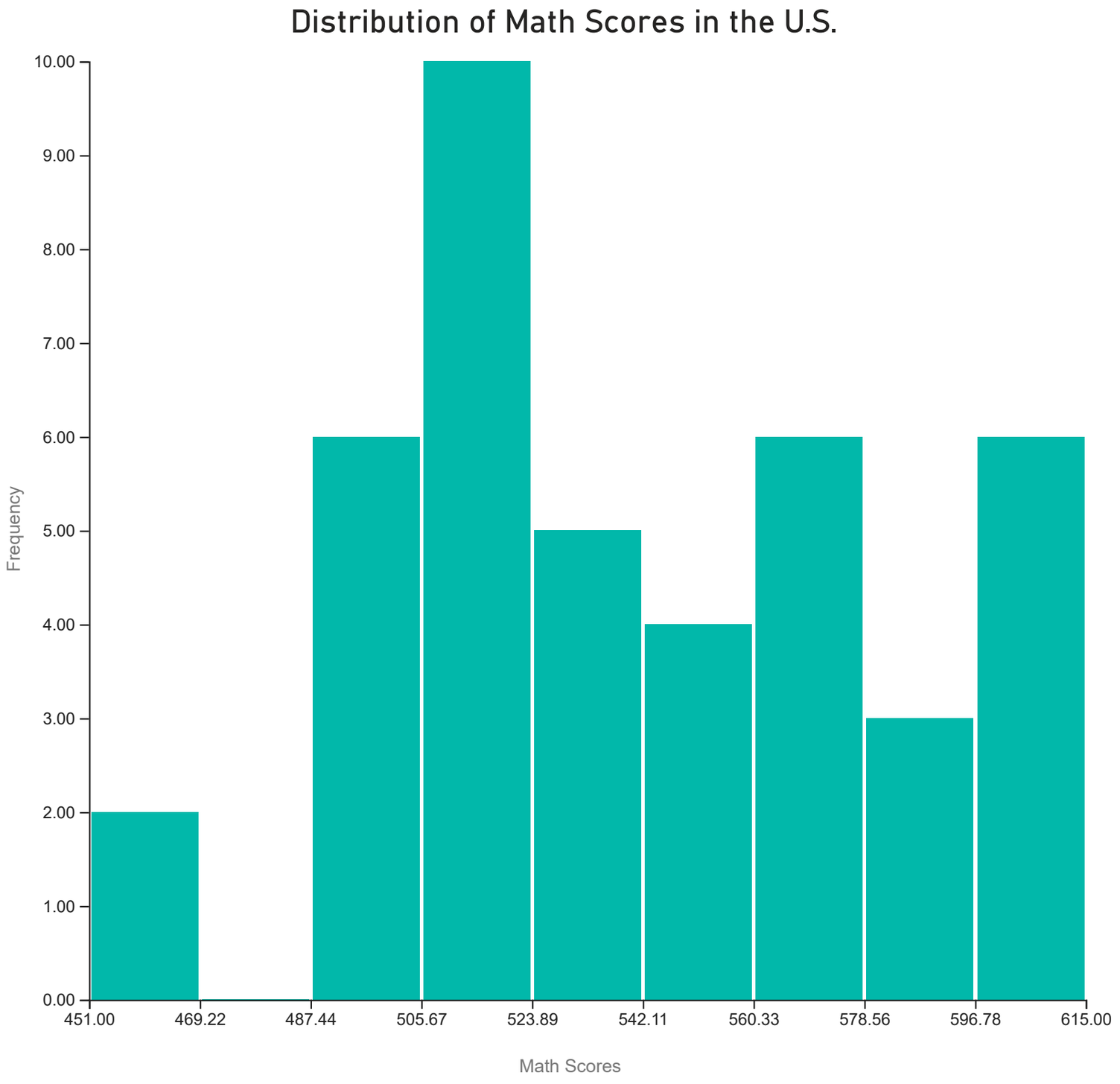
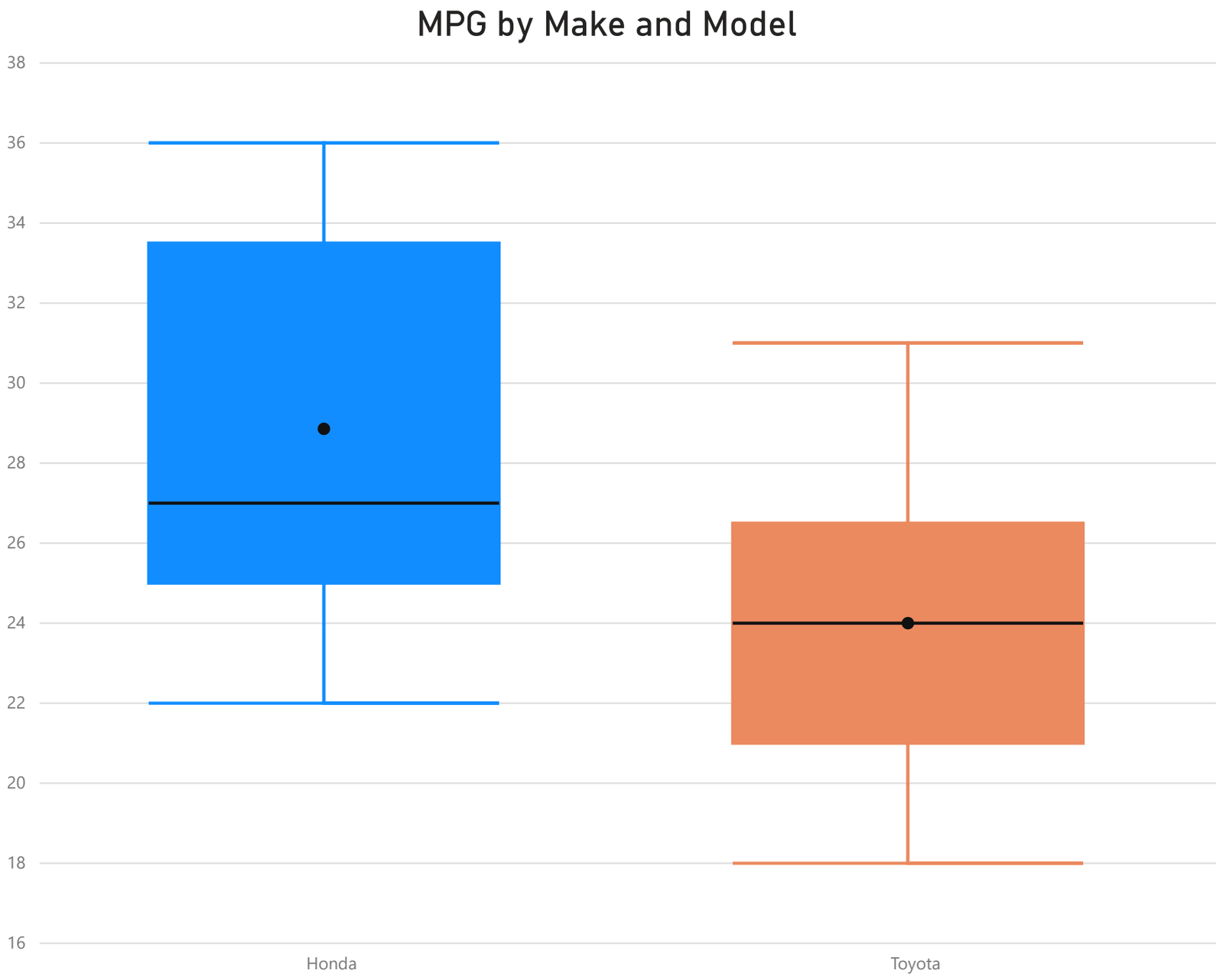
# Power BI Visuals

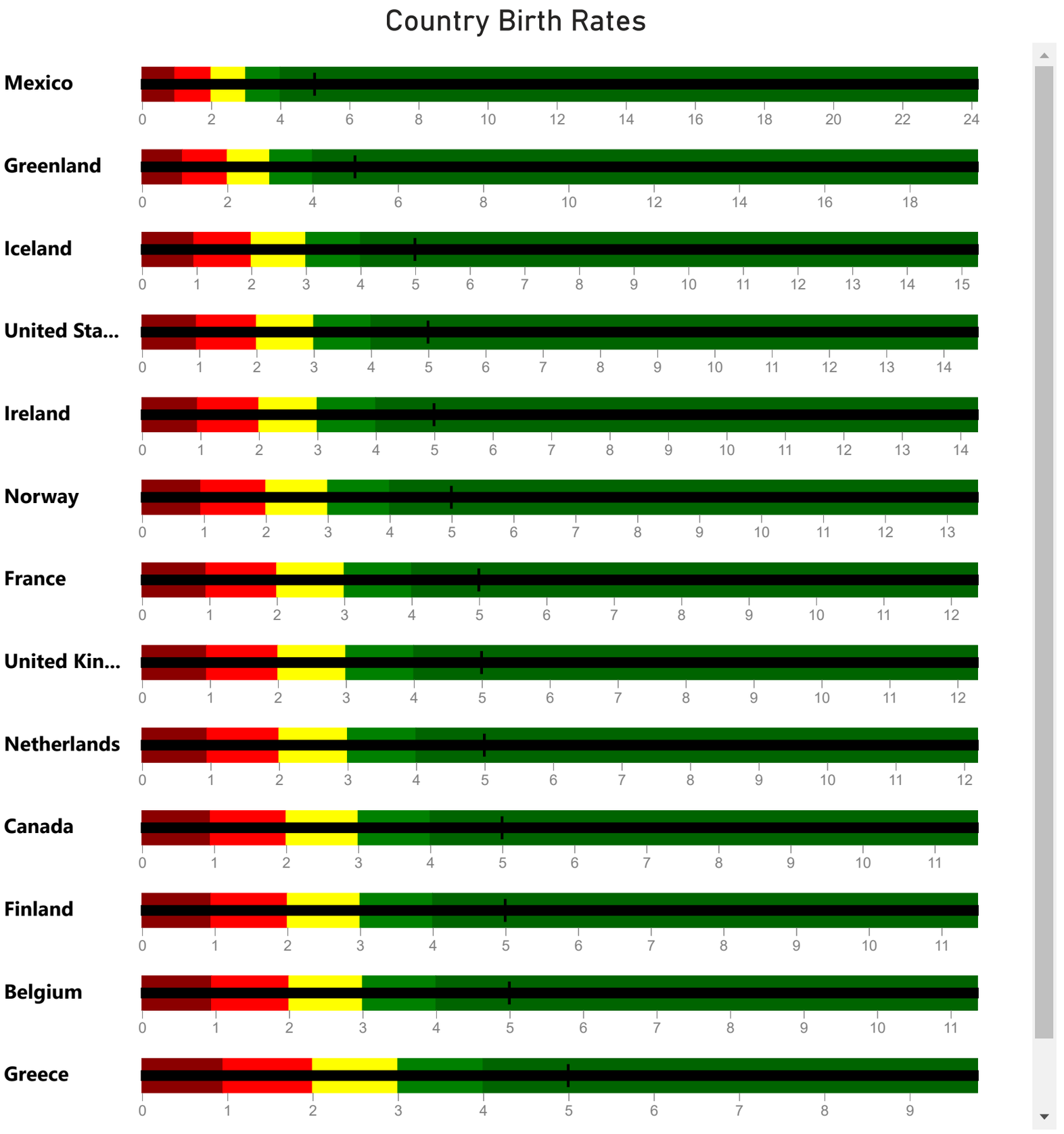
## Histogram



# Box Plot


MPG by Make and Model
38
36
34
32
30
28
26
24
22
20
18
16
Honda
Toyota

# Bullet Chart



# Python Plots

In [1]:
```
# Import libraries
import pandas as pd
import matplotlib.pyplot as plt
import squarify
import numpy as np
from scipy.stats import kde
import squarify
import seaborn as sns
import plotly.graph_objects as go
```

In [2]:
```
# Import Data
education_df = pd.read_csv('education.csv')
education_df.head()
```

Out[2]:

| | state | reading | math | writing | percent_graduates_sat | pupil_staff_ratio | dropout_rate |
|---|---|---|---|---|---|---|---|
| 0 | United States | 501 | 515 | 493 | 46 | 7.9 | 4.4 |
| 1 | Alabama | 557 | 552 | 549 | 7 | 6.7 | 2.3 |
| 2 | Alaska | 520 | 516 | 492 | 46 | 7.9 | 7.3 |
| 3 | Arizona | 516 | 521 | 497 | 26 | 10.4 | 7.6 |
| 4 | Arkansas | 572 | 572 | 556 | 5 | 6.8 | 4.6 |

In [3]:
```
# Import Data
birth_df = pd.read_csv('birth-rate.csv')
birth_df.head()
```

Out[3]:

| | Country | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | ... | 1999 | 2000 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Aruba | 36.400 | 35.179 | 33.863 | 32.459 | 30.994 | 29.513 | 28.069 | 26.721 | 25.518 | ... | 15.024 | 14.528 | 14.04 |
| 1 | Afghanistan | 52.201 | 52.206 | 52.208 | 52.204 | 52.192 | 52.168 | 52.130 | 52.076 | 52.006 | ... | 51.229 | 50.903 | 50.48 |
| 2 | Angola | 54.432 | 54.394 | 54.317 | 54.199 | 54.040 | 53.836 | 53.585 | 53.296 | 52.984 | ... | 48.662 | 48.355 | 48.0( |
| 3 | Albania | 40.886 | 40.312 | 39.604 | 38.792 | 37.913 | 37.008 | 36.112 | 35.245 | 34.421 | ... | 17.713 | 16.850 | 16.08 |
| 4 | Netherlands Antilles | 32.321 | 30.987 | 29.618 | 28.229 | 26.849 | 25.518 | 24.280 | 23.173 | 22.230 | ... | 15.809 | 15.412 | 15.09 |

5 rows × 50 columns

In [14]:
```
car_df = pd.read_excel(r'Vehicle MPG.xlsx')
car_df.head()
car_df.info()
```

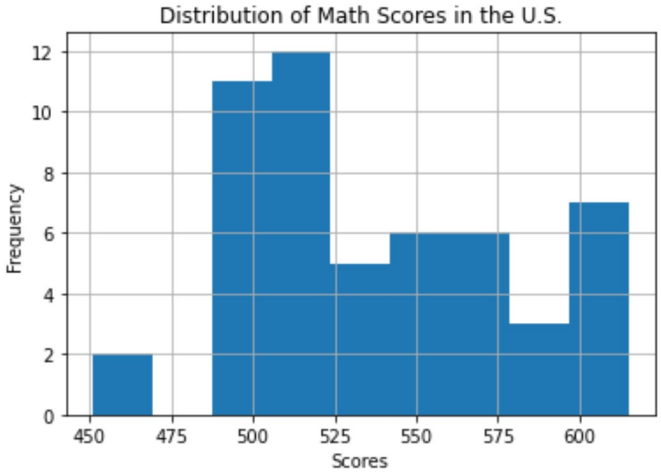
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14 entries, 0 to 13
Data columns (total 3 columns):
Make     14 non-null object
Model    14 non-null object
MPG      14 non-null int64
dtypes: int64(1), object(2)
memory usage: 464.0+ bytes
```

In [ ]:
```
# Import Data
#costco_df = pd.read_csv('costcos-geocoded.csv')
#costco_df.head()
```

## Histogram

In [11]:
```
education_df['math'].hist(bins=9)
plt.title('Distribution of Math Scores in the U.S.')
plt.xlabel('Scores')
plt.ylabel('Frequency')
```

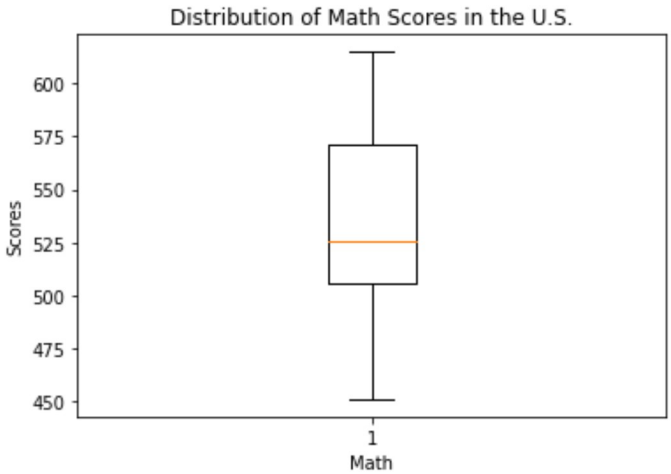
Out[11]:
```
Text(0, 0.5, 'Frequency')
```




## Box Plot

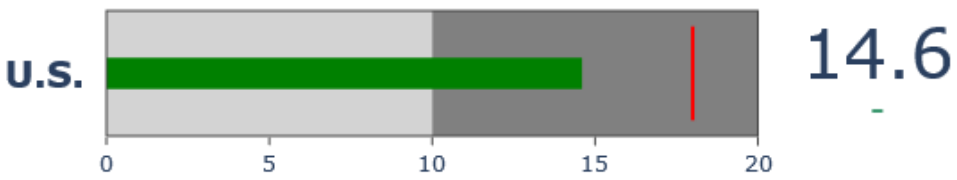
In [18]:
```
plt.boxplot(education_df['math'])

# show plot
plt.title('Distribution of Math Scores in the U.S.')
plt.xlabel('Math')
plt.ylabel('Scores')
plt.show()
```



## Bullet Plot

In [33]:
```
fig = go.Figure(go.Indicator(
    mode = "number+gauge+delta", value = 14.60,
    domain = {'x': [0.1, 1], 'y': [0, 1]},
    title = {'text' :"<b>U.S.</b>"},
    gauge = {
        'shape': "bullet",
        'axis': {'range': [None, 20]},
        'threshold': {
            'line': {'color': "red", 'width': 2},
            'thickness': 0.75,
            'value': 18},
        'steps': [
            {'range': [0, 10], 'color': "lightgray"},
            {'range': [10, 20], 'color': "gray"}]}))
fig.update_layout(height = 250)
fig.show()
```



# R Plots

Gabriel Valenzuela

8/3/2020

# R Plots

```
## Loading required package: ggplot2
```

```
##
## Attaching package: 'plotly'
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

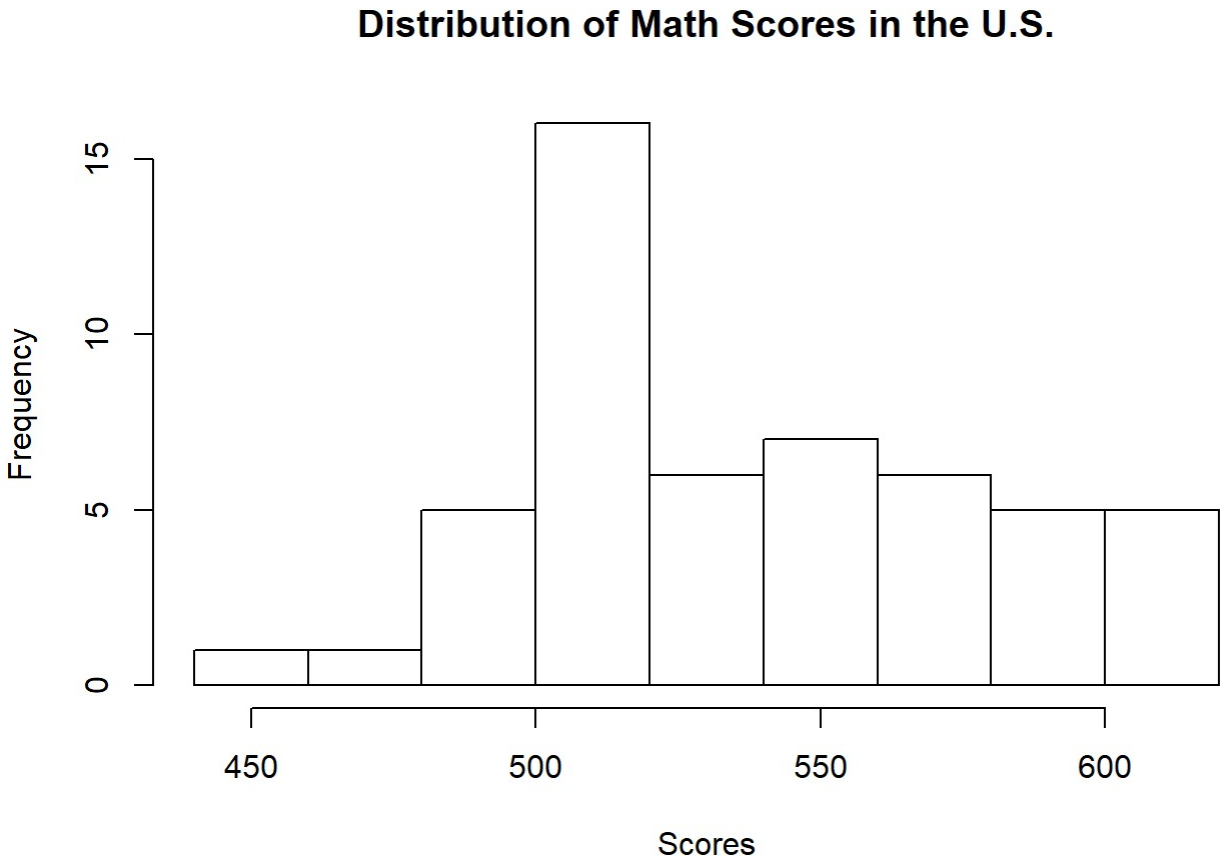
```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

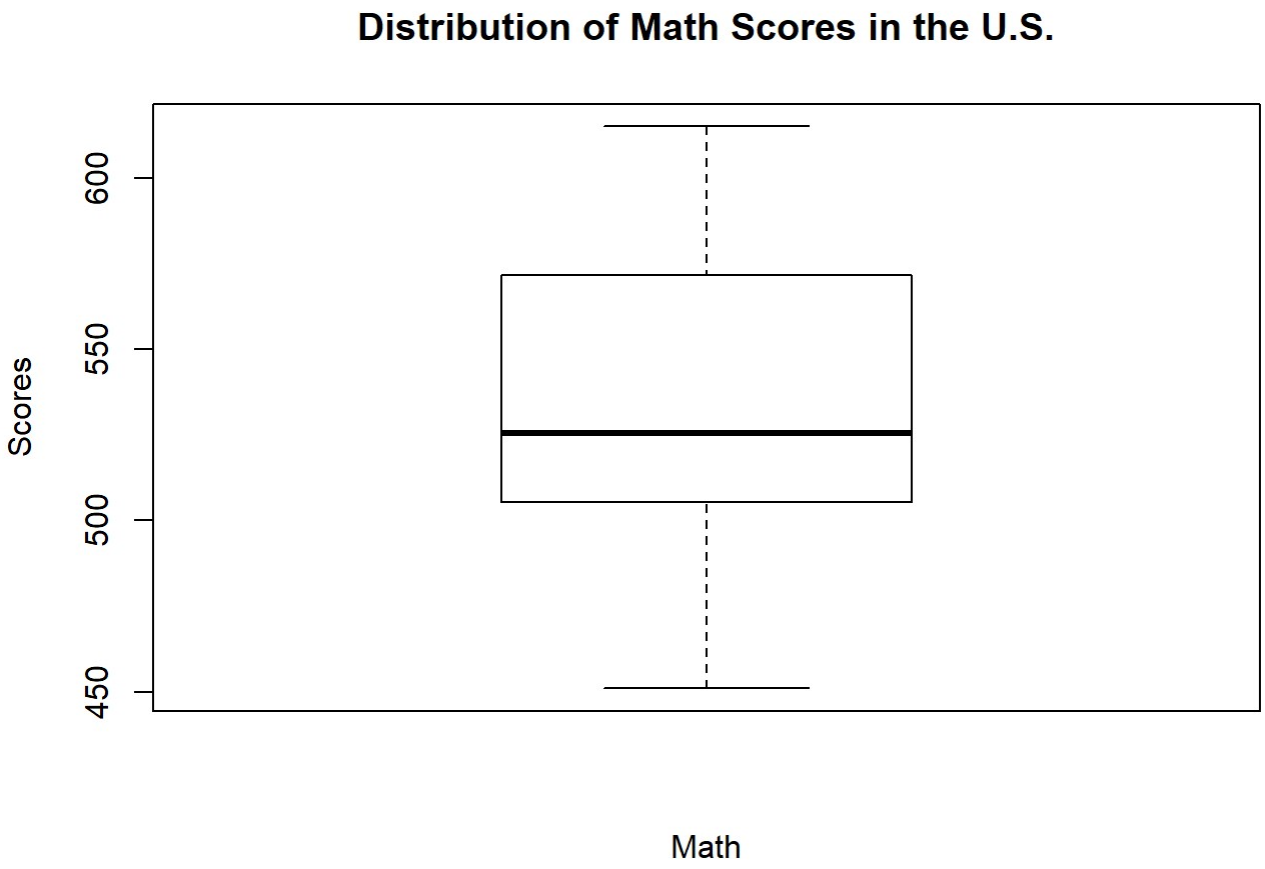
```
##           state reading math writing percent_graduates_sat pupil_staff_ratio
## 1 United States     501  515     493                    46               7.9
## 2       Alabama     557  552     549                     7               6.7
## 3        Alaska     520  516     492                    46               7.9
## 4       Arizona     516  521     497                    26              10.4
## 5      Arkansas     572  572     556                     5               6.8
## 6    California     500  513     498                    49              10.9
##   dropout_rate
## 1          4.4
## 2          2.3
## 3          7.3
## 4          7.6
## 5          4.6
## 6          5.5
```

```
##                Country    X1960  X1961  X1962  X1963  X1964    X1965  X1966
## 1                Aruba 36.40000 35.179 33.863 32.459 30.994 29.51300 28.069
## 2          Afghanistan 52.20100 52.206 52.208 52.204 52.192 52.16800 52.130
## 3               Angola 54.43200 54.394 54.317 54.199 54.040 53.83600 53.585
## 4              Albania 40.88600 40.312 39.604 38.792 37.913 37.00800 36.112
## 5 Netherlands Antilles 32.32100 30.987 29.618 28.229 26.849 25.51800 24.280
## 6           Arab World 47.61122     NA     NA     NA     NA 46.57288     NA
##    X1967  X1968  X1969    X1970  X1971  X1972  X1973  X1974   X1975  X1976
## 1 26.721 25.518 24.492 23.66900 23.058 22.627 22.342 22.177 22.1110 22.125
## 2 52.076 52.006 51.920 51.81600 51.691 51.548 51.395 51.239 51.0920 50.967
## 3 53.296 52.984 52.668 52.37600 52.137 51.967 51.875 51.861 51.9200 52.033
## 4 35.245 34.421 33.655 32.94700 32.279 31.630 30.985 30.345 29.7230 29.138
## 5 23.173 22.230 21.472 20.92500 20.605 20.484 20.517 20.664 20.8640 21.055
## 6     NA     NA     NA 45.16097     NA     NA     NA     NA 43.6375     NA
##    X1977  X1978  X1979    X1980   X1981    X1982    X1983   X1984    X1985
## 1 22.192 22.281 22.362 22.40600 22.3900 22.31300 22.17200 21.9580 21.66800
## 2 50.871 50.810 50.786 50.79500 50.8330 50.88800 50.95100 51.0160 51.08400
## 3 52.172 52.314 52.444 52.55400 52.6440 52.72100 52.78900 52.8410 52.88000
## 4 28.606 28.139 27.736 27.39600 27.1140 26.87000 26.64400 26.4170 26.17200
## 5 21.190 21.238 21.178 21.00800 20.7460 20.44200 20.13800 19.8600 19.64100
## 6     NA     NA     NA 42.05776 41.9228 41.18851 40.99207 40.4664 39.55352
##      X1986    X1987    X1988    X1989    X1990    X1991    X1992    X1993
## 1 21.30000 20.86900 20.39300 19.88600 19.36300 18.84200 18.33200 17.83900
## 2 51.15600 51.23700 51.32500 51.41700 51.51000 51.60300 51.69000 51.76000
## 3 52.90700 52.91800 52.90300 52.84700 52.72200 52.49000 52.14100 51.67900
## 4 25.89500 25.57900 25.21700 24.80100 24.32500 23.78800 23.19800 22.56200
## 5 19.51400 19.47700 19.50900 19.58600 19.65100 19.63500 19.48900 19.18700
## 6 39.19202 38.07726 37.53962 36.59664 35.24626 34.33291 33.59524 32.62918
##      X1994    X1995    X1996    X1997    X1998    X1999   X2000    X2001
## 1 17.36700 16.91100 16.45700 15.99400 15.51500 15.02400 14.5280 14.04100
## 2 51.80200 51.80400 51.75400 51.64600 51.47200 51.22900 50.9030 50.48600
## 3 51.12300 50.52200 49.94100 49.42700 49.00300 48.66200 48.3550 48.00500
## 4 21.88500 21.15700 20.36400 19.51000 18.61600 17.71300 16.8500 16.08100
## 5 18.73300 18.15700 17.51500 16.87800 16.30100 15.80900 15.4120 15.09600
## 6 31.83306 31.15092 30.42968 30.02708 29.53521 29.07314 28.6828 28.30524
##      X2002    X2003    X2004    X2005    X2006    X2007    X2008
## 1 13.57900 13.15300 12.77200 12.44100 12.15900 11.91900 11.71600
## 2 49.98400 49.41600 48.80300 48.17700 47.57500 47.02300 46.53800
## 3 47.54500 46.93600 46.18400 45.33000 44.44400 43.60700 42.87500
## 4 15.44400 14.96200 14.64400 14.48500 14.46400 14.53400 14.64900
## 5 14.82400 14.56500 14.30900 14.05100 13.79000 13.53200 13.28100
## 6 27.96244 27.67007 27.37897 27.11886 26.85532 26.59352 26.32405
```

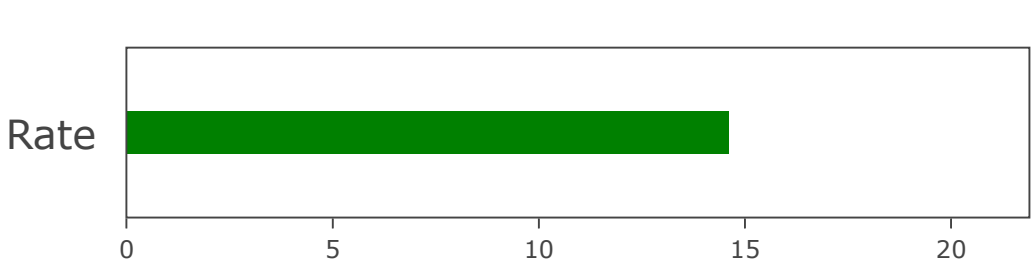
# Histogram


Distribution of Math Scores in the U.S.
Frequency
0
5
10
15
450
500
550
600
Scores

# Box Plot




# Bullet Chart




14.6