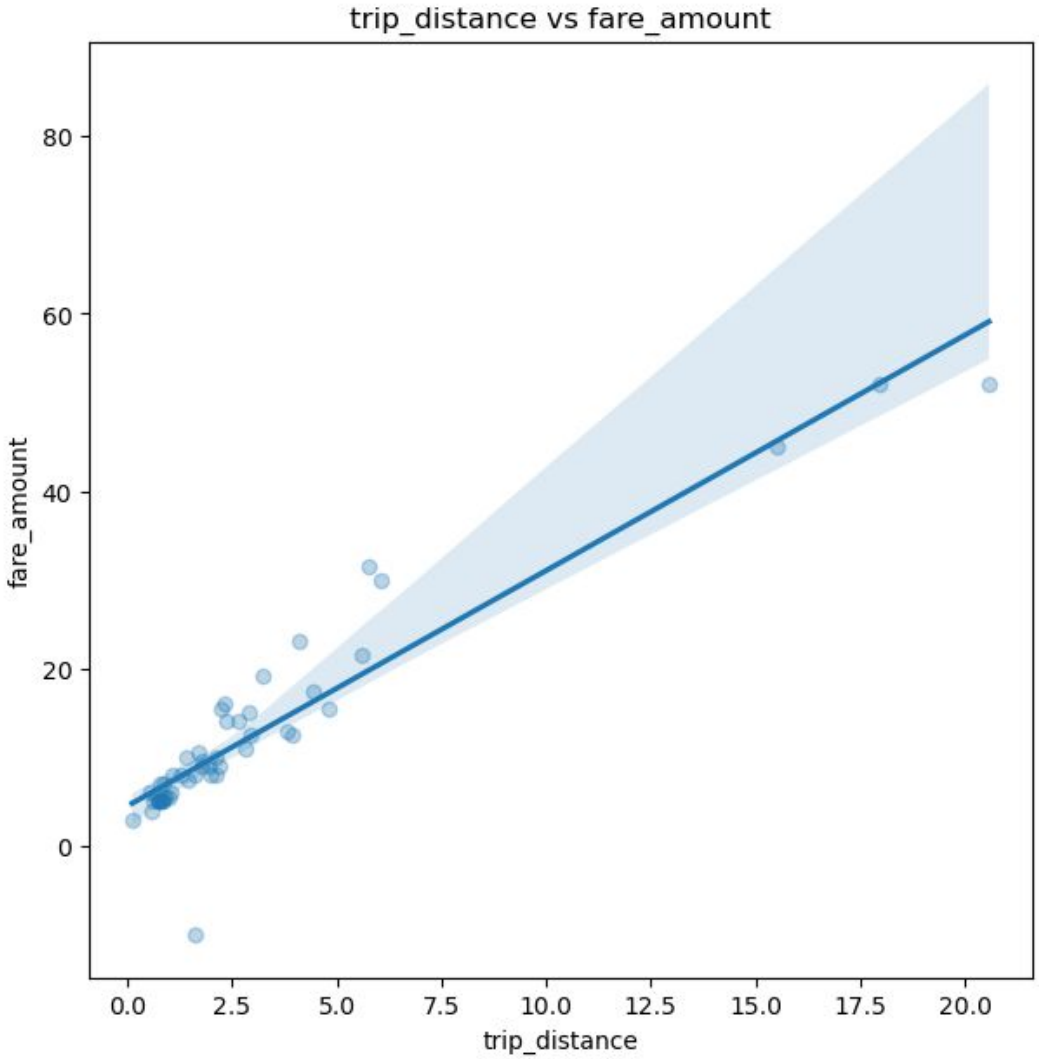
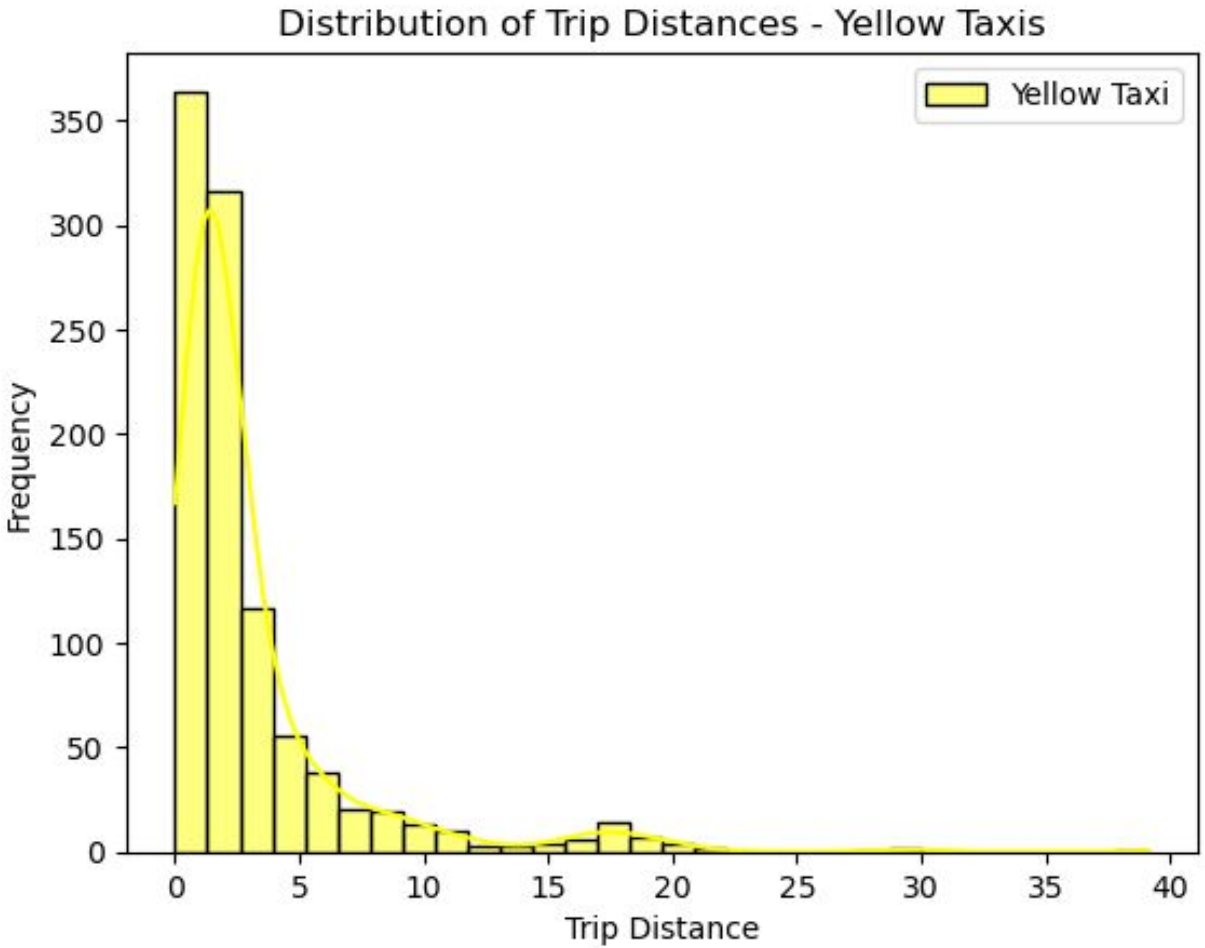
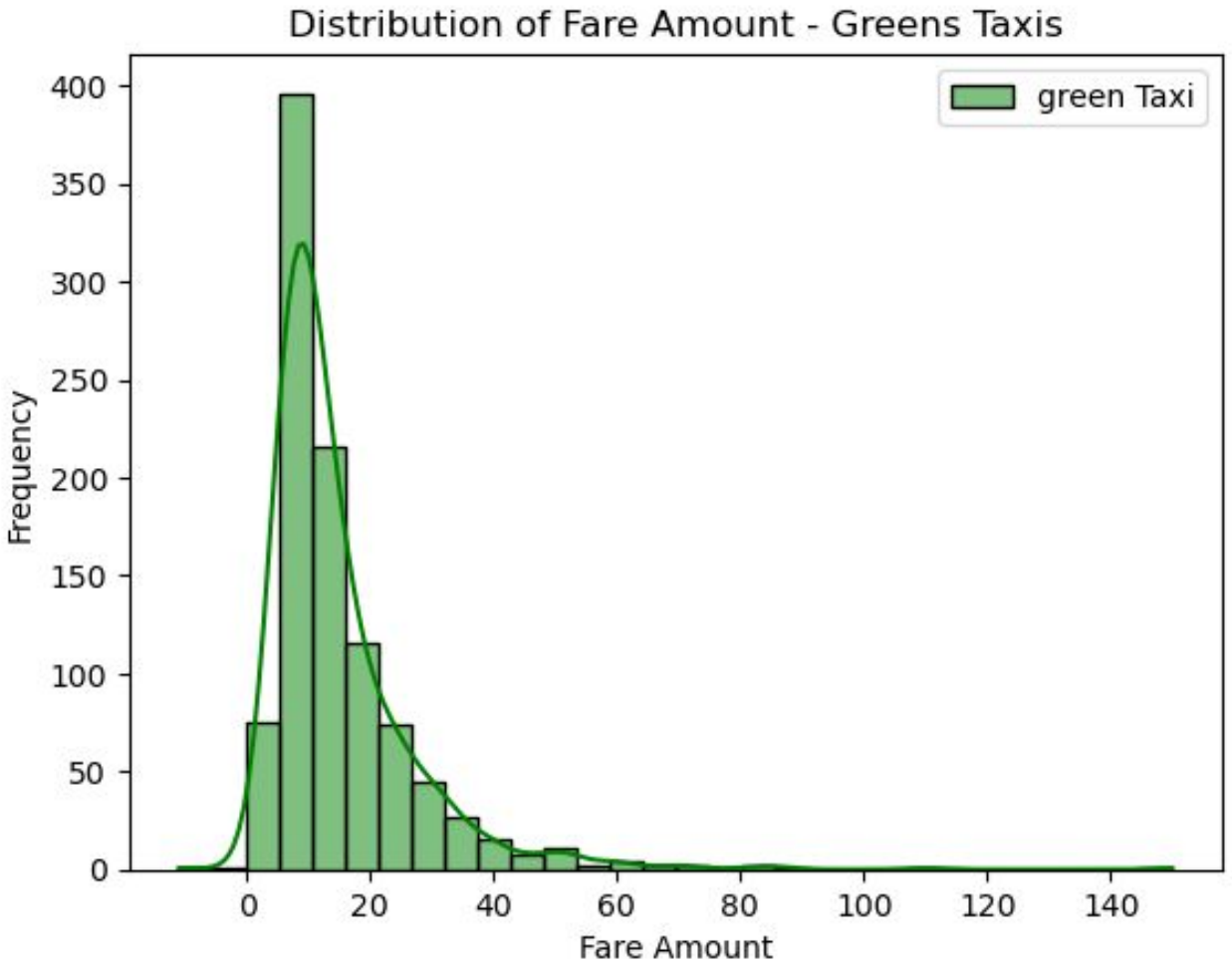
Project 1: Analysis and Forecasting of NYC Taxi Rides



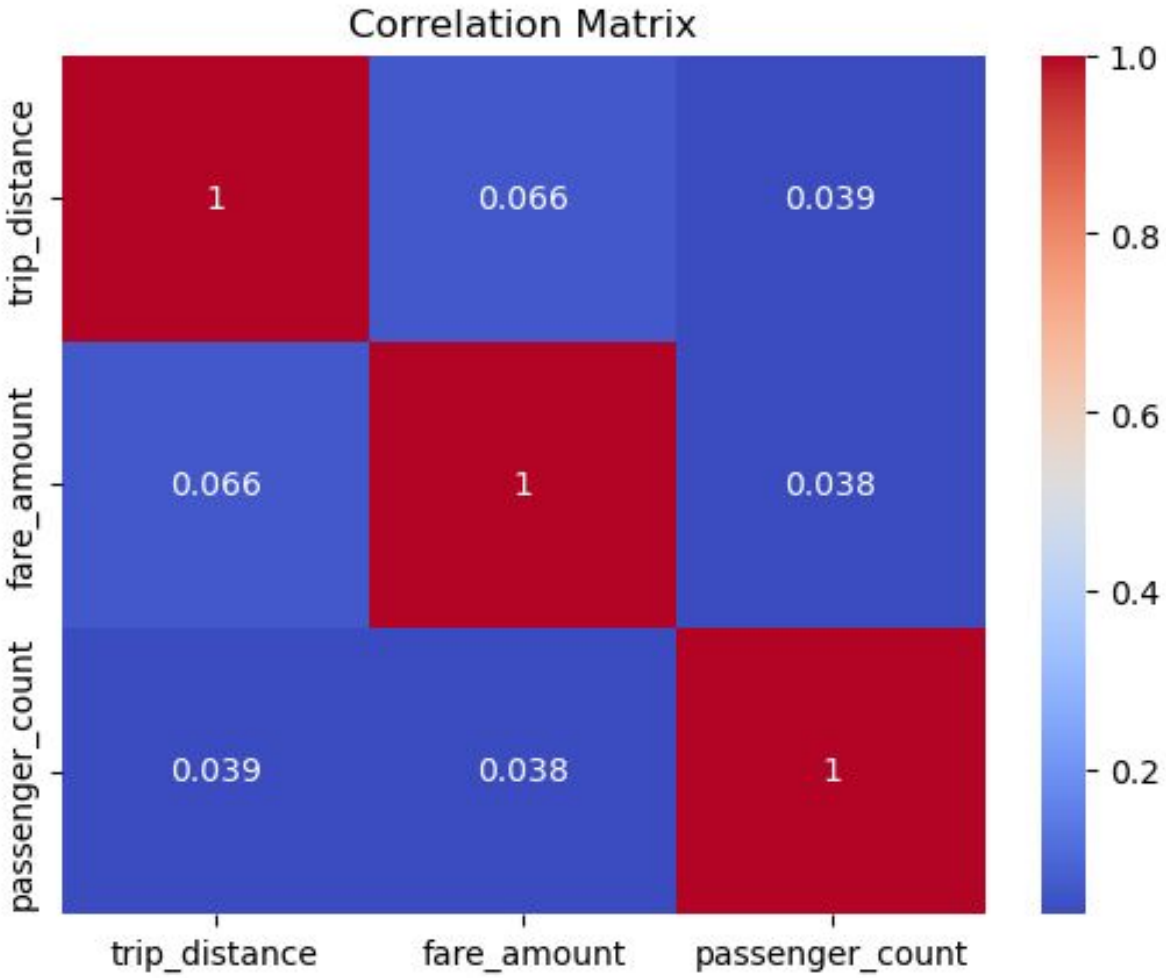
- The x-axis represents the trip distance in km, while the y-axis represents the fare amount in dollars .
- each point represents an individual trip
- Linear regression line= the trip distance increases, the fare amount also increases linearly = positive
- The shaded area around the regression line represents the confidence interval= indicating the range within



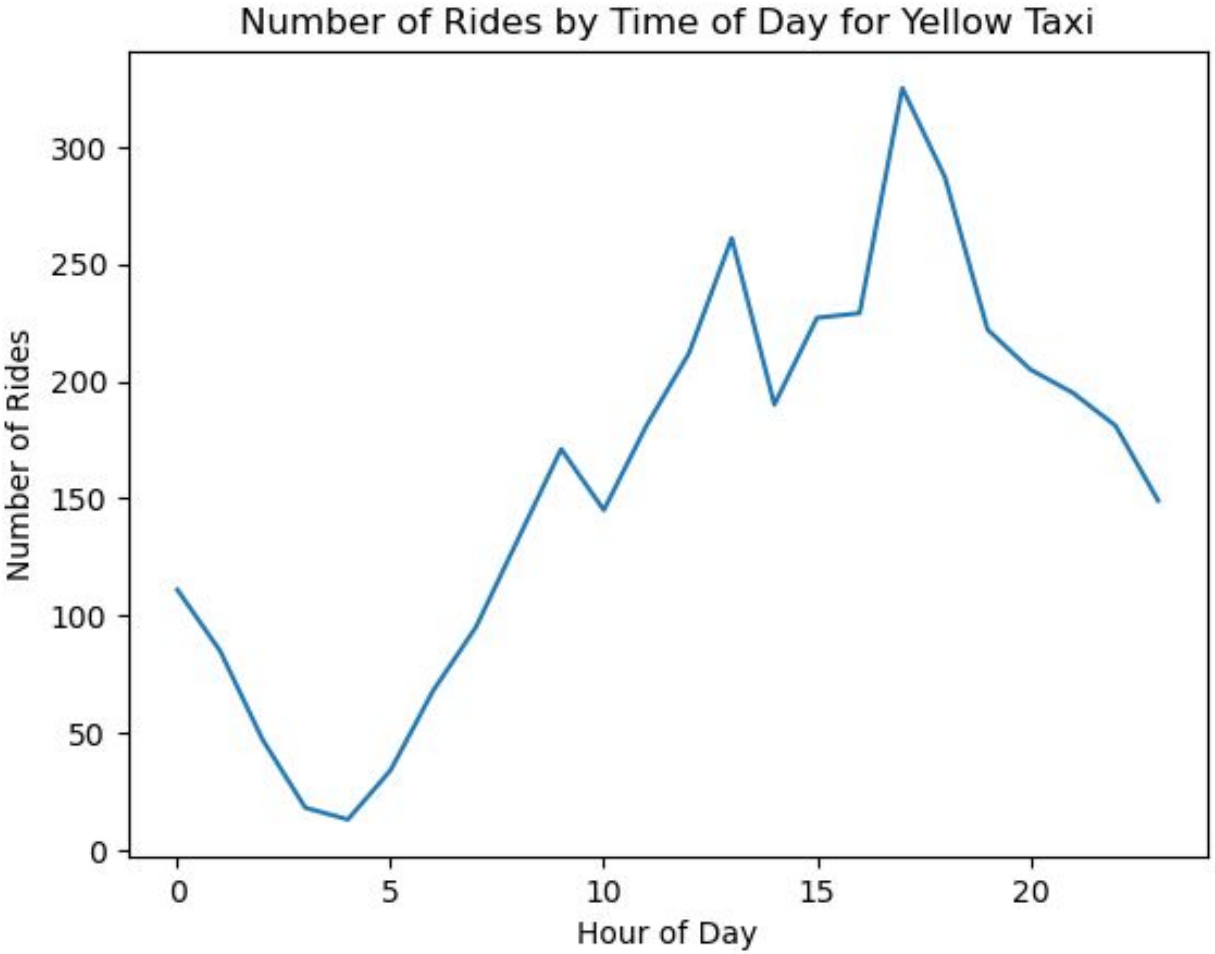
- the most common trip distances are very short, with a high frequency of trips
- The frequency of trips decreases as the distance increases, showing that longer trips are less common



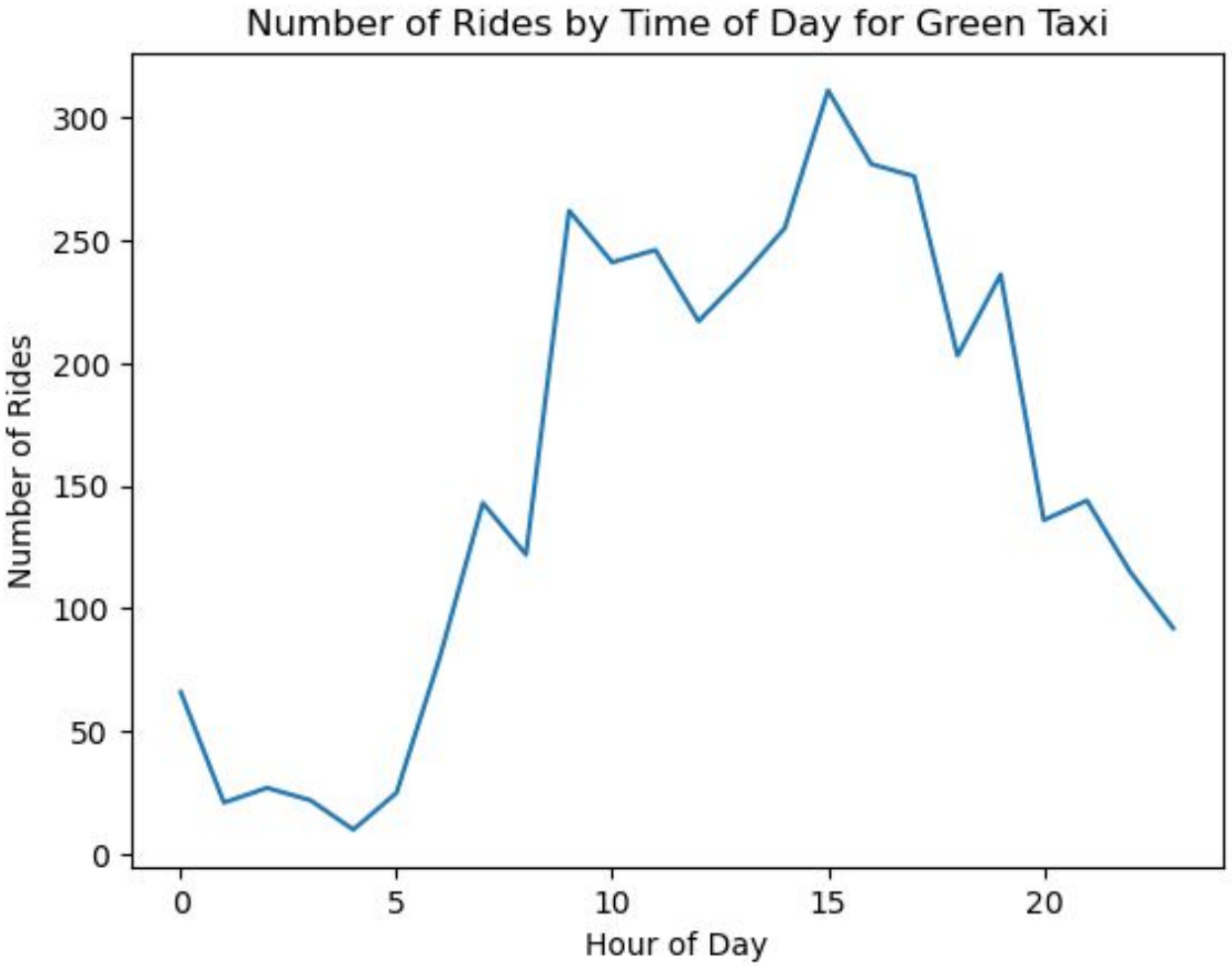
- Peaks or modes in the frequency distribution indicate the most common fare amounts. These are the typical prices passengers pay for green taxi trips.



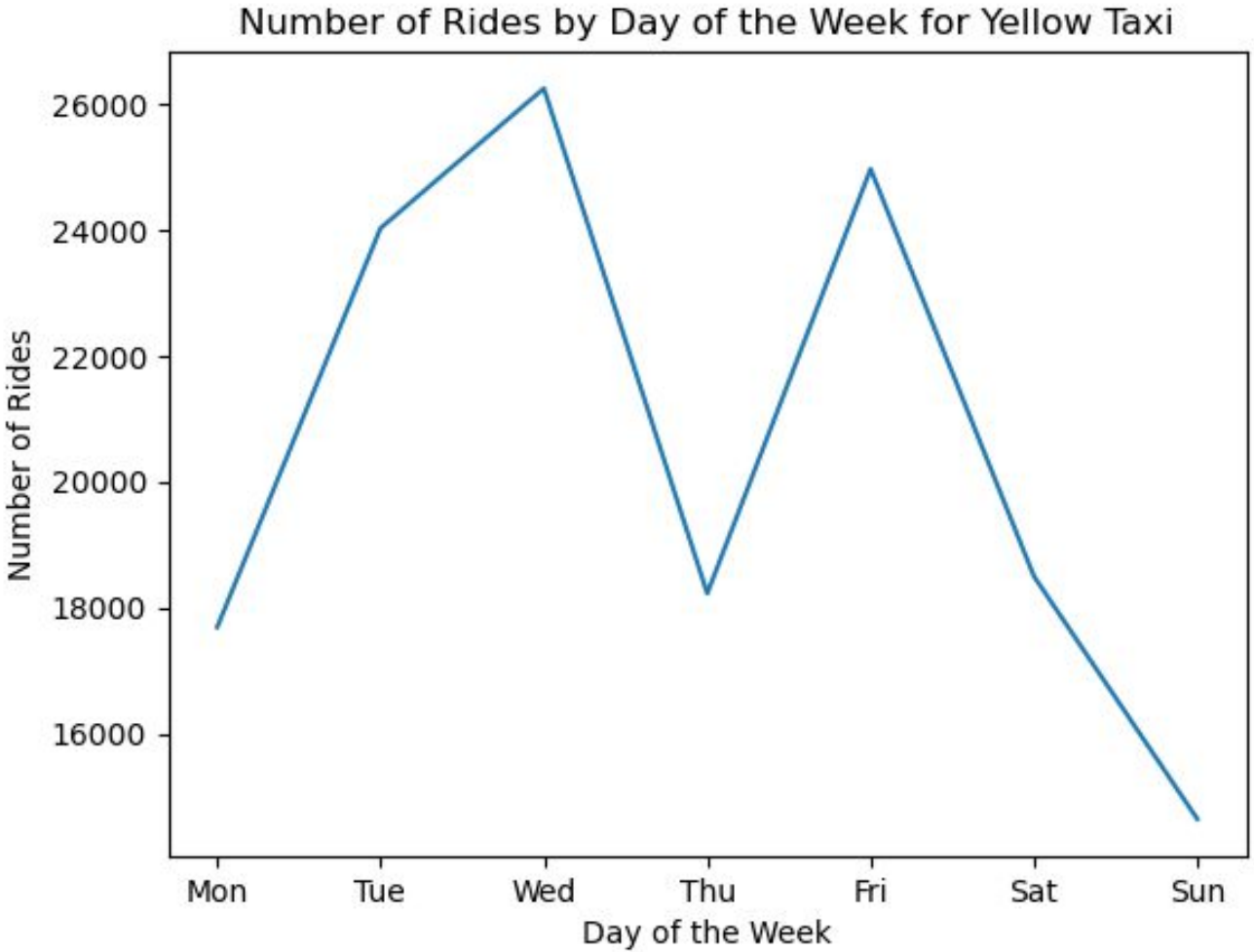
- This type of visualization is used to show the correlation coefficients between variables
- The values range from 1 to -1, where 1 = positive correlation, -1 = negative correlation, 0 = no correlation.
- trip_distance + fare_amount = low positive correlation of 0.066, no linear relationship between these variables.



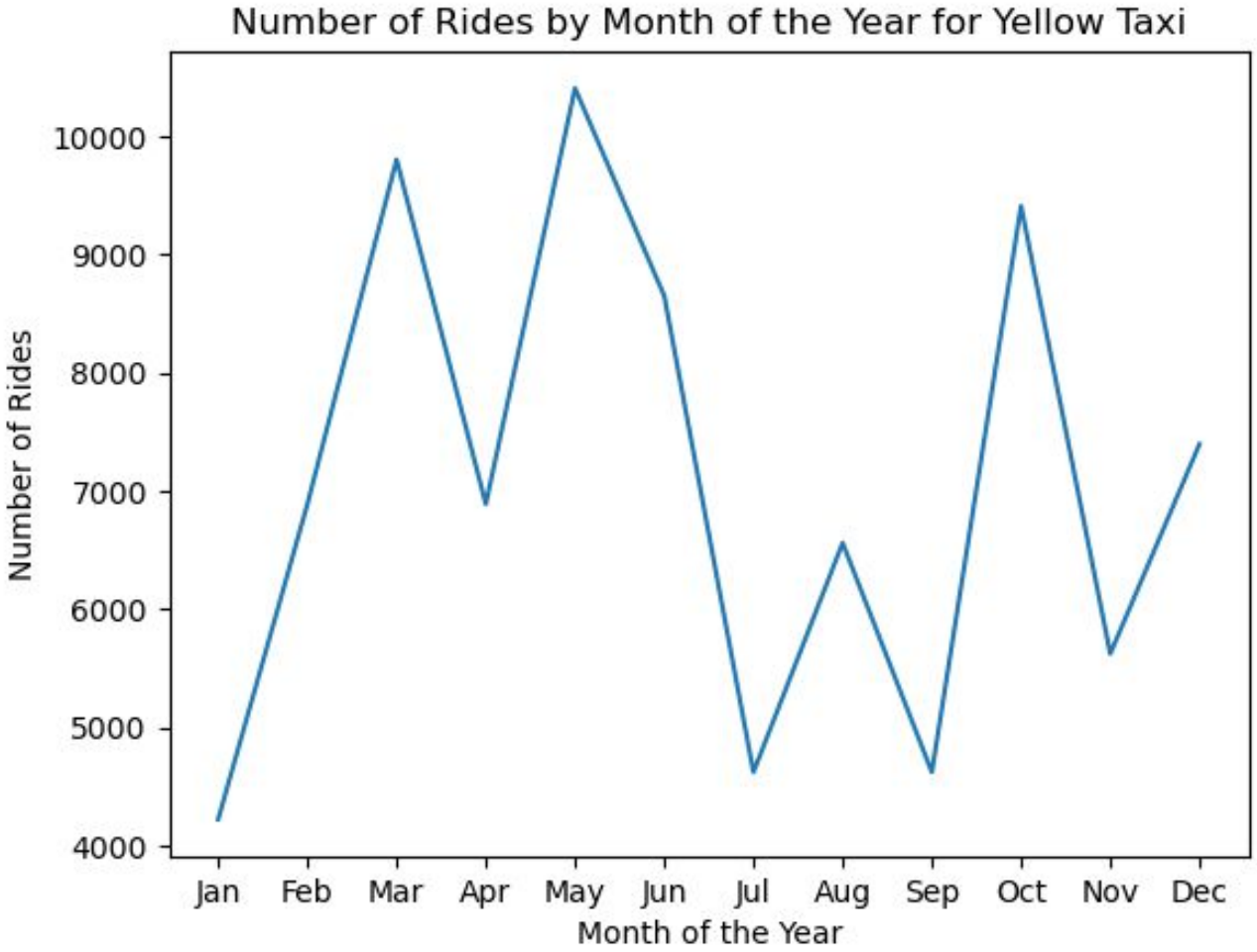
- y-axis represents the number of rides.
- The x-axis represents the hour of day.



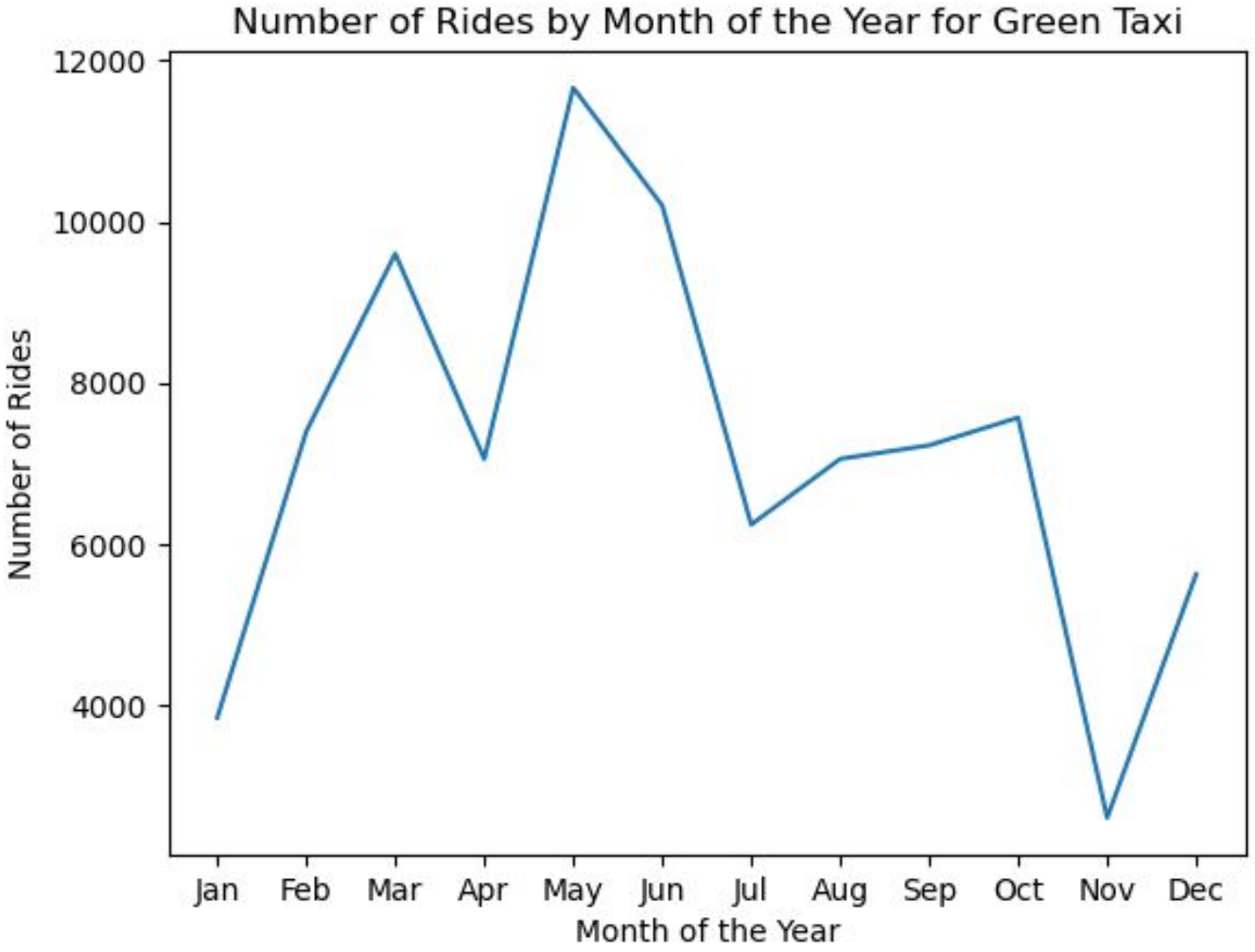
- y-axis represents the number of rides.
- The x-axis represents the hour of day.



- y-axis represents the number of rides.
- The x-axis represents the days of the week



- y-axis represents the number of rides.
- The x-axis represents the months of the year.



- y-axis represents the number of rides.
- The x-axis represents the months of the year.

Project 2： NASA Data Acquisation, Visualization, and Analysis

Mean NEO Size: 0.150828527904166668

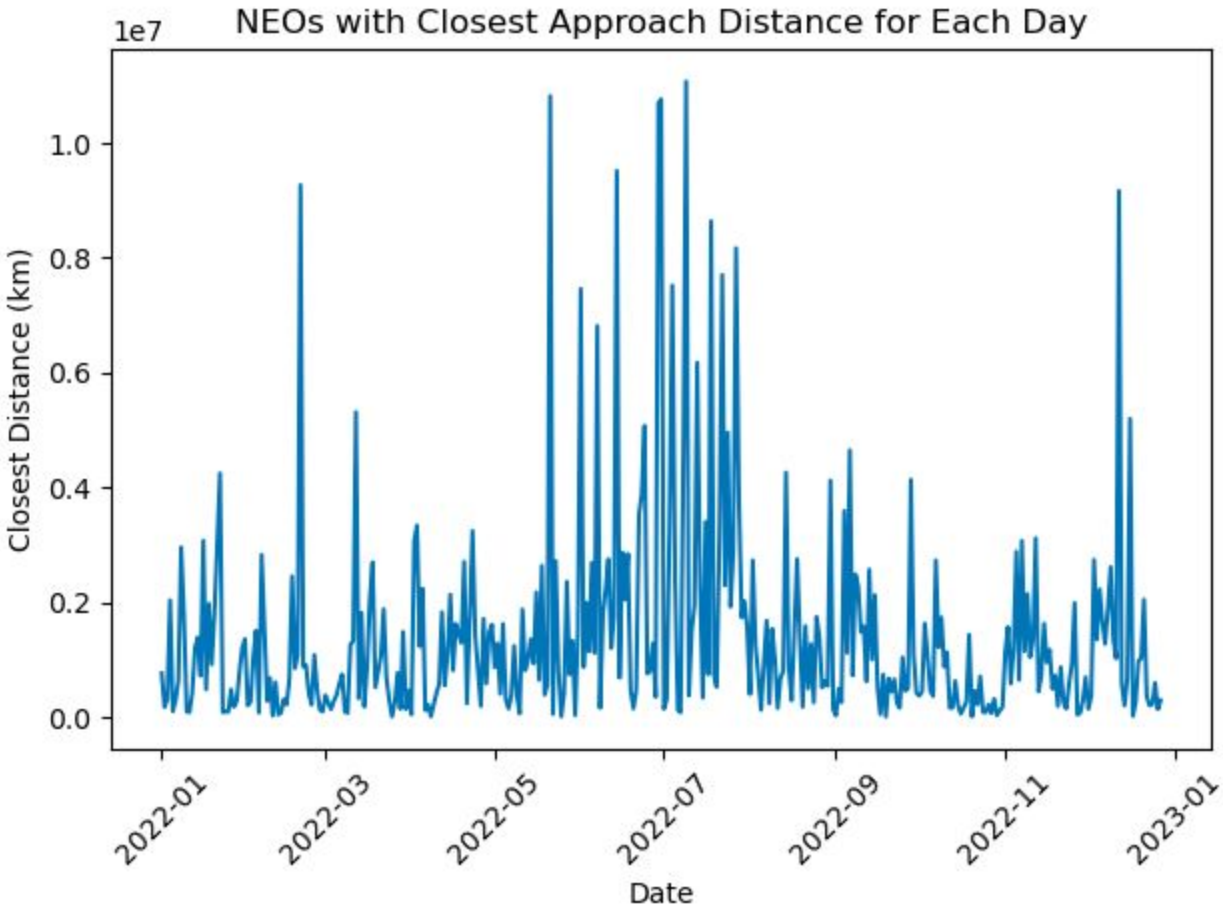
Median NEO Size: 0.0559192112999999994

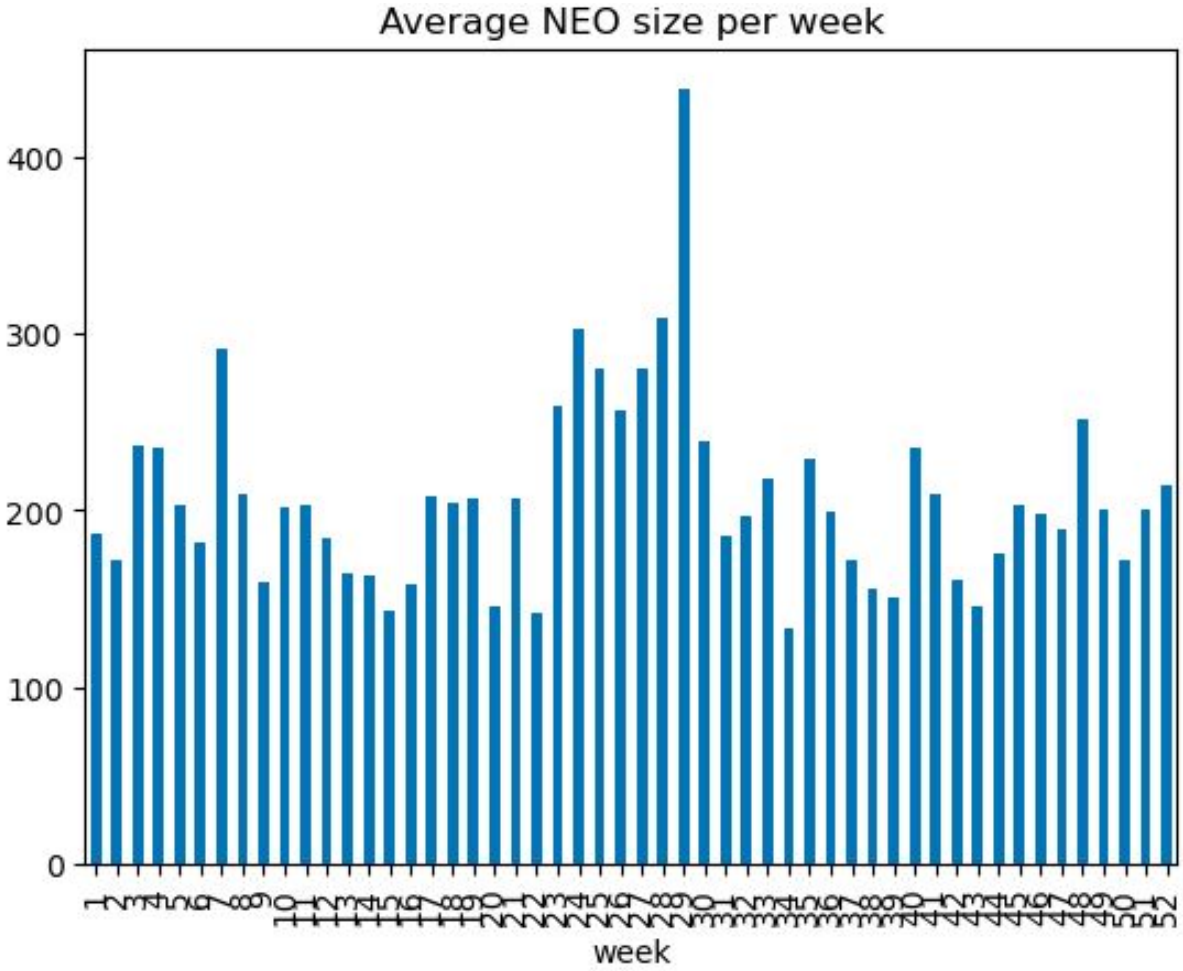
Mode NEO Size: 0.024748143

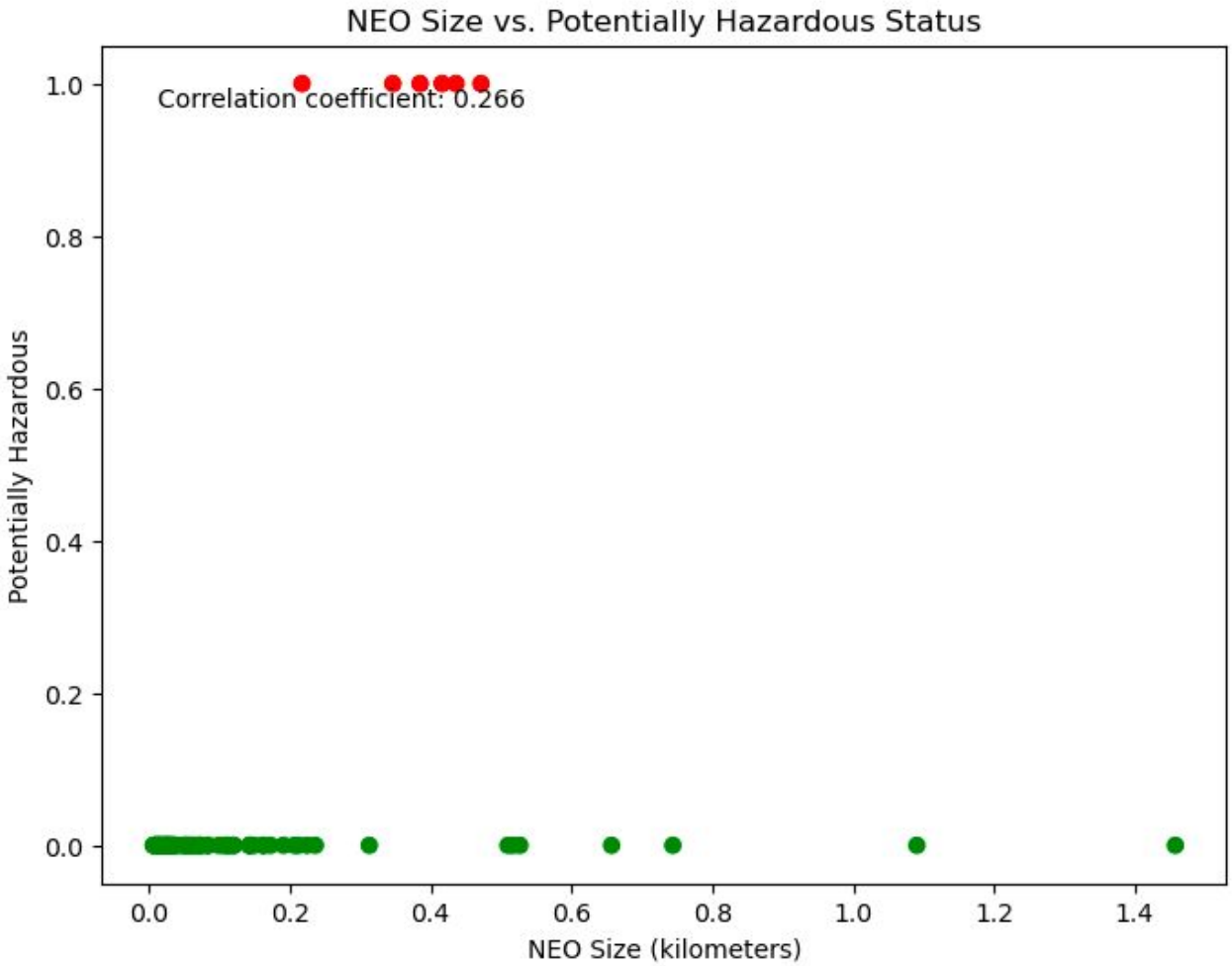
Standard Deviation of NEO Size: 0.239142612140075820

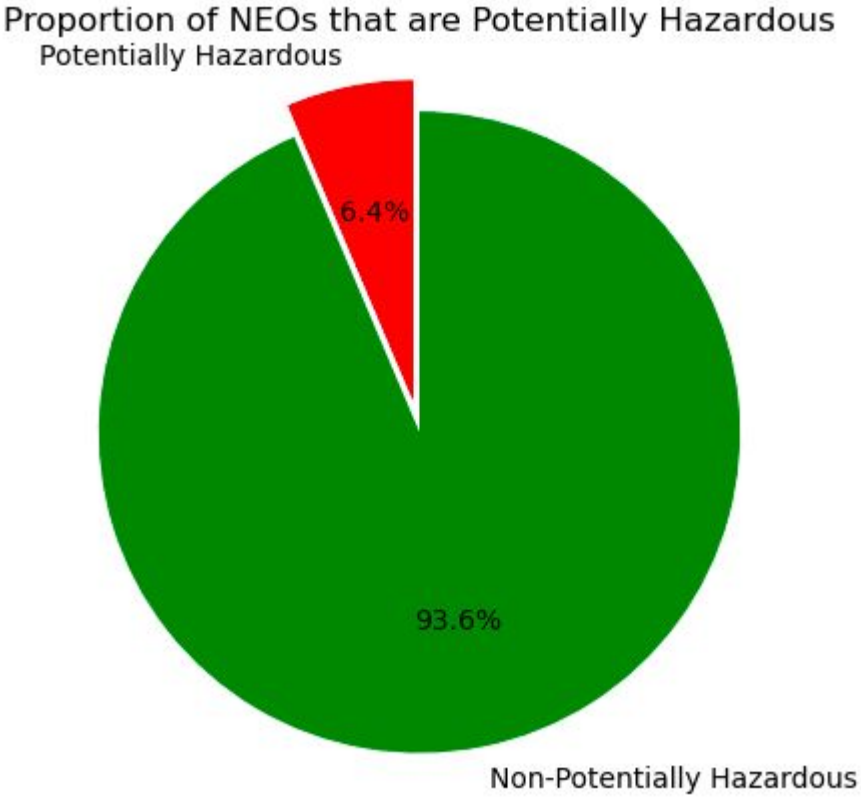
Correlation between NEO Size and Potentially Hazardous Status: 0.239142612140075820

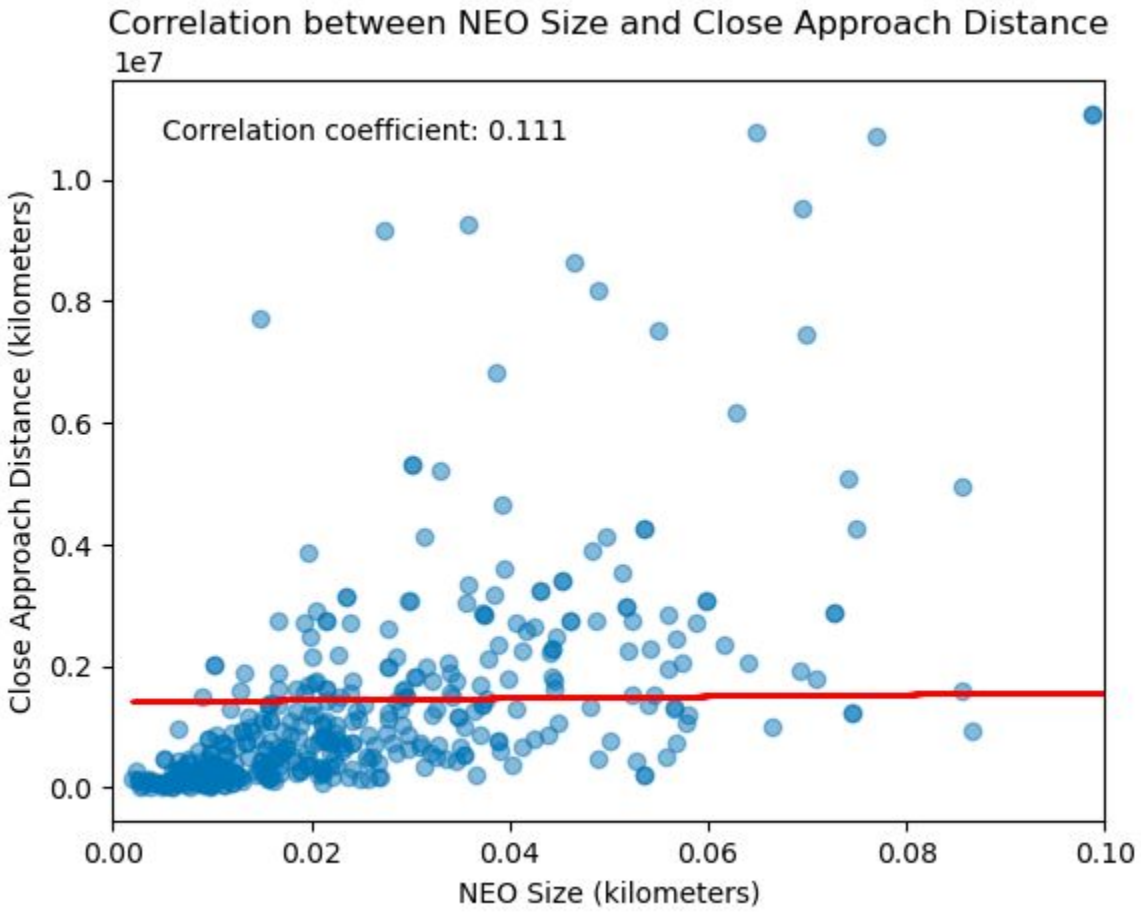
On 2022-01-07, the closest NEO had a distance of 645892.648390259 kilometers and a size of 0.0174598287 kilometers.
On 2022-01-08, the closest NEO had a distance of 2964655.504489047 kilometers and a size of 0.0517654482 kilometers.
On 2022-01-03, the closest NEO had a distance of 318517.890647922 kilometers and a size of 0.0088723768 kilometers.
On 2022-01-04, the closest NEO had a distance of 2041258.537972622 kilometers and a size of 0.033887535 kilometers.
On 2022-01-05, the closest NEO had a distance of 109480.269041248 kilometers and a size of 0.0025706324 kilometers.
On 2022-01-06, the closest NEO had a distance of 302040.732452512 kilometers and a size of 0.0068240151 kilometers.
On 2022-01-01, the closest NEO had a distance of 770529.455550131 kilometers and a size of 0.015923553 kilometers.
On 2022-01-02, the closest NEO had a distance of 180597.061908216 kilometers and a size of 0.0124749835 kilometers.
On 2022-01-08, the closest NEO had a distance of 2964655.504489047 kilometers and a size of 0.0517654482 kilometers.
On 2022-01-09, the closest NEO had a distance of 1775453.970063416 kilometers and a size of 0.039814382 kilometers.
On 2022-01-14, the closest NEO had a distance of 1392857.29786012 kilometers and a size of 0.015923553 kilometers.
On 2022-01-15, the closest NEO had a distance of 727675.574910996 kilometers and a size of 0.0242125192 kilometers.
On 2022-01-10, the closest NEO had a distance of 102192.459206328 kilometers and a size of 0.008590926 kilometers.
On 2022-01-11, the closest NEO had a distance of 92041.750053857 kilometers and a size of 0.009079041 kilometers.
On 2022-01-12, the closest NEO had a distance of 437635.748147541 kilometers and a size of 0.0527278398 kilometers.
On 2022-01-13, the closest NEO had a distance of 1212342.769096783 kilometers and a size of 0.0197715164 kilometers.
On 2022-01-18, the closest NEO had a distance of 1981470.357966931 kilometers and a size of 2.7671963667 kilometers.
On 2022-01-19, the closest NEO had a distance of 922232.077822309 kilometers and a size of 0.0140617696 kilometers.
On 2022-01-15, the closest NEO had a distance of 727675.574910996 kilometers and a size of 0.0242125192 kilometers.
On 2022-01-16, the closest NEO had a distance of 3077279.677486854 kilometers and a size of 0.029925401 kilometers.
On 2022-01-17, the closest NEO had a distance of 489790.128364576 kilometers and a size of 0.0326617897 kilometers.
On 2022-01-21, the closest NEO had a distance of 3025194.591003203 kilometers and a size of 0.0356483948 kilometers.
On 2022-01-22, the closest NEO had a distance of 4250604.793883634 kilometers and a size of 0.0534613571 kilometers.
On 2022-01-20, the closest NEO had a distance of 1807812.393258665 kilometers and a size of 0.0442629117 kilometers.
On 2022-01-29, the closest NEO had a distance of 780485.911868407 kilometers and a size of 0.0215794305 kilometers.
...
On 2022-12-27, the closest NEO had a distance of 300850.59163794 kilometers and a size of 0.0106669431 kilometers.
On 2022-12-26, the closest NEO had a distance of 141679.415384308 kilometers and a size of 0.0157050737 kilometers.
On 2022-12-25, the closest NEO had a distance of 601558.661385131 kilometers and a size of 0.0086704169 kilometers.
On 2022-12-24, the closest NEO had a distance of 229945.644314679 kilometers and a size of 0.0120237511 kilometers.


NEOs with Closest Approach Distance for Each Day
1e7
1.0
0.8
0.6
0.4
0.2
0.0
Closest Distance (km)
2022-01
2022-03
2022-05
2022-07
2022-09
2022-11
2023-01
Date


Average NEO size per week
400
300
200
100
0
week


NEO Size vs. Potentially Hazardous Status
Correlation coefficient: 0.266
Potentially Hazardous
NEO Size (kilometers)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4


Proportion of NEOs that are Potentially Hazardous
Potentially Hazardous
6.4%
93.6%
Non-Potentially Hazardous


Correlation between NEO Size and Close Approach Distance
1e7
Correlation coefficient: 0.111
Close Approach Distance (kilometers)
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
NEO Size (kilometers)