

Los Angeles Parking Citations

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Los Angeles Parking Citations

Analyze the Los Angeles Parking Citation DataSet

- Top 20 Violation Description (779 type of citations)
- Issue time
 - Near issue time
 - Between issue time
- Issue Date- Day of week
- Serial Models
 - Cloud - GPU.
 - Local environment.

Dataset

- Los Angeles Parking Citations 2015 - Present
- Source: [Kaggle - Los Angeles Parking Citations](#)
- Format: Csv
- Size: 1.11 GB

Model Planning

- Python
- Pandas
- Mathplotlib
- Jupyter Notebook
- Ipyparallel - IPython's architecture for parallel and distributed computing
- Google Collaboratory- free Jupyter notebook environment that requires no setup and runs entirely in the cloud.
- Clear data.
- Use Mathplotlib to show data results
- Group violation descriptions, issue time, issue date

Result

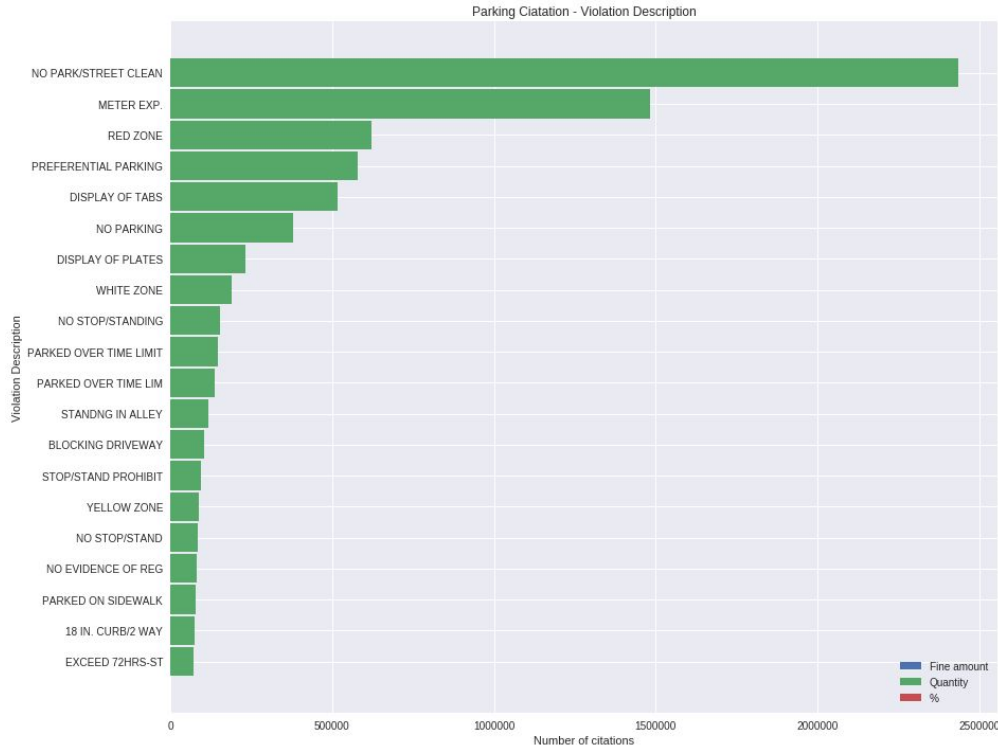
Local Machine - Execution time: 445 seconds

Google Collaboratory - Execution time: 119 seconds

Number of Parking Citations: 8,434,069 (2015-2018)

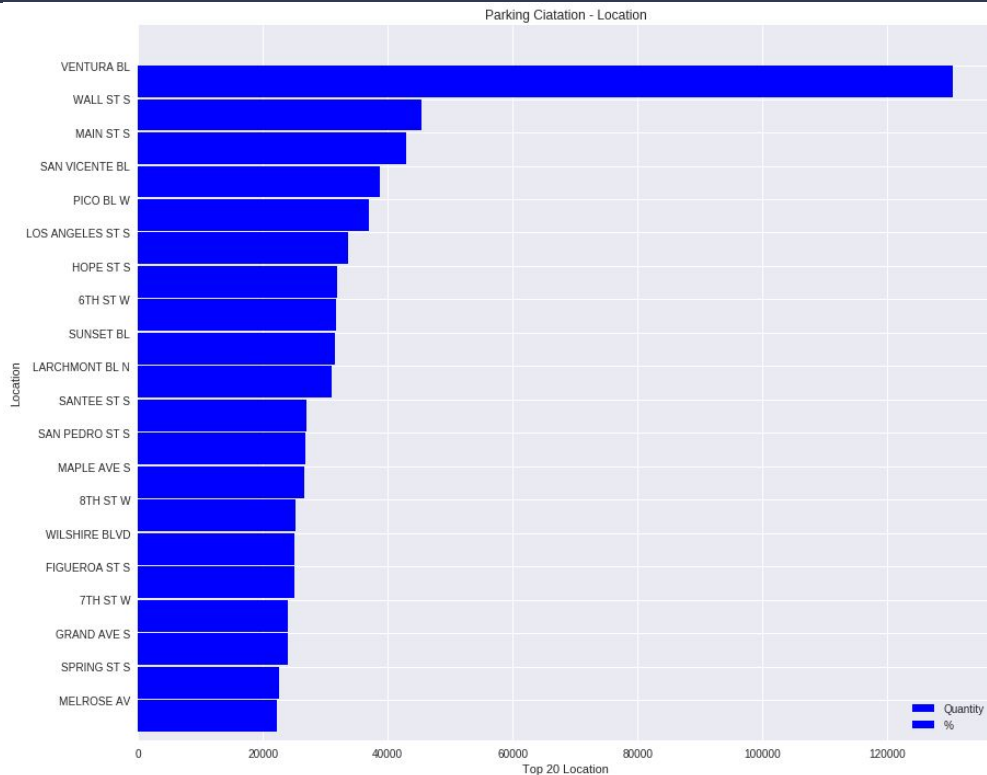
Total Fine:\$ 590,644,016.00

Top 20 Violation Descriptions



| Violation Description | Fine Amount | Quantity | % |
|-----------------------|-------------|-----------|------|
| NO PARK/STREET CLEAN | 73.00 | 2,434,742 | 28.9 |
| METER EXP. | 63.00 | 1,483,118 | 17.6 |
| RED ZONE | 93.00 | 621,533 | 7.4 |
| PREFERENTIAL PARKING | 68.00 | 580,289 | 6.9 |
| DISPLAY OF TABS | 25.00 | 51,7651 | 6.1 |

Location

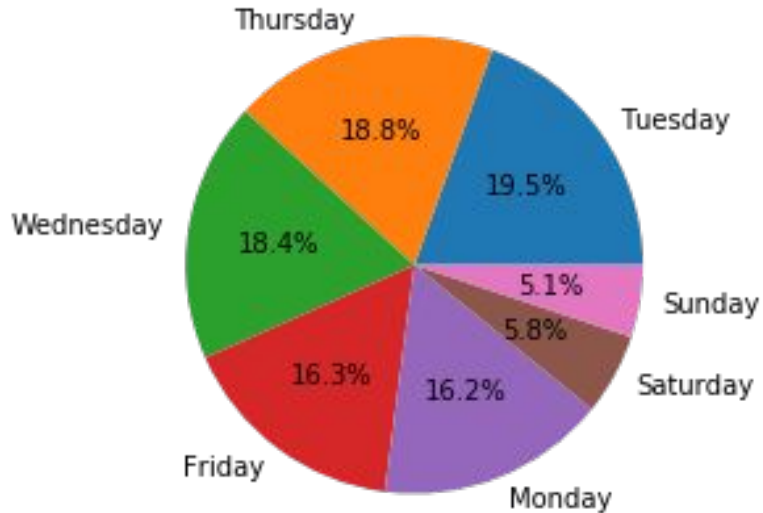


| Location | Quantity | % |
|----------------|----------|------|
| Ventura BL | 130,481 | 1.55 |
| Wall St | 45,413 | 0.53 |
| Main St | 42,972 | 0.50 |
| San Vicente BL | 38,732 | 0.46 |
| Pico BL | 37,002 | 0.43 |
| LOS ANGELES ST | 33,695 | 0.40 |

Data: 142,804 locations

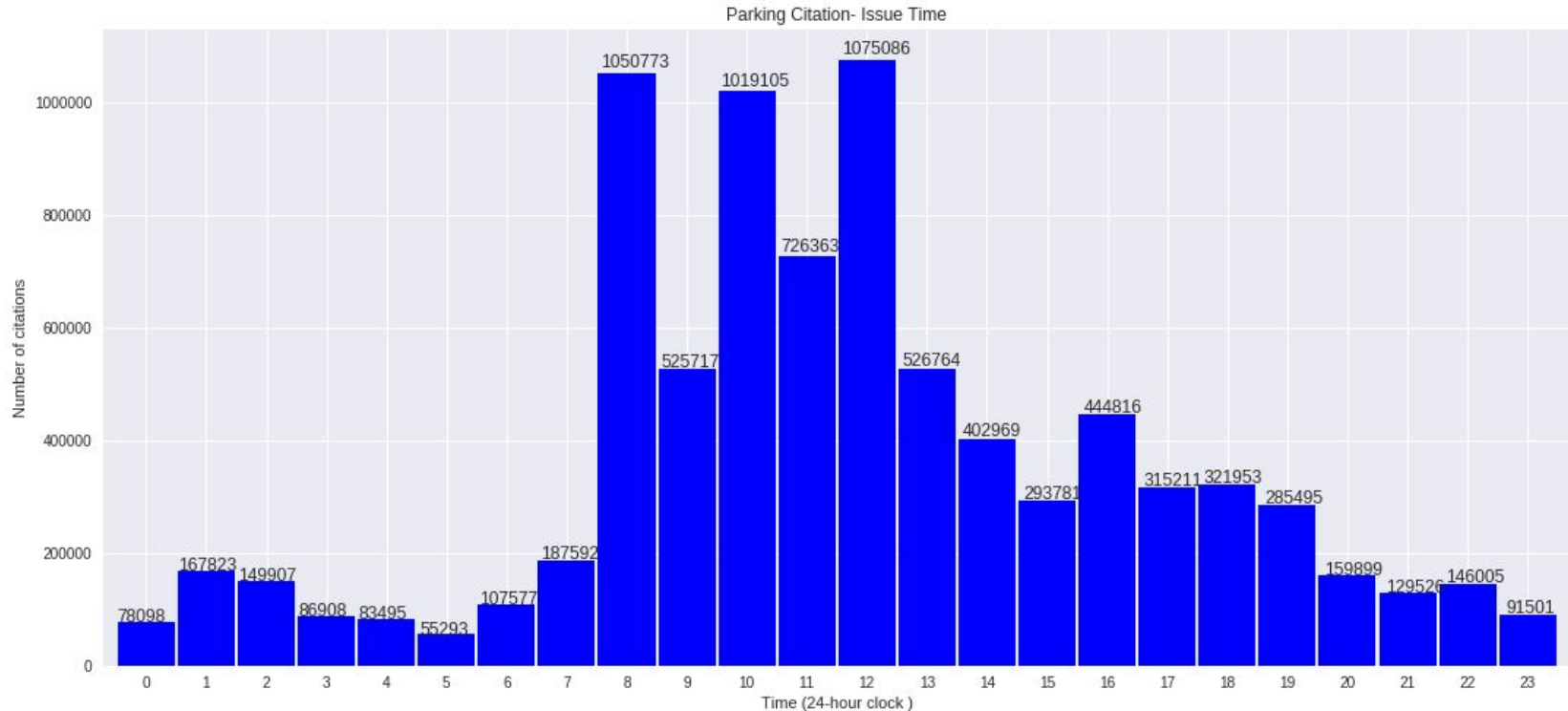
Issue Date

Parking Citation- Day of Week

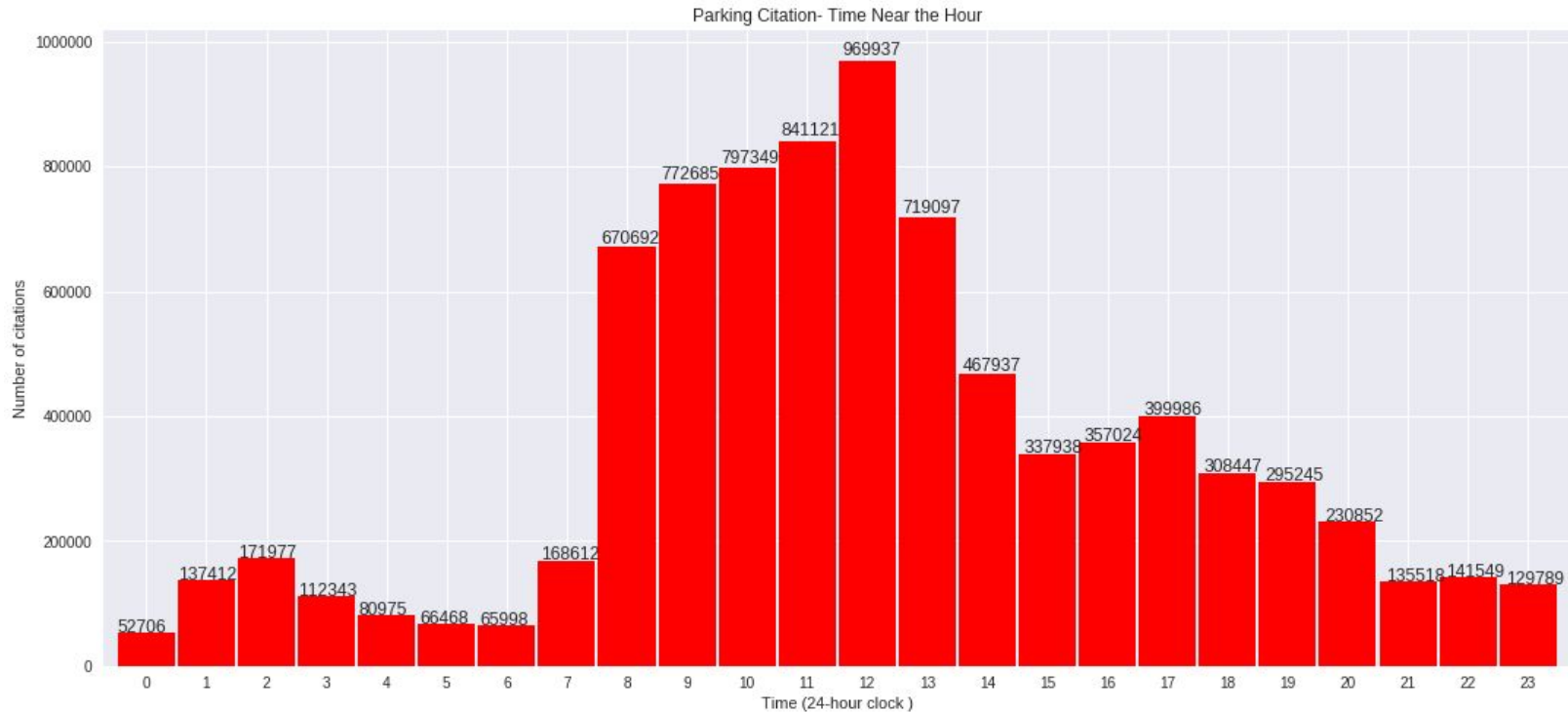


| Day of Week | Quantity | % |
|-------------|-----------|------|
| Tuesday | 1,640,958 | 19.5 |
| Thursday | 1,584,621 | 18.8 |
| Wednesday | 1,552,237 | 18.4 |
| Friday | 1,374,309 | 16.3 |
| Monday | 1,365,862 | 16.2 |
| Saturday | 485,931 | 5.8 |
| Sunday | 42,963 | 5.0 |

Issue Time – Between Issue Time



Issue Time – Near Issue Time

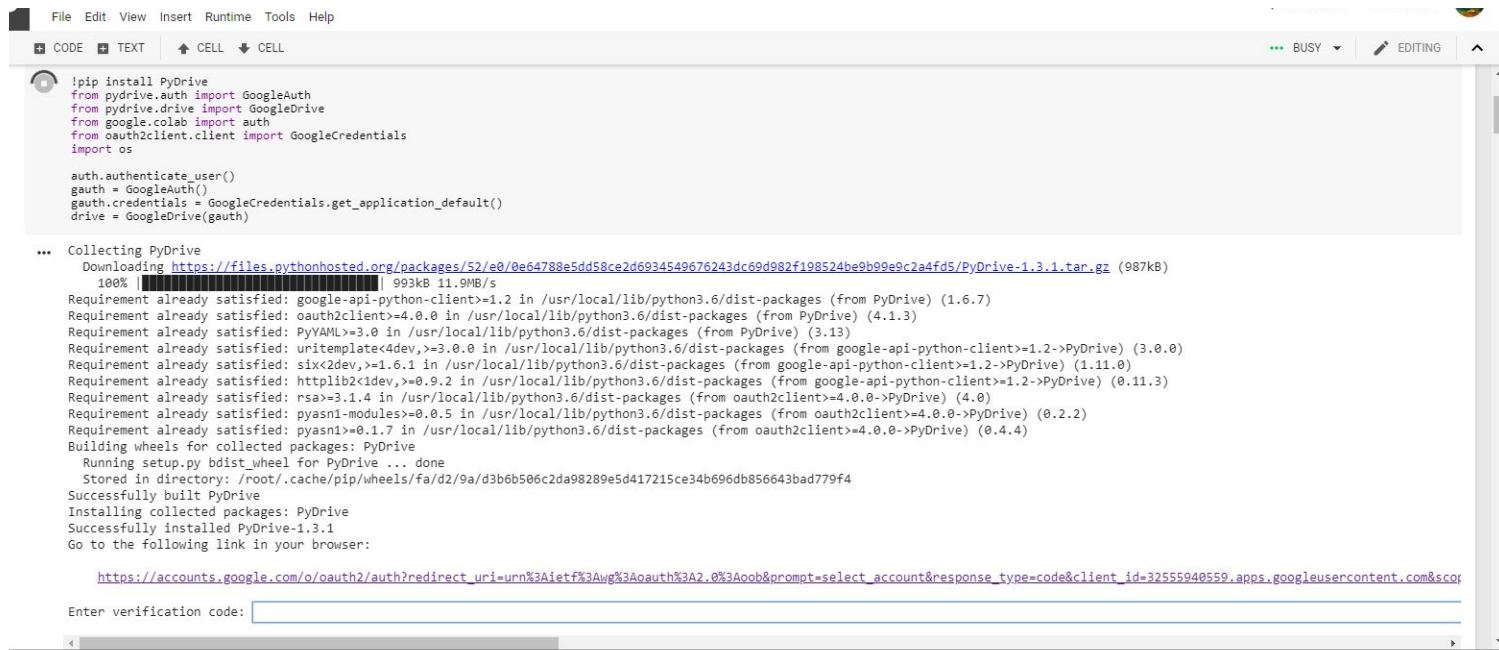


Demo

Google Collaboratory- free Jupyter notebook environment that requires no setup and runs entirely in the cloud.



Google Authorization



The screenshot shows a Jupyter Notebook with a menu bar (File, Edit, View, Insert, Runtime, Tools, Help) and tabs for CODE, TEXT, CELL, and CELL. The code cell contains the following Python code:

```
!pip install PyDrive
from pydrive.auth import GoogleAuth
from pydrive.drive import GoogleDrive
from google.colab import auth
from oauth2client.client import GoogleCredentials
import os

auth.authenticate_user()
gauth = GoogleAuth()
gauth.credentials = GoogleCredentials.get_application_default()
drive = GoogleDrive(gauth)
```

Below the code cell, the output shows the installation of PyDrive and the Google authorization process:

```
... Collecting PyDrive
  Downloading https://files.pythonhosted.org/packages/52/e0/0e64788e5dd58ce2d6934549676243dc69d982f198524be9b99e9c2a4fd5/PyDrive-1.3.1.tar.gz (987kB)
    100% |#####| 993kB 11.9MB/s
Requirement already satisfied: google-api-python-client>=1.2 in /usr/local/lib/python3.6/dist-packages (from PyDrive) (1.6.7)
Requirement already satisfied: oauth2client>=4.0.0 in /usr/local/lib/python3.6/dist-packages (from PyDrive) (4.1.3)
Requirement already satisfied: PyYAML>=3.0 in /usr/local/lib/python3.6/dist-packages (from PyDrive) (3.13)
Requirement already satisfied: uritemplate<4dev,>=3.0.0 in /usr/local/lib/python3.6/dist-packages (from google-api-python-client>=1.2->PyDrive) (3.0.0)
Requirement already satisfied: six<2dev,>=1.6.1 in /usr/local/lib/python3.6/dist-packages (from google-api-python-client>=1.2->PyDrive) (1.11.0)
Requirement already satisfied: httplib2<1dev,>=0.9.2 in /usr/local/lib/python3.6/dist-packages (from google-api-python-client>=1.2->PyDrive) (0.11.3)
Requirement already satisfied: rsa>=3.1.4 in /usr/local/lib/python3.6/dist-packages (from oauth2client>=4.0.0->PyDrive) (4.0)
Requirement already satisfied: pyasn1-modules>=0.0.5 in /usr/local/lib/python3.6/dist-packages (from oauth2client>=4.0.0->PyDrive) (0.2.2)
Requirement already satisfied: pyasn1>=0.1.7 in /usr/local/lib/python3.6/dist-packages (from oauth2client>=4.0.0->PyDrive) (0.4.4)
Building wheels for collected packages: PyDrive
  Running setup.py bdist_wheel for PyDrive ... done
  Stored in directory: /root/.cache/pip/wheels/fa/d2/9a/d3b6b506c2da98289e5d417215ce34b696db856643bad779f4
Successfully built PyDrive
Installing collected packages: PyDrive
Successfully installed PyDrive-1.3.1
Go to the following link in your browser:

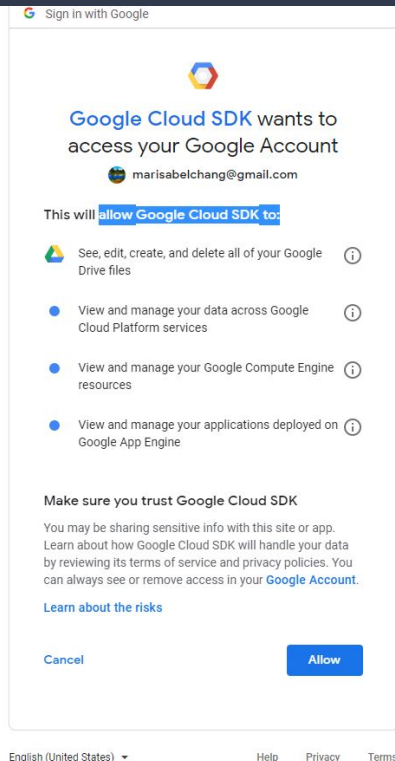
https://accounts.google.com/o/oauth2/auth?redirect\_uri=urn%3Aietf%3Awww%3Aoauth%3A2.0%3AApp%3Aprompt%3Dselect\_account&response\_type=code&client\_id=32555940559.apps.googleusercontent.com&scope=drive

Enter verification code: 
```

- Run the block that ask for google authorization

-Click the link is in the bottom

Permission



Allow Google Cloud SDK to get access to your google drive

Download, Unzip and Read the dataset

Run These two blocks of code

```
#Get the parking citation csv file from the google drive
if os.path.exists("parking-citations.csv"):
    print("Parking citation csv already exists")
else:
    download_test = drive.CreateFile({'id': '1VLvTcMT4R015_GkdcyvADscydW5F5801'}) #id of the file that contains the dataset(google drive)
    citation_file = download_test.GetContentFile('citation.zip')
#unzip the citation file
!unzip citation.zip
```

```
Archive: citation.zip
  inflating: parking-citations.csv
```

```
[ ] #Read the parking csv file
df = pd.read_csv('parking-citations.csv')
print(list(df)) # column names
print('Number of data:',df.shape)
```

```
/usr/local/lib/python3.6/dist-packages/IPython/core/interactiveshell.py:2718: DtypeWarning: Columns (0,7) have mixed types. Specify dtype option in interactive=interactivity, compiler=compiler, result=result)
['Ticket number', 'Issue Date', 'Issue time', 'Meter Id', 'Marked Time', 'RP State Plate', 'Plate Expiry Date', 'VIN', 'Make', 'Body Style',
Number of data: (8434069, 19)]
```

Analyze data

Run the block of code that contains the data that you desire to analyze