

Ex_02_Implementation_of_Simple_Linear_Regression_Model_for_Predict

April 2, 2023

```
[31]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
[32]: data=pd.read_csv('/content/student_scores.csv')
```

```
[33]: data.head()
```

```
[33]:
```

	Hours	Scores
0	2.5	21
1	5.1	47
2	3.2	27
3	8.5	75
4	3.5	30

```
[34]: data.tail()
```

```
[34]:
```

	Hours	Scores
20	2.7	30
21	4.8	54
22	3.8	35
23	6.9	76
24	7.8	86

```
[35]: x=data.iloc[:, :-1].values
y=data.iloc[:, 1].values
```

```
[36]: print(x)
```

```
[[2.5]
 [5.1]
 [3.2]
 [8.5]
 [3.5]
 [1.5]
 [9.2]
```

```
[5.5]
[8.3]
[2.7]
[7.7]
[5.9]
[4.5]
[3.3]
[1.1]
[8.9]
[2.5]
[1.9]
[6.1]
[7.4]
[2.7]
[4.8]
[3.8]
[6.9]
[7.8]]
```

```
[37]: print(y)
```

```
[21 47 27 75 30 20 88 60 81 25 85 62 41 42 17 95 30 24 67 69 30 54 35 76
86]
```

```
[38]: from sklearn.linear_model import LinearRegression
      from sklearn.model_selection import train_test_split
```

```
[39]: x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=1/3,random_state=0,
      ↪)
```

```
[40]: regressor=LinearRegression()
      regressor.fit(x_train,y_train)
```

```
[40]: LinearRegression()
```

```
[41]: y_pred=regressor.predict(x_test)
      print(y_pred)
```

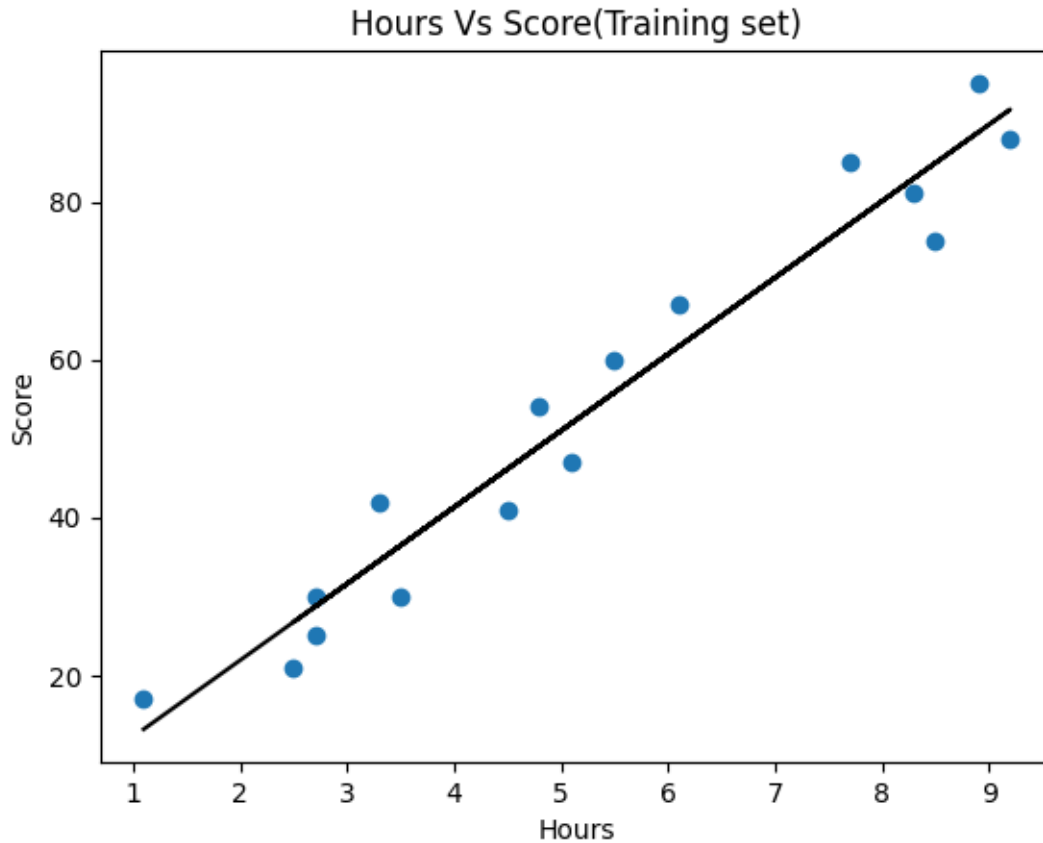
```
[17.04289179 33.51695377 74.21757747 26.73351648 59.68164043 39.33132858
20.91914167 78.09382734 69.37226512]
```

```
[42]: print(y_test)
```

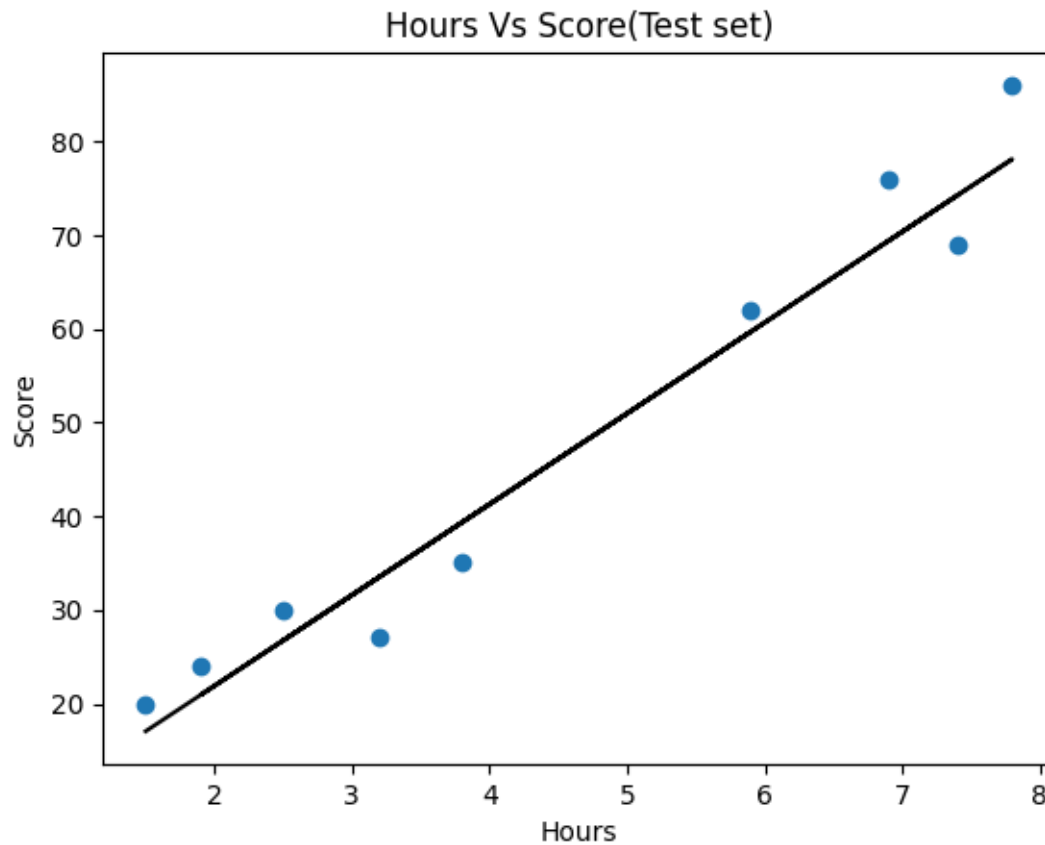
```
[20 27 69 30 62 35 24 86 76]
```

```
[43]: #for train values
      plt.scatter(x_train,y_train)
      plt.plot(x_train,regressor.predict(x_train),color='black')
```

```
plt.title("Hours Vs Score(Training set)")
plt.xlabel("Hours")
plt.ylabel("Score")
plt.show()
```



```
[44]: #for test values
y_pred=regressor.predict(x_test)
plt.scatter(x_test,y_test)
plt.plot(x_test,regressor.predict(x_test),color='black')
plt.title("Hours Vs Score(Test set)")
plt.xlabel("Hours")
plt.ylabel("Score")
plt.show()
```



```
[45]: import sklearn.metrics as metrics

mae = metrics.mean_absolute_error(x, y)
mse = metrics.mean_squared_error(x, y)
rmse = np.sqrt(mse)

print("MAE:", mae)
print("MSE:", mse)
print("RMSE:", rmse)
```

MAE: 46.468
MSE: 2659.5692
RMSE: 51.57101123693426