2129292602	YES
TINY CUP CAFE	4 AVE	11232	6463829920	YES
BUTTER & SCOTCH	JAMAICA AVE	11225		NO
DREAM PIZZA	JUNCT. BLVD	11368	7189431599	YES

Total Cost

Assume \$1 cost to process one record

7 * \$1 + (3 * \$1 * 10) = \$37 (vs. \$10 when all are perfect)

Duplicate Detection

Quiz



1 - 2 of 2 businesses	SORT BY:	Standard 🔻	Distance	A-Z
Newtown Pizza Palace		$\star \star \star$	* *	
65 Church Hill Rd Newtown, CT 06470 <u>Map</u>		Review Th <u>Rate it</u> F	is Business! Read Reviews	s
(203) 426-6114		Improve thi	<u>s listing</u>	
Visit Web Site				
More Info				
Send to Mobile Map It E-mail It Get Direct	ions Search Nearby	Save This Listin	g Save a Note	₽
Pizza Palace of Newtown		* * *	* *	
Church Hill Rd Newtown, CT 06470		Review Th <u>Rate it</u> F	is Business! Read Reviews	s
(203) 426-6114		Improve thi	s listing	

Send to Mobile E-mail It Search Nearby Save This Listing Save a Note

Which type of listing are they?

A: are the same business

B: are different businesses sharing the same phone#

C: are different businesses, only one with correct phone#

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann





Send to Mobile E-mail It Search Nearby Save This Listing Save a Note

C: are different businesses, only one with correct phone#

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann





Which type of listing are they?

A: are the same business

- **B**: are different businesses sharing the same phone#
- C: are different businesses, only one with correct phone#





C: are different businesses, only one with correct phone#


1 - 2 of 2 businesses	SORT BY:	Standard 🔻	Distance	A-Z	Wh
Lenco Diagnostic Laboratories In 1849 86th St Brooklyn, NY 11214 Map (718) 232-1515	<u>corporated</u>	Review Th Rate it F	is Business! Read Review	vs	are A: a
Send to Mobile Map It E-mail It Get Directions Papa Charlies Pizza 1645 Bath Ave Brooklyn, NY 11214 Map (718) 232-1515	Search Nearby	Save This Listin	g <u>Save a No</u> (* * is Business! Read Review is listing	vs	B: a s
Send to Mobile Map It E-mail It Get Directions	Search Nearby	Save This Listin	g <u>Save a No</u>	<u>ite</u>	۲

Which type of listing are they?

A: are the same business

- **B**: are different businesses sharing the same phone#
- **C**: are different businesses, only one with correct phone#



- 2 of 2 businesses	SORT BY:	Standard 💌	Distance A-Z	Which
<u>enco Diagnostic Laborato</u> 1849 86th St Brooklyn, NY 11214 <u>Map</u>	ries Incorporated	★★★ Review Thi <u>Rate it</u> R	s Business! ead Reviews	are th
718) 232-1515		Improve this	<u>s listing</u>	A: are
Send to Mobile Map It E-mail It Get I Papa Charlies Pizza 1645 Bath Ave Brooklyn, NY 11214 Map 718) 232-1515	Directions Search Nearby	Save This Listing	s Business! ead Reviews s listing	B : are o shar phor
Send to Mobile Map It E-mail It Get I	Directions Search Nearby	Save This Listin;	Save a Note	C:are o busin

h type of listing ey?

the same business

different businesses ring the same ne#

different nesses, only one with correct phone#

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann



1 - 24 of 24 businesses	SORT BY:	Standard	
Barnaby's 713 E Jefferson Blvd South Bend, IN 46617 Map (574) 675-9999		★ ★ ★ ★ ★ Review This Business! <u>Rate it</u> Read Reviews Improve this listing	Which type of listing are they?
More Info: Payment Methods Send to Mobile Map It E-mail It Get Directions	Search Nearby	Save This Listing Save a Note	A : are the same business
Between the Buns 1720 Lincoln Way W Osceola, IN 46561 Map (574) 675-9999		★ ★ ★ ★ ★ Review This Business! <u>Rate it</u> Read Reviews Improve this listing	B : are different businesses
More Info: Brands Send to Mobile Map It E-mail It Get Directions	Search Nearby	Save This Listing Save a Note	sharing the same phone#
Big City Steaks 529 W Mckinley Ave Mishawaka, IN 46545 <u>Map</u> (574) 675-9999		Improve this listing	C : are different
Send to Mobile Map It E-mail It Get Directions	Search Nearby	Save This Listing Save a Note	with correct phone#
119 N Dixie Way South Bend, IN 46637 <u>Map</u> (574) 675-9999		Review This Business! <u>Rate it</u> Read Reviews <u>Improve this listing</u>	

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann



1 - 24 of 24 businesses	SORT BY:	Standard - Distance A-Z	
Barnaby's 713 E Jefferson Blvd South Bend, IN 46617 Map (574) 675-9999		Review This Business! Rate it Read Reviews	<i>Which type of listing are they?</i>
More Info: Payment Methods Send to Mobile Map It E-mail It Get Direction Reduceon the Rune Reduceon	ns Search Nearby	Save This Listing Save a Note	A : are the same business
1720 Lincoln Way W Osceola, IN 46561 Map (574) 675-9999		Review This Business! <u>Rate it</u> Read Reviews Improve this listing	Bare different businesses
More Info: Brands Send to Mobile Map It E-mail It Get Directio	ns Search Nearby	Save This Listing Save a Note	phone#
529 W Mckinley Ave Mishawaka, IN 46545 Map (574) 675-9999		Review This Business! <u>Rate it</u> Read Reviews Improve this listing	C : are different businesses, only one
Send to Mobile Map It E-mail It Set Direction	ns Search Nearby	Save This Listing Save a Note	with correct phone#
119 N Dixie Way South Bend, IN 46637 <u>Map</u> (574) 675-9999		Review This Business! <u>Rate it</u> Read Reviews Improve this listing	

Copied from: Data Fusion - VLDB 2009 Tutorial - Luna Dong & Felix Naumann

Regular Expressions

Find values that do not match the expected column format



A **regular expression** is a sequence of characters that define a search pattern. ... Different syntaxes for writing regular expressions exist.

https://en.wikipedia.org/wiki/Regular_expression

Example Regular Expression Language				
	Matches any character			
abc	Sequence of characters			
[abc]	Matches any of the characters inside []			
*	Previous character can be matched zero or more times			
?	Previous character can be matched zero or one time			
{ <i>m</i> }	Exactly <i>m</i> repetitions of previous character			
^	Matches beginning of a line			
\$	Matches end of a line			
\d	Matches any decimal digit			
\s	Matches any whitespace character			
\w	Matches any alphanumeric character			



(201) 368-1000

(201) 373-9599

(718) 206-1088

- (718) 206-1121
- (718) 206-1420
- (718) 206-4420
- (718) 206-4481
- (718) 262-9072
- (718) 868-2300
- (718) 206-0545
- (814) 681-6200

(888) 8NYC-TRS

800-624-4143

Challenges

Do not allow partial matches (^ ...\$) Allow for non-matches General vs. specific patterns

Examples

.*

(201) 368-1000|...|800-624-4143 (?\d{3}[)-] ?\d\w{2}C?-\w{3}\d?

800-624-4143

(201) 373-9599

- (201) 368-1000
- (718) 206-1088
- (718) 206-1121
- (718) 206-1420
- (718) 206-4420
- (718) 206-4481
- (718) 262-9072
- (718) 868-2300
- (718) 206-0545
- (814) 681-6200

(888) 8NYC-TRS

(\d \d \d) | \d \w \w . . . \w \w \w

Simple Algorithm (1)

- (1) Group values by length
- (2) Find pattern for each group
 - Ignore small groups
 - Find most specific character at each position

$(d{3}) dw{2}.{2}w{3}$

800-624-4143

(201) 373-9599

- (201) 368-1000
- (718) 206-1088
- (718) 206-1121
- (718) 206-1420
- (718) 206-4420
- (718) 206-4481
- (718) 262-9072
- (718) 868-2300
- (718) 206-0545
- (814) 681-6200

(888) 8NYC-TRS

Simple Algorithm (1)

- (1) Group values by length
- (2) Find pattern for each group
 - Ignore small groups
 - Find most specific character at each position
 - Allow for mismatches

(\d{3}) \d{3}-\d{4}

(201) 368-1000

(201) 373-9599

(718) 206-1088

- (718) 206-1121
- (718) 206-1420
- (718) 206-4420
- (718) 206-4481
- (718) 262-9072
- (718) 868-2300
- (718) 206-0545
- (814) 681-6200

(888) 8NYC-TRS

800-624-4143

Simple Algorithm (2)

(1) Group '*related*' characters into blocks(2) Find alignment for blocks

[(] [\d{3}] [)] [] [\d{3}] [-] [\d{4}] [(] [\d{3}] [)] [\d{3}] [-] [\d{4}]

[(] [\d{3}] [)] []? [\d{3}] [-] [\d{4}]

(\d{3}) ?\d{3}-\d{4}

See for example [Fernau. 2009]

Joinable Columns

🌾 NYU

SELECT t1.boro, t2.borough, **COUNT**(*) **FROM** ds_3h2n_5cm9 t1, ds_pdiy_9ae5 t2 WHERE t1.street = t2.street **GROUP BY** t1.boro, t2.borough **ORDER BY COUNT**(*) **DESC**;

boro	borough	count
1	MN	211499381
3	MN	23393719
4	MN	12894922
1	QN	7327541
1	вк	7031201
2	MN	4876745
3	вк	4625184
4	QN	4361375
2	BX	3964086
1	BX	3699564
3	QN	1288089
5	MN	1284778
4	BK	792995
1	SI	671694
3	BX	520046
М	MN	350751
4	BX	256478
5	SI	250301
2	BK	249341
2	QN	223021
3	SI	101919
5	QN	62336
4	SI	57981
5	BK	55475
Q	MN	37926
5	BX	32026
2	SI	28607
В	MN	16856



How to quantify similarity between columns to find good Join candidates?

The **Jaccard coefficient** measures similarity between finite sample sets, and is defined as the size of the intersection divided by the size of the union of the sample sets.



https://en.wikipedia.org/wiki/Jaccard_index

Columns that are (most) similar to DOB Violations column street

1.	Historical DOB Permit Issuance	street	0.4718
2.	311 Service Requests for 2006	intersection street 1	0.4243
3.	311 Service Requests for 2008	intersection street 1	0.4228
95.	Bureau of Fire Prevention	street	0.1281



Compare n-Gram Distributions





Bureau of Fire Prevention - Certificates of Fitness - street



Historical DOB Permit Issuance - street





Bureau of Fire Prevention - Certificates of Fitness - street



Historical DOB Permit Issuance - street





Bureau of Fire Prevention - Certificates of Fitness - street



Historical DOB Permit Issuance - street



DOB Violations - street

🌾 NYU

SELECT t1.boro, t2.borough, COUNT(*) FROM ds_3h2n_5cm9 t1, ds_pdiy_9ae5 t2 WHERE t1.street = t2.street GROUP BY t1.boro, t2.borough ORDER BY COUNT(*) DESC LIMIT 20;

boro	borough	count
1	MANHATTAN I	5267308532
3	BROOKLYN	744539419
3	MANHATTAN	670391402
4	QUEENS	528334681
1	BROOKLYN	434177315
1	QUEENS	211499447
4	MANHATTAN	186754093
2	BRONX	160942856
2	MANHATTAN	143183571
3	QUEENS	96978865
1	BRONX	82875245
4	BROOKLYN	76663413
	STATEN ISLAND	42181567
1	STATEN ISLAND	27183497
	MANHATTAN	26715611
3	BRONX	25753513
2	BROOKLYN	22577970
М	MANHATTAN	11476102
2	QUEENS	10617312
3	STATEN ISLAND	10596340
(20 r	ows)	



SELECT q1.borough, q2.borough, COUNT(*) FROM (SELECT street, MAX(boro) AS borough FROM ds_3h2n_5cm9 GROUP BY street HAVING COUNT(DISTINCT boro) = 1

) **AS** q1, (

SELECT street, **MAX**(borough) as borough **FROM** ds_bty7_2jhb **GROUP BY** street **HAVING COUNT**(**DISTINCT** borough) = 1

) **AS** q2 **WHERE** q1.street = q2.street

GROUP BY q1.borough, q2.borough ORDER BY COUNT(*) DESC LIMIT 20;

borough	borough	count(1)
+		+
41	QUEENS	2426
51	STATEN ISLAND	1739
3	BROOKLYN	1505
1	MANHATTAN	1450
2	BRONX	1380
1	BROOKLYN	14
4	BROOKLYN	12
31	MANHATTAN	10
3	QUEENS	6
2	QUEENS	5
1	BRONX	4
2	BROOKLYN	4
3	STATEN ISLAND	4
2	MANHATTAN	4
2	STATEN ISLAND	3
B	BROOKLYN	21
3	BRONX	2
4	STATEN ISLAND	21
41	BRONX	11
51	BROOKLYN	1