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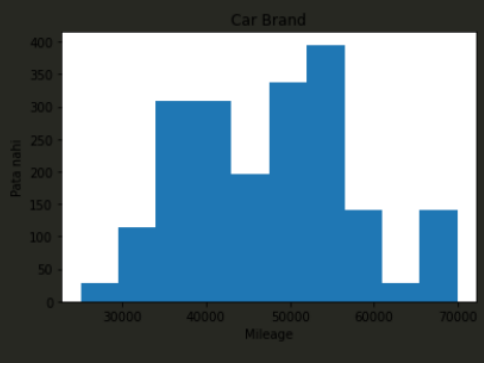
# Practical 1

```
import pandas as pd
df = pd.read_csv("Car Data.csv") #I am working in Windows environment
#Reading the dataset in a dataframe using Pandas
print(df.head(3))
```

```
[3]
...
   Car ID   Brand  Model  Year   Color  Mileage  Price     Location
0       1  Toyota  Camry  2018   White    45000  18000  Los Angeles
1       2   Honda  Civic  2019    Blue    35000  16000     New York
2       3    Ford  Focus  2017  Silver    55000  14000      Chicago
```

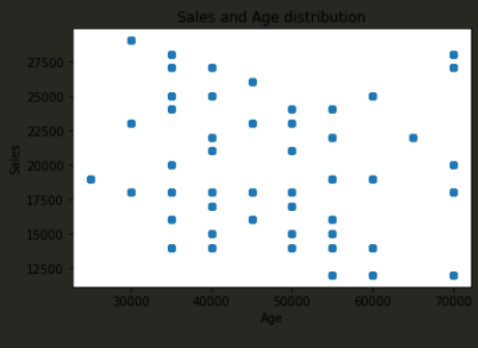
```
import pandas as pd
import matplotlib.pyplot as plt
df=pd.read_csv("Car Data.csv")
fig=plt.figure()
ax = fig.add_subplot(1,1,1)
ax.hist(df['Mileage'],bins = 10)
plt.title('Car Brand')
plt.xlabel('Mileage')
plt.ylabel('Pata nahi')
plt.show()
```

```
[12]
...
```



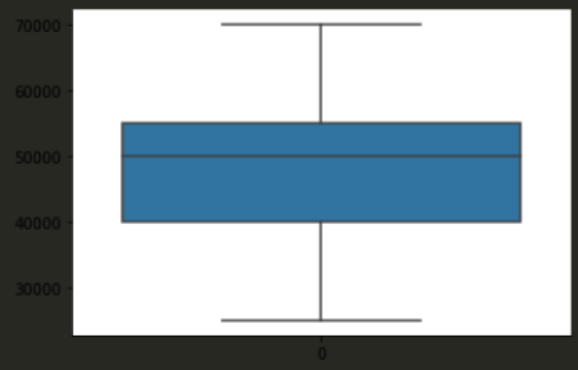
```
fig=plt.figure()

ax = fig.add_subplot(1,1,1)
ax.scatter(df['Mileage'],df['Price'])
plt.title('Mileage and Price distribution')
plt.xlabel('Mileage')
plt.ylabel('Price')
plt.show()
```

[13]




```
import seaborn as sns
sns.boxplot(df['Mileage'])
sns.despine()
```

[14]



```
df=pd.read_csv("Car Data.csv")
print(df)
test= df.groupby(['Brand','Price'])
test.size()
```

```
      Car ID      Brand      Model  Year   Color  Mileage  Price       Location
0          1     Toyota      Camry  2018   White    45000  18000    Los Angeles
1          2      Honda      Civic  2019    Blue    35000  16000       New York
2          3       Ford      Focus  2017  Silver    55000  14000        Chicago
3          4  Chevrolet      Cruze  2016     Red    60000  12000          Miami
4          5    Hyundai    Elantra  2018   Black    40000  15000  San Francisco
...      ...        ...        ...   ...     ...      ...    ...            ...
1995    1996    Hyundai   Palisade  2019  Silver    65000  22000  San Francisco
1996    1997     Toyota     Sienna  2018     Red    55000  16000         Dallas
1997    1998      Honda        Fit  2018    Gray    50000  14000        Atlanta
1998    1999       Ford     Fusion  2017   White    55000  19000        Phoenix
1999    2000  Chevrolet     Malibu  2016    Blue    30000  23000        Houston

[2000 rows x 8 columns]
```

```
Brand      Price
Chevrolet  12000    31
           14000    34
           15000    28
           16000    22
           17000    24
                    ..
Toyota     25000    23
           26000    10
           27000    24
           28000    12
           29000    13
Length: 85, dtype: int64
```

```
test= df.groupby(['Price'])
test.describe()
```

| | Car ID | | | | | | | | Year | | | | | Mileage | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | count | mean | std | min | 25% | 50% | 75% | max | count | mean | ... | 75% | max | count | mean | std | min | 25% | 50% | 75% | max |
| Price | | | | | | | | | | | | | | | | | | | | | |
| 12000 | 169.0 | 1003.550296 | 579.066787 | 4.0 | 501.00 | 998.0 | 1495.00 | 1992.0 | 169.0 | 2017.562130 | ... | 2019.0 | 2020.0 | 169.0 | 58343.195266 | 5529.194526 | 55000.0 | 55000.0 | 55000.0 | 60000.0 | 70000.0 |
| 14000 | 170.0 | 1001.158824 | 582.460343 | 3.0 | 501.75 | 1000.5 | 1499.25 | 1998.0 | 170.0 | 2017.582353 | ... | 2019.0 | 2020.0 | 170.0 | 50029.411765 | 9553.602419 | 35000.0 | 40000.0 | 52500.0 | 60000.0 | 60000.0 |
| 15000 | 141.0 | 999.397163 | 580.030638 | 5.0 | 502.00 | 999.0 | 1496.00 | 1993.0 | 141.0 | 2017.510638 | ... | 2019.0 | 2020.0 | 141.0 | 48936.170213 | 4957.264173 | 40000.0 | 50000.0 | 50000.0 | 50000.0 | 55000.0 |
| 16000 | 114.0 | 1000.728070 | 586.638063 | 2.0 | 500.75 | 999.5 | 1498.25 | 1997.0 | 114.0 | 2017.359649 | ... | 2019.0 | 2020.0 | 114.0 | 45000.000000 | 7164.316690 | 35000.0 | 37500.0 | 45000.0 | 52500.0 | 55000.0 |
| 17000 | 140.0 | 1001.500000 | 575.758536 | 29.0 | 518.25 | 1007.5 | 1496.75 | 1986.0 | 140.0 | 2017.557143 | ... | 2019.0 | 2020.0 | 140.0 | 44000.000000 | 4916.570133 | 40000.0 | 40000.0 | 40000.0 | 50000.0 | 50000.0 |
| 18000 | 198.0 | 996.939394 | 581.168337 | 1.0 | 499.50 | 998.0 | 1496.50 | 1995.0 | 198.0 | 2017.530303 | ... | 2019.0 | 2020.0 | 198.0 | 44924.242424 | 11969.475483 | 30000.0 | 35000.0 | 45000.0 | 50000.0 | 70000.0 |
| 19000 | 142.0 | 1003.683099 | 584.055768 | 6.0 | 504.25 | 1002.5 | 1500.75 | 1999.0 | 142.0 | 2017.042254 | ... | 2018.0 | 2020.0 | 142.0 | 49859.154930 | 12784.959886 | 25000.0 | 55000.0 | 55000.0 | 55000.0 | 60000.0 |
| 20000 | 84.0 | 998.500000 | 577.242312 | 15.0 | 504.25 | 993.5 | 1482.75 | 1972.0 | 84.0 | 2017.619048 | ... | 2019.0 | 2020.0 | 84.0 | 46666.666667 | 16598.253162 | 35000.0 | 35000.0 | 35000.0 | 70000.0 | 70000.0 |
| 21000 | 112.0 | 996.500000 | 576.469747 | 13.0 | 504.75 | 996.5 | 1488.25 | 1980.0 | 112.0 | 2017.214286 | ... | 2019.0 | 2020.0 | 112.0 | 45000.000000 | 5022.472023 | 40000.0 | 40000.0 | 45000.0 | 50000.0 | 50000.0 |
| 22000 | 141.0 | 1003.787234 | 580.020416 | 8.0 | 505.00 | 1002.0 | 1499.00 | 1996.0 | 141.0 | 2017.354610 | ... | 2019.0 | 2020.0 | 141.0 | 54078.014184 | 8053.456154 | 40000.0 | 55000.0 | 55000.0 | 55000.0 | 65000.0 |
| 23000 | 113.0 | 1002.407080 | 581.634959 | 12.0 | 509.00 | 1006.0 | 1503.00 | 2000.0 | 113.0 | 2017.601770 | ... | 2019.0 | 2020.0 | 113.0 | 43628.318584 | 8298.229900 | 30000.0 | 30000.0 | 45000.0 | 50000.0 | 50000.0 |
| 24000 | 84.0 | 1001.166667 | 577.254779 | 17.0 | 506.25 | 995.5 | 1484.75 | 1974.0 | 84.0 | 2017.630952 | ... | 2019.0 | 2020.0 | 84.0 | 46666.666667 | 8549.407551 | 35000.0 | 35000.0 | 50000.0 | 55000.0 | 55000.0 |
| 25000 | 112.0 | 993.500000 | 576.380474 | 16.0 | 506.25 | 996.5 | 1486.75 | 1977.0 | 112.0 | 2017.758929 | ... | 2019.0 | 2020.0 | 112.0 | 42500.000000 | 10354.091327 | 35000.0 | 35000.0 | 37500.0 | 45000.0 | 60000.0 |
| 26000 | 56.0 | 1002.500000 | 579.062157 | 24.0 | 513.25 | 1002.5 | 1491.75 | 1981.0 | 56.0 | 2017.250000 | ... | 2018.0 | 2020.0 | 56.0 | 45000.000000 | 0.000000 | 45000.0 | 45000.0 | 45000.0 | 45000.0 | 45000.0 |
| 27000 | 112.0 | 1001.500000 | 576.438678 | 21.0 | 511.50 | 1002.0 | 1492.50 | 1983.0 | 112.0 | 2017.232143 | ... | 2019.0 | 2020.0 | 112.0 | 45000.000000 | 14642.896381 | 35000.0 | 35000.0 | 37500.0 | 47500.0 | 70000.0 |
| 28000 | 56.0 | 998.500000 | 579.098202 | 19.0 | 508.75 | 998.5 | 1488.25 | 1978.0 | 56.0 | 2017.178571 | ... | 2019.0 | 2020.0 | 56.0 | 52500.000000 | 17658.374269 | 35000.0 | 35000.0 | 52500.0 | 70000.0 | 70000.0 |
| 29000 | 56.0 | 1003.500000 | 579.062157 | 25.0 | 514.25 | 1003.5 | 1492.75 | 1982.0 | 56.0 | 2017.553571 | ... | 2019.0 | 2020.0 | 56.0 | 30000.000000 | 0.000000 | 30000.0 | 30000.0 | 30000.0 | 30000.0 | 30000.0 |

17 rows × 24 columns