In [123…
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import accuracy_score,r2_score
from sklearn.preprocessing import StandardScaler

import seaborn as sns
```

In [124…
```
auto=pd.read_csv(r"C:\Users\mayur\auto-mpg.csv" , skipinitialspace=True,na_values='?')
```

In [125…
```
auto.head()
```

Out[125…

	mpg	cylinders	displacement	horsepower	weight	acceleration	model year	origin	car name
0	18.0	8	307.0	130.0	3504	12.0	70	1	chevrolet chevelle malibu
1	15.0	8	350.0	165.0	3693	11.5	70	1	buick skylark 320
2	18.0	8	318.0	150.0	3436	11.0	70	1	plymouth satellite
3	16.0	8	304.0	150.0	3433	12.0	70	1	amc rebel sst
4	17.0	8	302.0	140.0	3449	10.5	70	1	ford torino

In [126…
```
auto.drop('car name',axis='columns',inplace=True)
```

In [127…
```
auto.head()
```

Out[127…

	mpg	cylinders	displacement	horsepower	weight	acceleration	model year	origin
0	18.0	8	307.0	130.0	3504	12.0	70	1
1	15.0	8	350.0	165.0	3693	11.5	70	1
2	18.0	8	318.0	150.0	3436	11.0	70	1
3	16.0	8	304.0	150.0	3433	12.0	70	1
4	17.0	8	302.0	140.0	3449	10.5	70	1

In [128…
```
auto.isnull().sum()
```

Out[128…
```
mpg             0
cylinders       0
displacement    0
horsepower      6
```

```
weight          0
acceleration    0
model year      0
origin          0
dtype: int64
```

In [129…
```
auto.tail()
auto['horsepower']=auto['horsepower'].fillna(np.mean(auto['horsepower']))
```

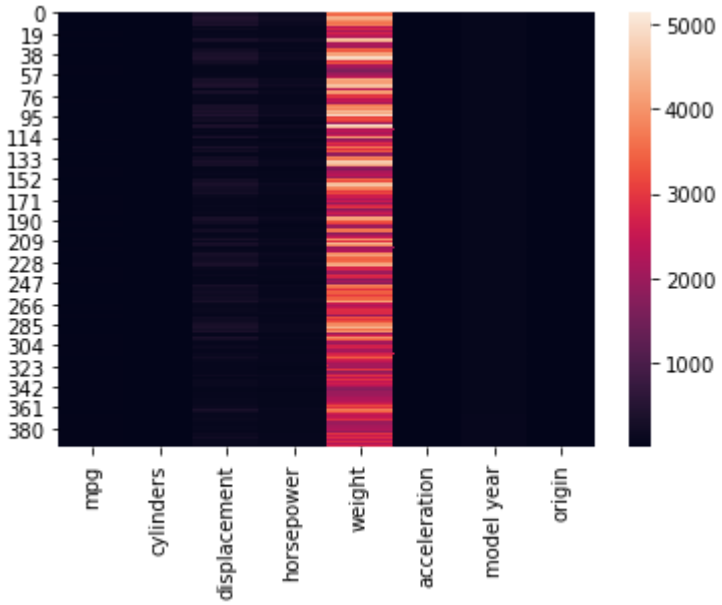
In [130…
```
auto.corr()
```

Out[130…

	mpg	cylinders	displacement	horsepower	weight	acceleration	model year	or
mpg	1.000000	-0.775396	-0.804203	-0.771437	-0.831741	0.420289	0.579267	0.563
cylinders	-0.775396	1.000000	0.950721	0.838939	0.896017	-0.505419	-0.348746	-0.562
displacement	-0.804203	0.950721	1.000000	0.893646	0.932824	-0.543684	-0.370164	-0.609
horsepower	-0.771437	0.838939	0.893646	1.000000	0.860574	-0.684259	-0.411651	-0.453
weight	-0.831741	0.896017	0.932824	0.860574	1.000000	-0.417457	-0.306564	-0.581
acceleration	0.420289	-0.505419	-0.543684	-0.684259	-0.417457	1.000000	0.288137	0.205
model year	0.579267	-0.348746	-0.370164	-0.411651	-0.306564	0.288137	1.000000	0.180
origin	0.563450	-0.562543	-0.609409	-0.453669	-0.581024	0.205873	0.180662	1.000

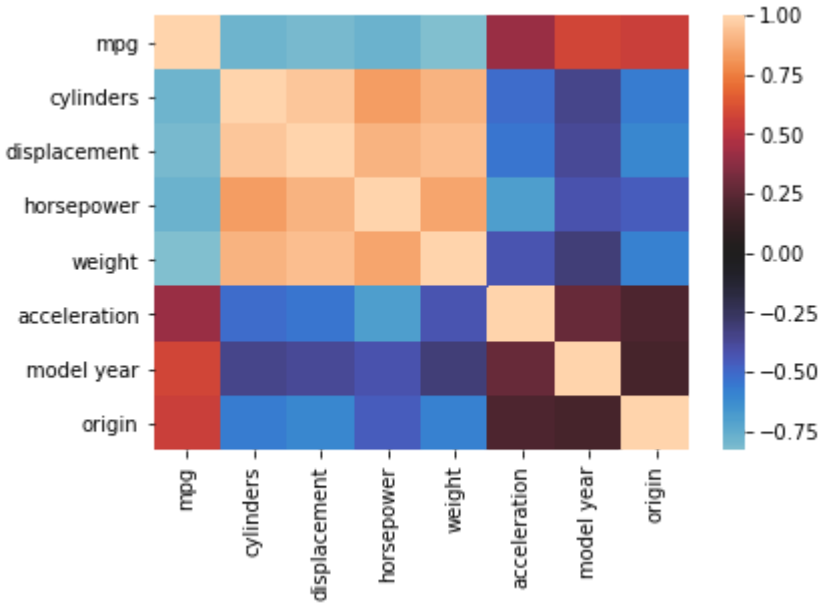
In [142…
```
sns.heatmap(auto)
```

Out[142… <AxesSubplot:>



In [131…
```
sns.heatmap(auto.corr(),center=0)
```

Out[131… <AxesSubplot:>

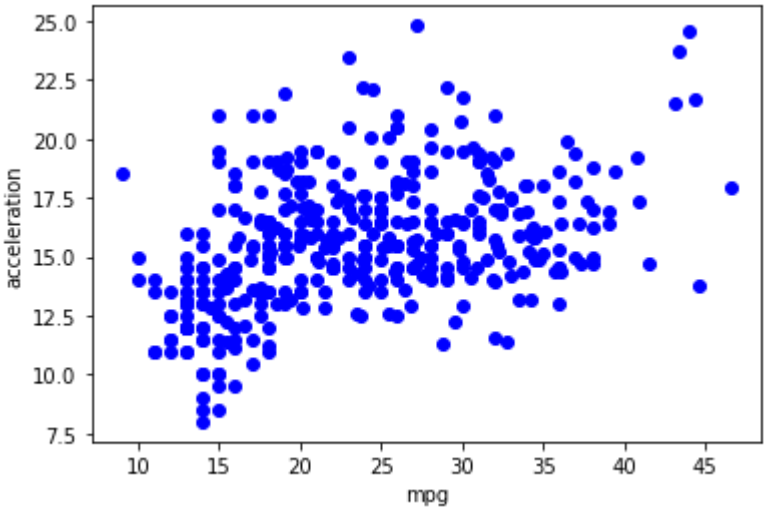


In [132…
```
auto.isnull().sum()
```

Out[132…
```
mpg             0
cylinders       0
displacement    0
horsepower      0
weight          0
acceleration    0
model year      0
origin          0
dtype: int64
```

In [133…
```
plt.scatter(auto['mpg'],auto['acceleration'],color='blue')
plt.xlabel('mpg')
plt.ylabel('acceleration')
```

Out[133… Text(0, 0.5, 'acceleration')



In [134…
```
x = auto.drop(columns = 'mpg')
y = auto['mpg']
```

```
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.2,random_state=0)
```

In [135…
```
scaler=StandardScaler()
scaler.fit(x_train)
x_train=scaler.transform(x_train)
x_test=scaler.transform(x_test)
```

In [136…
```
model=LinearRegression()
model.fit(x_train,y_train)
```

Out[136… `LinearRegression()`

In [137…
```
pred=model.predict(x_test)
```

In [138…
```
com=pd.DataFrame({'mpg original':y_test, 'mpg predicted':pred})
```

In [139…
```
com.head()
```

Out[139…

	mpg original	mpg predicted
65	14.0	12.939192
132	25.0	24.072116
74	13.0	11.670106
78	21.0	21.149767
37	18.0	17.409527

In [140…
```
print('test',model.score(x_test,y_test))
```

```
test 0.8188396884147507
```

In [141…
```
print('accuracy',r2_score(y_test,pred))
```

```
accuracy 0.8188396884147507
```

In [ ]: