

Assignment No. 4

Aim

1. Linear Regression : Univariate and Multivariate
2. Least Square Method for Linear Regression
3. Measuring Performance of Linear Regression
4. Example of Linear Regression
5. Training data set and Testing data set

```
In [19]: 1 import pandas as pd  
2 import numpy as np
```

```
In [3]: 1 import matplotlib.pyplot as plt
```

```
In [4]: 1 x=np.array([95,85,80,70,60])
```

```
In [5]: 1 y=np.array([85,95,70,65,70])
```

```
In [6]: 1 model= np.polyfit(x, y, 1)
```

```
In [7]: 1 model
```

```
Out[7]: array([ 0.64383562, 26.78082192])
```

```
In [8]: 1 predict = np.poly1d(model)  
2 predict(65)
```

```
Out[8]: 68.63013698630137
```

```
In [9]: 1 y_pred= predict(x)
```

```
In [10]: 1 y_pred
```

```
Out[10]: array([87.94520548, 81.50684932, 78.28767123, 71.84931507, 65.4109589 ])
```

```
In [11]: 1 from sklearn.metrics import r2_score
```

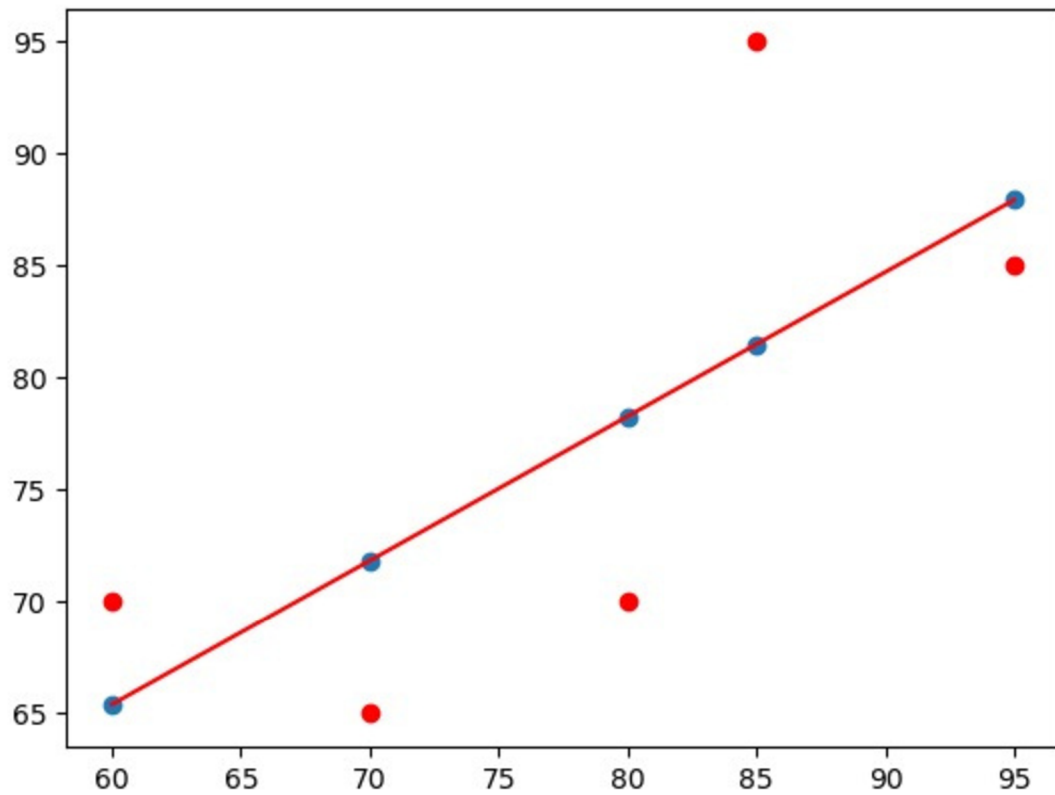
```
In [12]: 1 r2_score(y, y_pred)
```

```
Out[12]: 0.4803218090889326
```

```
In [13]: 1 y_line = model[1] + model[0]* x
```

```
In [17]: y_line = model[1] + model[0]* x  
plt.plot(x, y_line, c = 'r')  
plt.scatter(x, y_pred)  
4 plt.scatter(x,y,c='r')
```

Out[17]: <matplotlib.collections.PathCollection at 0x1aaae5b5b90>



```
In [ ]: 1 Name:- Diksha sudhakar patil  
2 Roll no:-13261 Batch:- TE [B]  
3
```