

DATA MANAGEMENT

Motor Carrier Census Information

Report by
Yashawant Prabhakar Parab (11012130)

Motor Carrier Census Information

The given Motor Carrier Census Information is from a FMCSA Comprehensive Safety Analysis (CSA). The Federal Motor Carrier Safety Administration (FMCSA) maintains all the motor carrier census information about safety fitness of commercial motors (Truck and Bus), hazardous material and the hazardous material regulation.

DATA ELEMENTS:

Data Element	Description
DOT_NUMBER	Unique USDOT Number of the Motor Carrier
LEGAL_NAME	Legal name of a Carrier
DBA_NAME	Carrier's Doing-Business-As name
CARRIER_OPERATION	Codes identifying carriers' type of Operation A = Interstate B = Intrastate Hazmat C = Intrastate Non-Hazmat
HM_FLAG	Carrier is subject to placard able HM threshold (Y = Yes, N = No)
PC_FLAG	Carrier is subject to passenger carrier Threshold (Y = Yes, N = No)
PHY_STREET	Physical street address of a Carrier
PHY_CITY	Physical city of a Carrier
PHY_STATE	Physical state of a Carrier
PHY_ZIP	Physical zip code of a Carrier
PHY_COUNTRY	Physical country of a Carrier
MAILING_STREET	Mail street address of a Carrier
MAILING_CITY	Mail city of a Carrier
MAILING_STATE	Mail state of a Carrier
MAILING_ZIP	Mail zip code of a Carrier
MAILING_COUNTRY	Mail country of a Carrier
TELEPHONE	Contact telephone Number
FAX	Fax Number
EMAIL_ADDRESS	Contact email address
MCS150_DATE	Latest date MCS-150 was filed
MCS150_MILEAGE	Vehicle Mileage Traveled (VMT) reported on the carrier's MCS-150 form
MCS150_MILEAGE_YEAR	Year for which VMT was reported
ADD_DATE	This is date when Carrier information was added to MCMIS Database System
OIC_STATE	This is FMCSA state office with oversight for this Carrier
NBR_POWER_UNIT	This is Number of power units reported
DRIVER_TOTAL	This is Number of drivers reported

The focus was on the few data elements which helped to get illustrated result on motor census dataset. Dataset contains Company Safety Profiles which was the most comprehensive summary of specific carrier performance.

To fulfill Primary goal of FMCSA Department, the focus was on the Data element given below

Each Census record contains the following information:

- Census Information- Physical Name, Physical Address, etc.
- Operation Classification and Type of Business.
- Hazardous Materials Carried or Shipped

Goal A: Task A

Data Profiling:

Data profiling is the process of observing the data available in different data sources with the different data parameters and analyzing statistics and information about the data. The main objective of data profiling is to evaluate the quality level of the data according to defined aim.

With the help of Talend Data quality tool, the key analysis of each column was observed under the Basic column analysis section.

Simple Statistics on few fields, like Legal _Name, DBA_NAME, CARRIER_OPERATION, HM_FLAG, PC_FLAG was applied.

Difference between Datamining Type:

Sr. No	Nominal	Interval	Unstructured Text	Other
	This is categorical type of data whose values can be assigned as a code in the form of number that simply tagged.	This type of data is used as numerical data and time data. Average can be calculated on this kind of data.	This data mining type is mainly used for handling unstructured textual data	This type of data mining is dedicated to those data that studio does not know how to handle data.
	Ex: Laptop with the value Processor, GPU	Data Should be treated as numerical data		

On this raw dataset some data quality dimension check was performed using Talend Data quality tool.

1) Data Element 1: LEGAL_NAME

- As per the statistics shown below the legal carrier transportation data is complete and it does not have any null and blank rows. In Legal Transportation data approximately 95% of data is Distinct where 91.62% data is unique.

- The legal_name element failed at validity check. Data is complete but it does not fulfill accuracy, consistency and uniqueness parameters.

▼ Simple Statistics

Label	Count	%
Row Count	1048575	100.00%
Null Count	0	0.00%
Distinct Count	994464	94.84%
Unique Count	960684	91.62%
Duplicate Count	33780	3.22%
Blank Count	0	0.00%

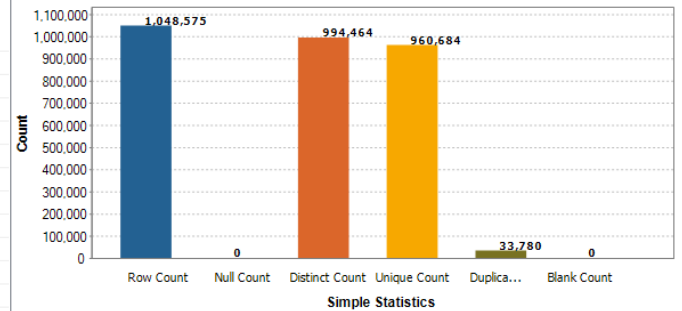


Fig 1: LEGAL_NAME

- Determining from the Pattern analysis of dataset, 98.01% of goods was exported from United State while there was only a single transport exchange from France.

▼ Pattern Matching

Label	Match%	Not Matc...	Match	Not Match
US State Codes	98.01%	1.99%	1027631	20882
FR Code postal	9.537E-5%	99.99%	1	1048512

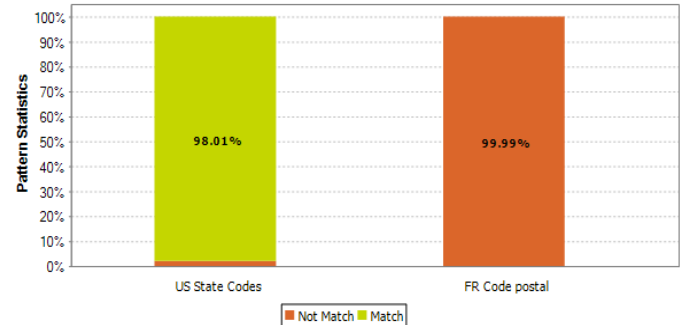


Fig 2: PHY_STATE

Data Quality Check:

- **Consistency:** In this Data element, accuracy is adequate but it was lacking validity and uniqueness of data. So, as per all the parameter consistency was found deficient.
- **Accuracy :** In this analysis, it was found that some values were not matching to internal and external standards. Also the precision of the data is misplaced.
- In PHY_STATE data element, all the values were from different state to which the material was transported. This column had no null and blank count and data was occupied with full of State codes.
- **Conformity:** From the pattern analysis on State codes, the conformity check from Talend data quality tool was observed which had explicit address pattern statistics indicator. 98.01% of data

was verified and parted as US State code where as 1.99% data was distributed with different state code.

2) Data Element: Carrier Operation

- There were three different types of carrier operation present in data set. **A = Interstate, B = Intrastate Hazmat, C = Intrastate Non-Hazmat**. Text statistics, pattern frequency statistics and different pattern matching statistics were applied.
- The Data Quality dimensions given below were checked on Carrier Operation column:

Pattern frequency and Pattern matching

- With the pattern frequency and pattern matching analysis, 0.60% of data had no value and it was showing empty value.
- Data Validity and Data Consistency failed on Carrier operation because there was no complete data as well as no accuracy.

▼ Pattern Frequency

Value	Count	%
A	1040220	99.20%
Empty field	6276	0.60%
AAA,"	48	4.578E-3%
AAA"	34	3.242E-3%
AAAAAA AAAAAAA	21	2.003E-3%
AAAAAA AAAAAAA	18	1.717E-3%
AAAAAA AAAAAAA	18	1.717E-3%
AAAAAA AAAAAAA	18	1.717E-3%
AAAAAA AAAAAAA	14	1.335E-3%
AAAAA AAAAAA	13	1.24E-3%

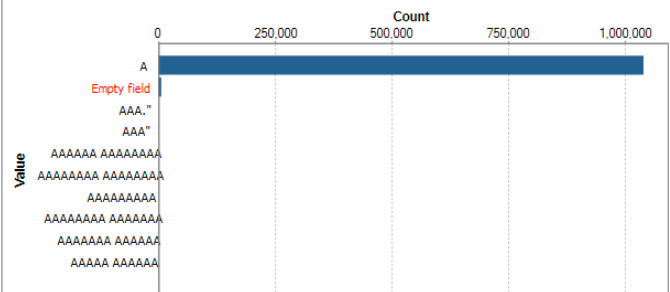


Fig: 3 Pattern Frequency

▼ Pattern Matching

Label	Match%	Not Matc...	Match	Not Match
Blank text	0.60%	99.40%	6276	1042299
No special chart	1.049E-3%	99.99%	11	1048564
Random sequence of text	3.052E-3%	99.99%	32	1048543
Starts with blank	0.00%	100.00%	0	1048575
Starts with space	0.00%	100.00%	0	1048575

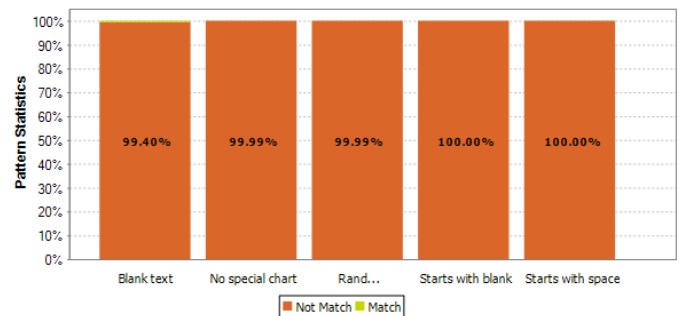


Fig: 4 Pattern Matching

All the required factors for data validity are failed on below:

Focusing on Hazardous Materials Carried or Shipped data element the following data quality dimension check was performed. Analysis on HM_FLAG, PC_FLAG and Carrier Operation were used to create a validity check table

	HM_FLAG	PC_FLAG	Carrier Operation
Completeness	Yes	Yes	No
Consistency	Yes	Yes	No
Uniqueness	Yes	Yes	No
Accuracy	Yes	Yes	No

Goal A: Task B

Data Cleaning

For Data cleaning Open Refine, Trifacta and Talend data preparation tools were used. The focus was on Hazardous Materials where those material export from which state of United State as well as which shipper engaged in the transportation. For this analysis the dataset had to be cleaned considering the Data Quality dimensions given below for better productivity.

- Completeness
- Accuracy
- Conformity
- Validity
- Consistency

From the Motor Carrier Census dataset, the data elements listed below was required for data cleaning. With this data the data quality dimension check was performed that helped to achieve appropriate analysis

Sr. No	Data Element
1	LEGAL_NAME
2	CARRIER_OPERATION
3	HM_FLAG
4	PC_FLAG
5	PHY_STATE
6	PHY_ZIP
7	PHY_COUNTRY
8	MAILING_STATE
9	MAILING_ZIP
10	MAILING_COUNTRY

As per the data profiling statistics it was understood that the LEGAL_NAME analysis where the blank count and null value which had no concern, but the data was not fully unique. So, the data was cleaned according to the validity dimension.

Open Refine

Manipulation of messy data is easy in open refine which supports various formats and performs different data quality dimension operations. One can deal with the cells that contain multiple topics. Open refine also provides the name entity extraction that is applied to large text field and automatically identifies topics.

Open Refine Transformation Steps:

1) Data Element: CARRIER_OPERATION

Dimension: Completeness, Conformity, Accuracy, Validity

- a) The completeness data quality dimension was performed on carrier operation data element. The data with the abbreviation changes to the identifiable form and data had been trimming to check the accuracy as well as the consistency. After performing data quality dimensions, only three unique values Interstate, Intrastate Hazmat and Intrastate Non-Hazmat were determined. With the completeness, accuracy, consistency and the uniqueness, the validity check dimension on this column was completed. From the validity check, a complete schema with the complete value was prepared.

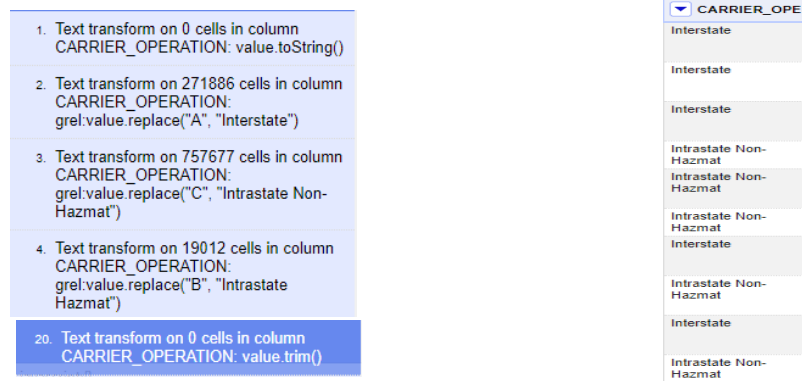


Fig 5

2) Data Element: PHY_STATE and MAILING_STATE

Dimension: Accuracy, Completeness, Validity

- a) The data analysis was performed on United States, so all other countries those who are exporting carriers to different location were neglected. Exportation of goods from United states occupies 98.97% of data from the dataset.
- b) In Dataset some, some mismatch of state value was identified on both the data elements. These values were replaced with appropriate state code using mass replace operation.

46. Mass edit 295 cells in column MAILING_STATE
47. Mass edit 258 cells in column PHY_STATE

Fig: 6

3) Data Element: PHY_ZIP and MAILING_ZIP

Dimension: Accuracy, Completeness, Validity, Conformity

- a) As United states data was selected for data analysis, there were some zip code that were not matching with USA zip code. Most of the zip code data were 4 digits whereas USA has 5-digit zip code. Some messy data had extra digit with the special character. So, to clean the data with the data quality dimension the data column was separated into two different columns with the separator "-".

5. Split 1048491 cell(s) in column PHY_ZIP into several columns by separator	PHY_ZIP_OR	PHY_COUNTRY
6. Remove column PHY_ZIP 2	78643	United States
7. Remove column PHY_ZIP 3	60098	United States
8. Rename column PHY_ZIP 1 to PHY_ZIP_OR	75771	United States
9. Mass edit 1 cells in column PHY_ZIP_OR	92509	United States
10. Split 1048558 cell(s) in column MAILING_ZIP into several columns by separator	34952	United States
11. Remove column MAILING_ZIP 2	84721	United States
12. Remove column MAILING_ZIP 3	49423	United States
13. Mass edit 1 cells in column MAILING_ZIP 1	53963	United States
14. Mass edit 1 cells in column MAILING_ZIP 1	10576	United States
	11720	United States
	80759	United States

Fig: 7

- b) The regular expression was transformed to convert valid 4-digit valid state code to 5-digit by padding 0 before the zip number. Regular expression formula is shown in the figure below:

40. Text transform on 1040901 cells in column MAILING_ZIP 1: grel:"0000"[0,5-value.length()] + value
41. Text transform on 1048483 cells in column PHY_ZIP_OR: grel:"0000"[0,5-value.length()] + value
42. Text transform on 7635 cells in column MAILING_ZIP 1: grel:value.replace(/(\p{IsAlphabetic})?(?=\d)/,'\$1 ')

Fig: 8

- c) In Mailing Postal code some data had incorrect code as per the state. Those columns were removed from the dataset to make data complete and clean.



Fig: 9

Talend Data Preparation

In this Analysis, the data is manipulated because of row constraints. In Motor Census Information dataset, the first 30000 rows had United State values as both physical and mailing country. For Analysis all the country values are added in the mailing country field to check the data with data quality dimension and analyze some insights.

For this manipulation some filtration is performed in Microsoft excel.

- 1) Column Name: DOT_NUMBER
Dimensions: Consistency
- a) Defined DOT Number is Unique USDOT number for motor carrier. This USDOT number has seven digits in it. Its column is made consistent by removing less than or greater than 7 digits from DOT_NUMBER element.

Technique used: Compared number

- a) By using **Compared Number** filter, the numerical values which have digits less than 7 are filtered. Than removed these filtered rows operation.

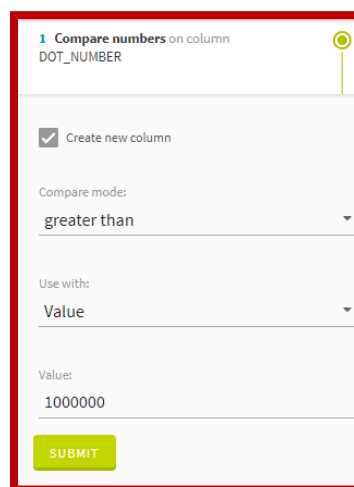


Fig: 10

2) Column Name: PHY_ZIP

Dimensions: Completeness, Accuracy and Validity

- a) In this element, the data was inaccurate. The column was completed and made accurate by replacing the exact postal code to the incorrect postal code.
- b) In Talend data preparation, there is a Predefined standard function where column automatically assist with the pointed US Postal code. With the help of this function the exact US Postal code and invalid state codes were differentiated. In the loaded data, all the physical Countries were United States, but the code had invalid values. In that data, Postal code of unincorporated territory of United State had three-digit ZIP code. All these codes were shown to be invalid in Talend data preparation. To exclude this suggestion, the messy data which had extra digits in ZIP code were cleaned.

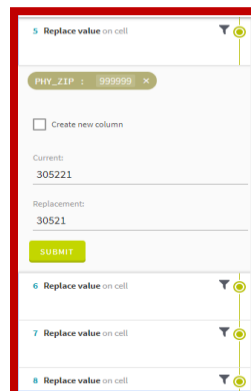
Technique used: Extract Part of the text, Replace Value

- a) Fig: 1.1 shows the PHY_ZIP pattern, where and some data has extra values which is invalid. The zip code is separated out using the special character “-”. To perform this operation, **Extract Part of the text** function was used.

Extract Part of the text				
CHART	VALUE	PATTERN	ADVANCED	
0	5,000	10,000	15,000	20,000
		99999		
		99999-9999		
		9999		
		9999999999		
		999		
		999999		
		99999-99-9		
		99999999		

Fig: 11

- a) From the United State zip code dictionary, the correct postal code was replaced in the data element that were disordered with incorrect postal code. This was done using **Replace Value** function.



5 Replace value on cell

PHY_ZIP : 999999

☐ Create new column

Current:
305221

Replacement:
30521

SUBMIT

6 Replace value on cell

7 Replace value on cell

8 Replace value on cell

Fig: 12

- c) After some research, the zip codes that had more than 5 digits had valid postal code excluding the last 4 digits. To perform this action, **Extract Part of the text** function was used. Fig 1.2 shows that the PHY_ZIP has more than 5 values and the last values are invalid.

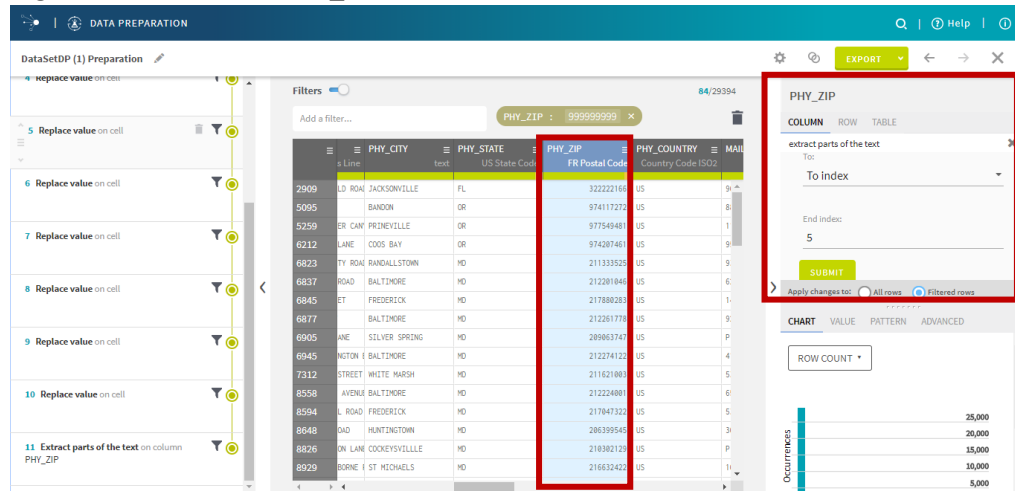


Fig: 13

The same operations were performed on different patterned values.

3) Column Name: PHY_STATE

Dimension: Accuracy and Completeness:

- From the Predefined standards function of Talend, there is a tool that can find exact Country code. In our data, there is an element, with the Physical Country, which contain all the country codes. The loaded data has only United states data. The 2-digit semantic data can identify this by using ISO2 function.
- Analyzing for the Physical state column, it was found that the data has invalid state code. To meet the quality dimension, the state code was replaced according to the physical city. The data has invalid state code for WASHINGTON. The abbreviation was replaced with reference to the FMCSA posted data on their web Page.
- Some data recognized by Talend shows invalid state code, but the predefined country semantics shows the exact US Country. As per the FMCSA abbreviation, the data has valid state code with the valid country code.

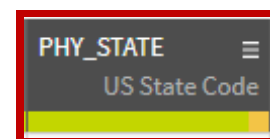
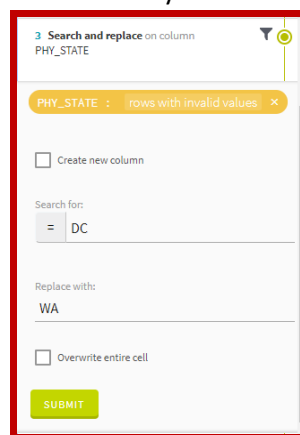


Fig: 14

- d) After replacing all the values of DC to WA, values in the column were complete with the US state codes.

4) Column Name: MAILING_STATE

Dimension: Accuracy and Completeness:

- As per the data, the focus of the data is transportation of goods. The mailing address was needed to perform the transportation task. Some rows contain null value in MAILING_STATE with the Postal code being incorrect. This disorganized data is removed from the dataset.
- Some replace function activity is performed on the Mailing State element. The given dataset had multiple incorrect state codes which were showing incompleteness in the records.

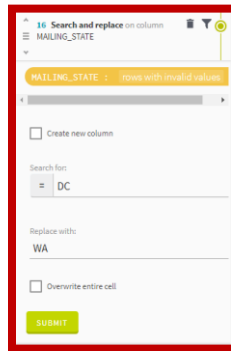


Fig: 15

5) Column Name: MAILING_ZIP

Dimension: Accuracy, Completeness and Validity

- By using **Extract Part of the text** function, some actions were performed on MAILING ZIP element. First all the processes on United State filtered data were performed followed by Canada and all other countries.
- Also, the incorrect ZIP Code was replaced to valid zip code by using FMCSA and web Search.

Result:

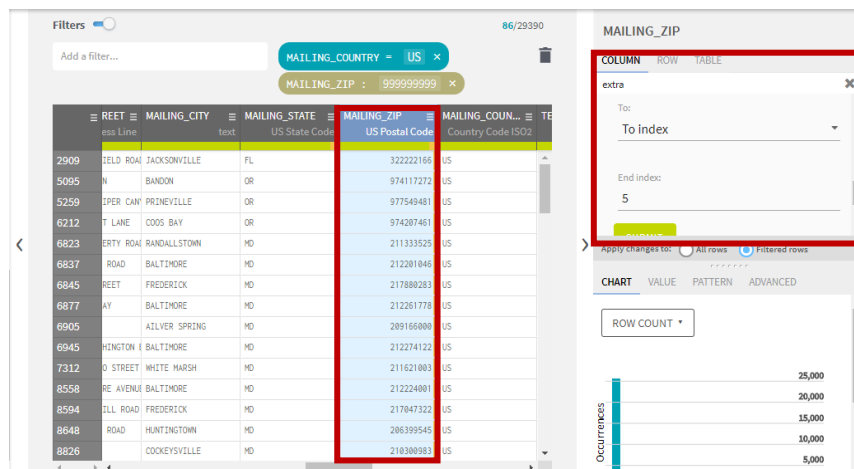


Fig: 16

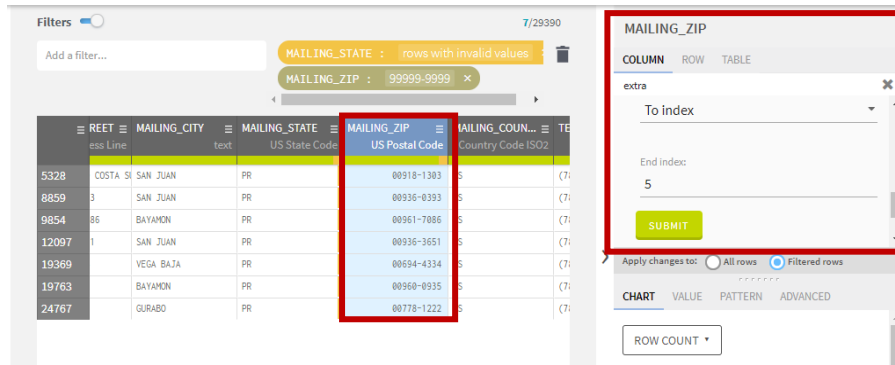


Fig: 17

Google Cloud DataPrep Trifacta

Google cloud DataPrepTrifactatool was used to discover and transform raw Motor Census Information data into clean and structured data for analyzing and processing. Trifacta has variety of options to make data clean. One can create a flow of the source data which could be Database, CSV, JSON, XML etc. and then these could be joined with a single recipe This output data could be used for analyzing the data by using machine learning algorithm or data science modal.

Create Flow:

To perform this operation, the data was separated into three different comma separated file.

Flow was used for organizing dataset and tracking the work associated with them. Flow is a container of various database and recipes. To create flow, the database in the library needs to be added. Also, single database needs to be added into the recipe cycle. After the completion of all the data cleaning activity, union of all the dataset is needs to be created to JOIN the data base using JOIN Function in add recipe section. By clicking on Run Job, the structured flow of the database with the single recipe was obtained.

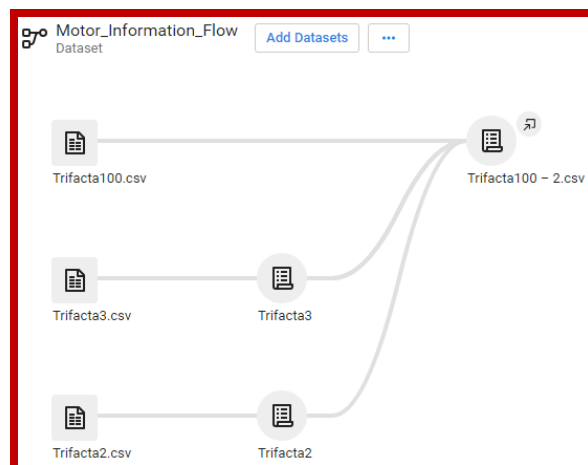


Fig: 18

Some data analysis activity was performed on the columns given below:

1) Column Name: PHY_ZIP

Dimension: Consistency, Completeness, Accuracy, Validity

- a) This data had all United states ZIP code which was required for transportation of goods from one place to another. By using Trifacta predefined function, it was understood that the state code value and null value were mismatched. United states have 5-digit postal code whereas the data had more than 5 digits as well as 4-digit valid data. Some state code had the starting code as 0, which Trifacta failed to identify. **Pad with Leading Character** function was used to format the data into 5-digit valid data shown in Fig 1

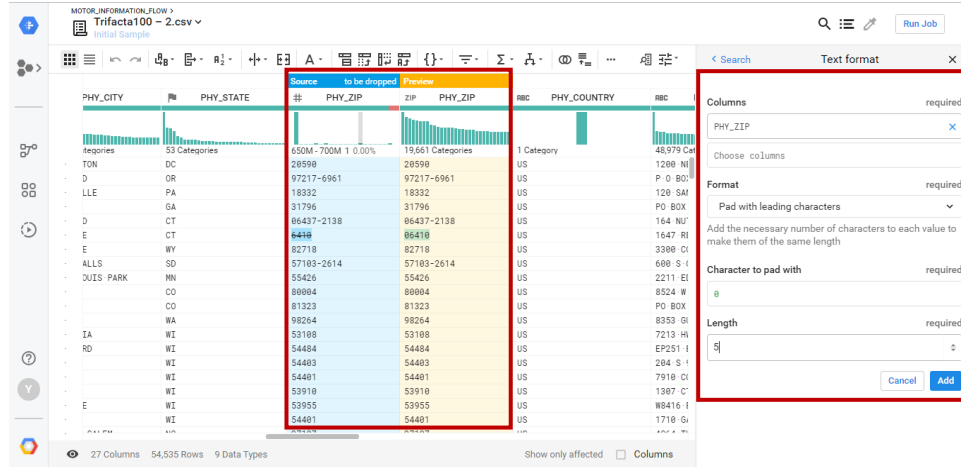


Fig 19

- b) Some data had more than 5-digit value, which were separated by '-'. To execute this operation, **Extract Matches** function was used which was executed using the code given below.

Text to extract

`/[0-9]{5}/`

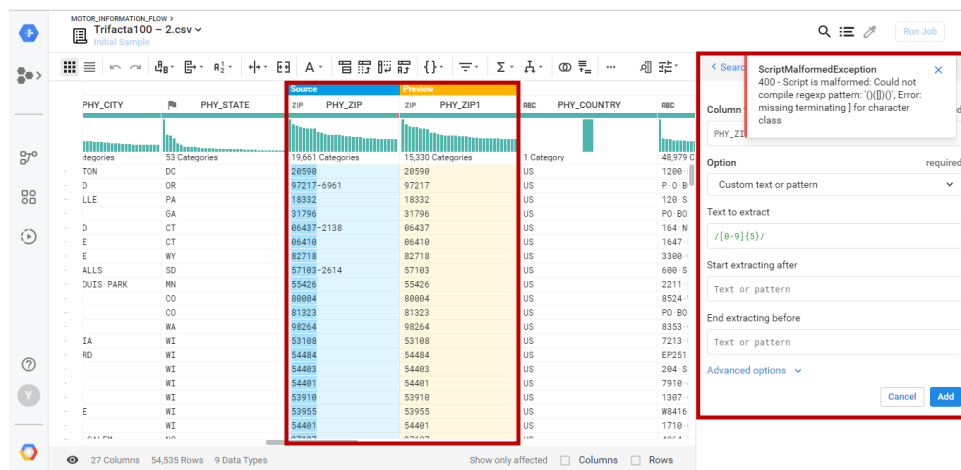


Fig: 20

With this operation all the data quality dimension test was performed thereby cleaning the data and making it valid.

2) Column Name: MAILING_ZIP

Dimension: Consistency, Completeness, Accuracy, Validity

Steps which were used for PHY_ZIP were performed. But in this MAILING_ZIP, data contained Canada and all other countries. The loaded data had valid Canada and all other countries zip code. Postal codes with more than 5 digits data were separated out.

3) Column Name: Carrier Operation, HM_FLAG, PC_FLAG

Dimension: Uniqueness, Completeness, Consistency, Accuracy

- This data had all valid values with no null and mismatch value. To make data more precise the name was changed according to the data abbreviation. To implement this operation SET function of Trifacta was used. One can use **If else condition** as well as **Case condition** to perform this operation. Case statement are mainly used for multiple condition execution.
- Both the statements were used on different columns. On Carrier_Operation **Case** condition was used to change abbreviation A to Interstate, B to Interstate Hazmat and C to Interstate non-Hazmat value.

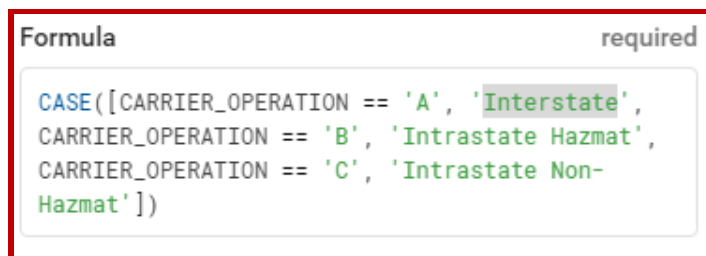


Fig: 21

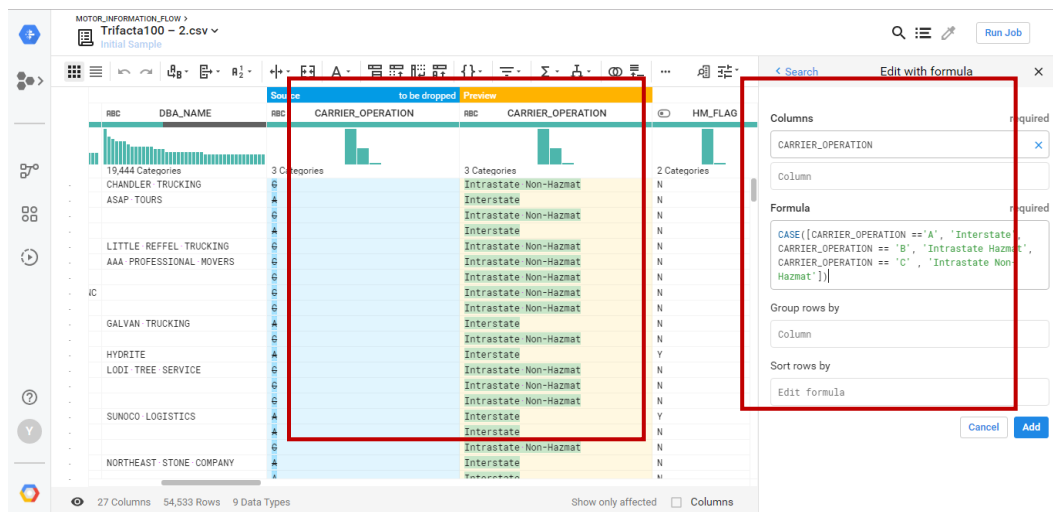


Fig: 22

c) To change Boolean Yes and No value, if else condition on HM and PC Flags were used.

The screenshot displays a data transformation interface. On the right, a 'Recipe' configuration panel is visible, showing the 'Columns' section with 'HM_FLAG' and 'PC_FLAG' selected. Below this, the 'Formula' section contains the formula `IF(PC_FLAG == 'N', 'NO', 'YES')`. The main data preview area shows a table with columns: CARRIER_OPERATION, HM_FLAG, and PC_FLAG. The data rows show various carrier operations and their corresponding flag values.

Fig: 23

4) To append all the databases and all the steps/recipe to apply to the database we need UNION in recipe. After selecting UNION at top of the recipe the all the database was merged and the data elements were reviewed. Fig 4 shows the trifacta after applying UNION statement.

The screenshot displays a 'Union' operation configuration. The 'Union Output' section lists 26 columns in the union, including DOT_NUMBER, LEGAL_NAME, DBA_NAME, CARRIER_OPERATI..., HM_FLAG, PC_FLAG, PHY_STREET, PHY_CITY, PHY_STATE, PHY_ZIP, and PHY_COUNTRY. The 'UNION DATA (3)' section shows the data from three sources: Trifacta100 - 2.csv, Trifacta3, and Trifacta2. The data is organized into a grid showing the columns and their corresponding values across the different sources.

Fig 24

Result:

After completing the data quality dimension, trifacta converted all the data into single job. This will help one to download data in a single format e.g. CSV, JSON file format.

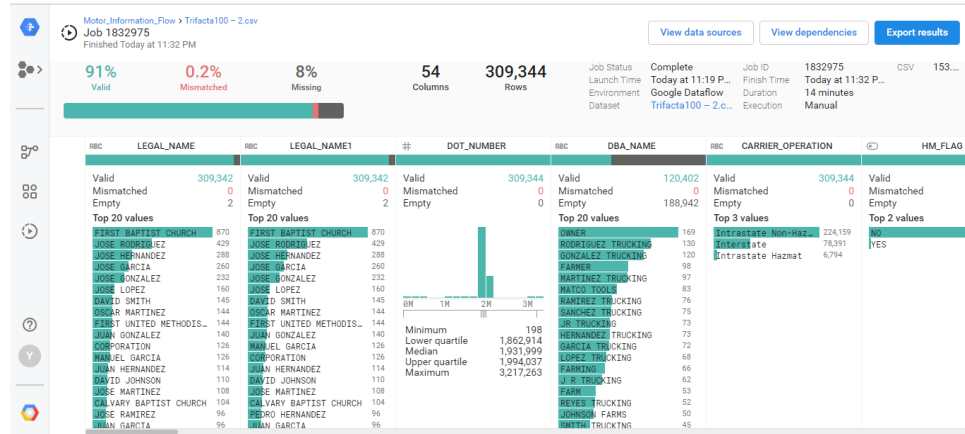


Fig 25

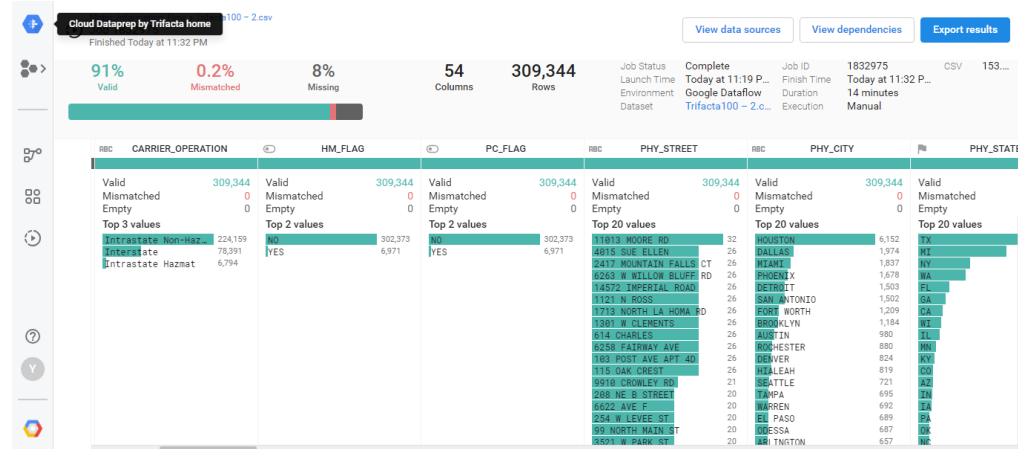


Fig: 26

Use Cases:

Use Case: 1

Which state exports maximum number of materials?

The Motor Census information dataset contains the data of goods exported and imported from various states of the world. The geographical map given below has all the data of United state where data had been exported with the count.

Data Quality Dimension Required for this analysis:

Sr No.	Data Quality Dimension
1.	Completeness
2.	Validity
3.	Accuracy
4.	Uniqueness
5.	Consistency

This quality dimension analysis was performed in OpenRefine, Trifacta and Talend Data Quality tool.

Step 1: Column was checked to be **Accurate** such that the parameters to gain this statistic were fulfilled. Some mismatched states values were replaced with correct and detailed dimension.

Step2: Consistency check was confirmed considering the state postal code. For this state code and ZIP code was checked to be consistent for data analysis.

Steps 3: To achieve **Complete** data, the completeness of the values were checked together with the schema of completeness factor. Relevant data quality steps were performed on applicable data elements.

Steps 4: For Validity check, the data quality operation including Uniqueness were performed. The data was **Accurate, Consistence, Complete** and **Unique**.

Result:

The cleaned data is imported into python script and execute Data visualization operation using geographical plotting using **plotly** library.

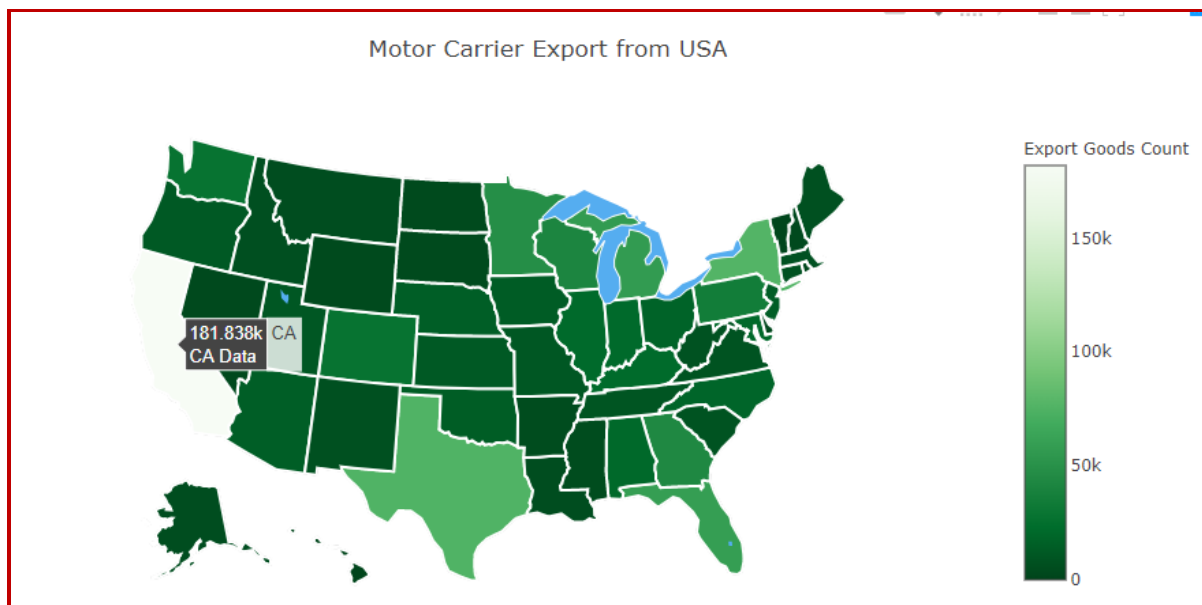


Fig 27

Use Case: 2

Analysis with highest number of transported materials.

In Motor carrier data set there were few data elements which were related to mailing address, which include Mailing state, mailing zip code and mailing state. The messy data was cleaned according to the data quality dimension.

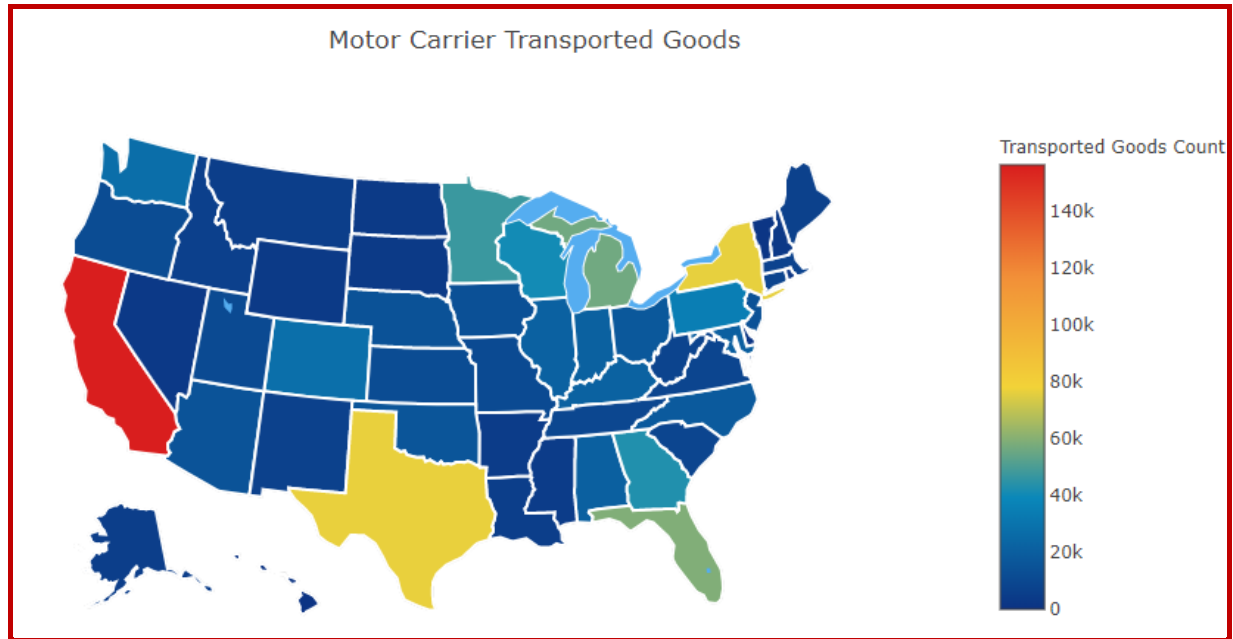


Fig: 28 Graphical representation shows the material transported within the USA.

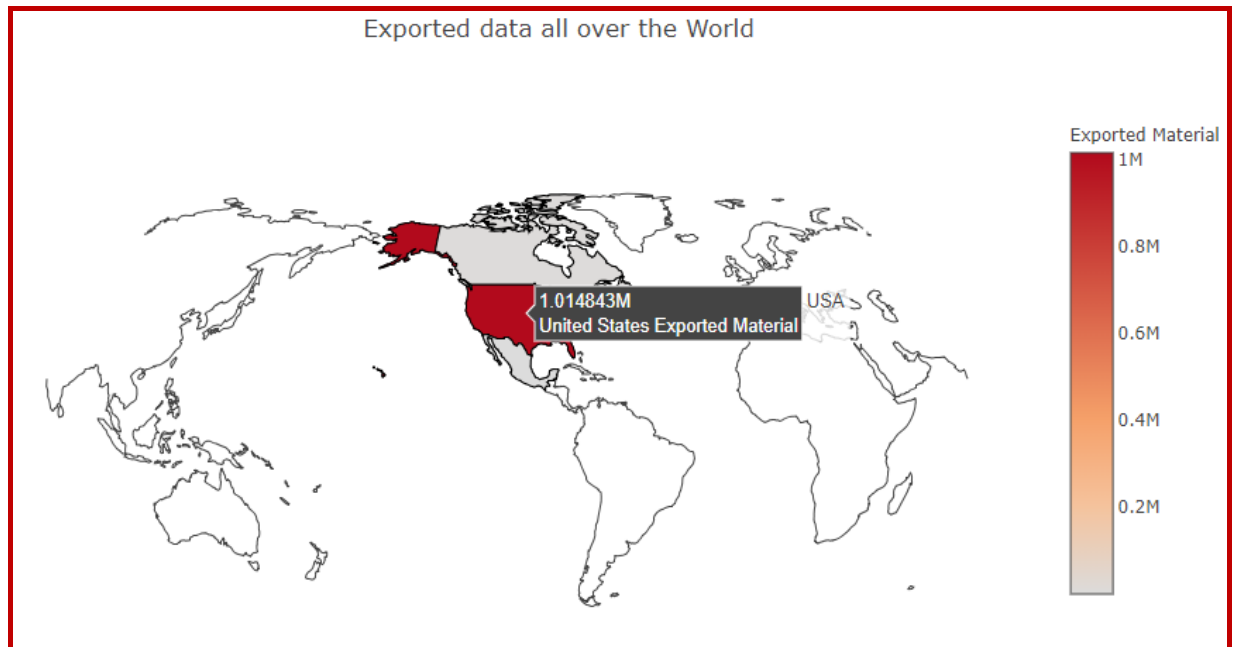


Fig: 29 Graphical representation shows the material transported All over the world.

Use Case: 3

Is there carrier engaged with hazardous materials?

By using the Facet operation on OpenRefine tool, the count of the carrier engaging with hazardous material was found. Some data quality analysis was performed on row data. Using the trim function, white space in the columns were cleaned as well as the abbreviations according to the FMCSA documentation were filled.

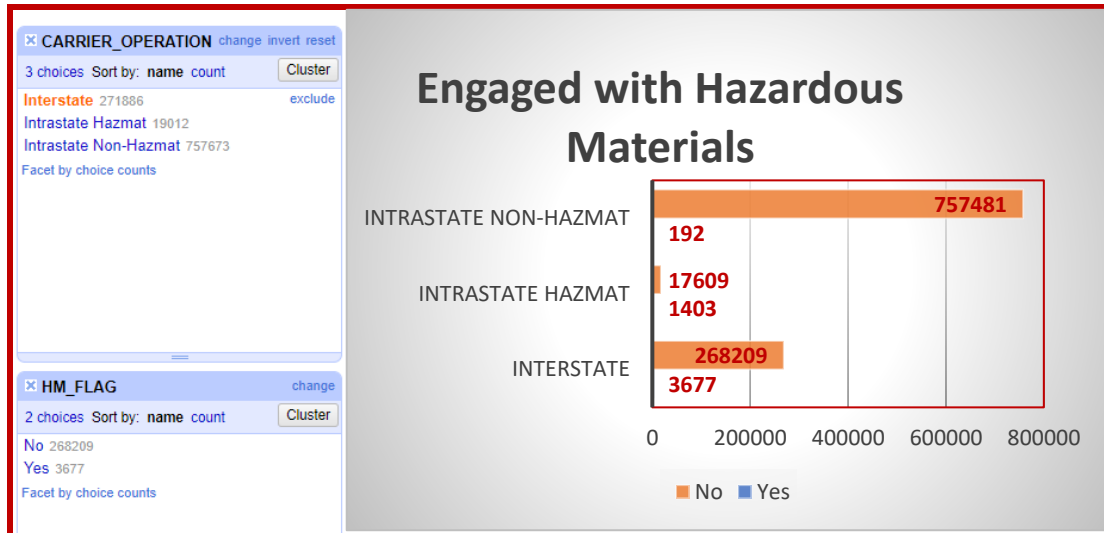


Fig: 30

Bibliography

FMCSA Data information links

- https://ask.fmcsa.dot.gov/app/mcmiscatalog/c_chap1
- https://ask.fmcsa.dot.gov/app/mcmiscatalog/d_census_daEleDef
- <https://www.worldatlas.com/aatlas/ctycodes.htm>
- <https://www.zdnet.com/article/what-is-the-tesla-semi-everything-you-need-to-know-about-teslas-semi-autonomous-electric-truck/>
- <https://ask.fmcsa.dot.gov/euf/assets/mcmiscatalog/states.html>
- https://ask.fmcsa.dot.gov/euf/assets/mcmiscatalog/d_countyCD.html
- https://ask.fmcsa.dot.gov/app/mcmiscatalog/d_census_mcmis_doc#top

Information

- <https://github.com/OpenRefine/OpenRefine/wiki/Cell-Editing>
- <https://www.youtube.com/watch?v=wGVtycv3SS0&t=1490s>
- <https://www.youtube.com/watch?v=WCRexQXYFrI&t=451s>
- https://www.google.com/search?q=san+juan+pr+zip+code+906+us&rlz=1C1SQJL_enIN791IN791&oq=san+juan&aqs=chrome.1.69i57j35i39j0l4.5023j1j7&sourceid=chrome&ie=UTF-8
- <http://www.zip-code-us.com/PuertoRico/zipcode.cfm?parm=906&state=>
- https://en.wikipedia.org/wiki/Puerto_Rico
- https://www.google.com/search?q=florida+jacksonville+zip+code&rlz=1C1SQJL_enIN791IN791&oq=florida+jacksonville+zip+code&aqs=chrome.0.0l6.7967j1j7&sourceid=chrome&ie=UTF-8
- https://www.google.com/search?rlz=1C1SQJL_enIN791IN791&ei=bvOKXLCzNlfdwAKxxLqABQ&q=GEORGIA+monroe+pincode&oq=GEORGIA+monroe+pincode&gs_l=psy-ab.3...19710.32157..32378...2.0..1.778.2043.3j4j5-1j1.....0....1..gws-wiz.....0i71j0i7i10i30j0i7i30j0i5i10i30j35i304i39j0i13i5i30j0i8i13i30j0i13i30.v0BzsHOdfms
- https://www.google.com/search?rlz=1C1SQJL_enIN791IN791&ei=XvOKXIfHDIfLwQL69KAw&q=KENTUCKY+central+city++pincode&oq=KENTUCKY+central+city++pincode&gs_l=psy-ab.3...13310.16305..16442...0.0..0.225.1454.7j3j2.....0....1..gws-wiz.....0i71j35i39j0i7i30j0i10.LJkRabXmkik
- https://www.google.com/search?rlz=1C1SQJL_enIN791IN791&nfpr=1&q=GEORGIA+carnesville+pincode&spell=1&sa=X&ved=0ahUKEwie1L2p9ILhAhWQPFaKH9rBRQQBQgrKAA&biw=1366&bih=657
- <https://www.zip-codes.com/city/ga-marble-hill.asp>