

Linear Model

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1 simple linear regression

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1.1 import libraries

```
[1]: import pandas as pd
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
```

1.2 Importing the dataset

```
[2]: URL = "http://bit.ly/w-data"
dataset = pd.read_csv(URL)
X = dataset.iloc[:, :-1].values
y = dataset.iloc[:, -1].values
```

```
[4]: dataset.head()
```

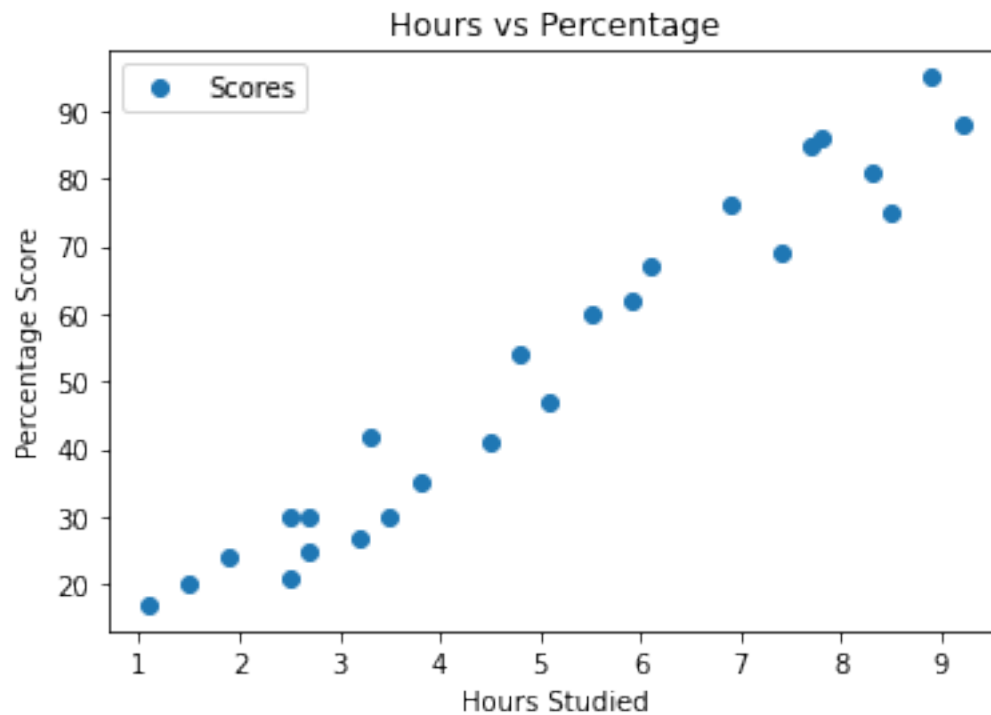
```
[4]:   Hours  Scores
0    2.5     21
1    5.1     47
2    3.2     27
3    8.5     75
4    3.5     30
```

```
[5]: dataset.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25 entries, 0 to 24
Data columns (total 2 columns):
#   Column  Non-Null Count  Dtype  
---  -
0   Hours   25 non-null    float64
1   Scores  25 non-null    int64   
dtypes: float64(1), int64(1)
memory usage: 528.0 bytes
```

1.3 Plotting the distribution of scores

```
[6]: dataset.plot(x='Hours', y='Scores', style='o')  
plt.title('Hours vs Percentage')  
plt.xlabel('Hours Studied')  
plt.ylabel('Percentage Score')  
plt.show()
```



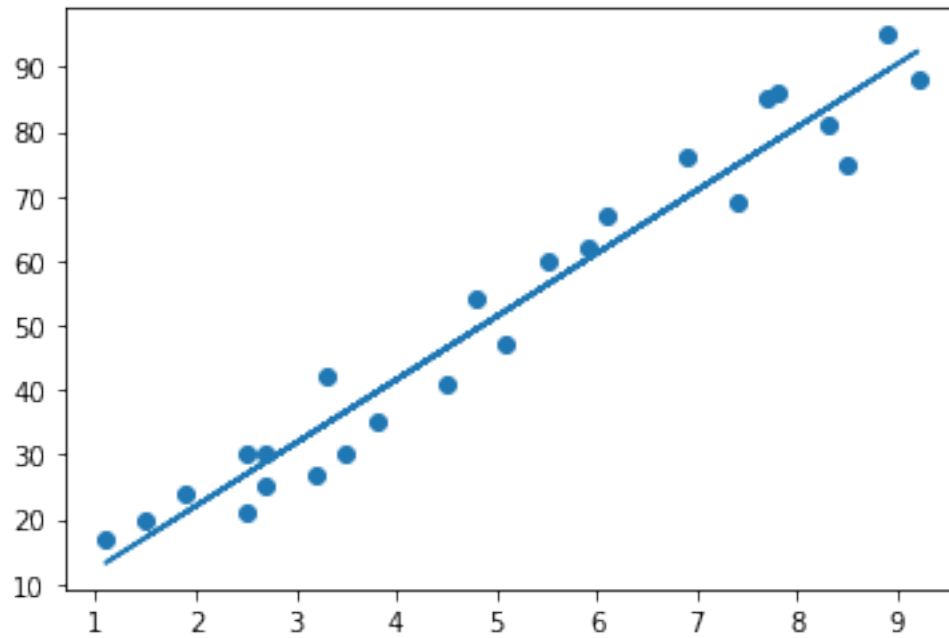
2 Linear Model

```
[7]: # fitting simple linear regression to the training set  
regressor = LinearRegression()  
regressor.fit(X, y)
```

```
[7]: LinearRegression()
```

```
[8]: # Plotting the regression line  
line = regressor.coef_*X+regressor.intercept_
```

```
[10]: plt.scatter(X, y)  
plt.plot(X, line)  
plt.show()
```



2.1 predict if student study 9.25

```
[11]: y_pred = regressor.predict([[9.25]])  
      print(y_pred)
```

```
[92.90985477]
```

```
[ ]:
```