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]:
```
import pandas as pd
import numpy as np
```

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

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

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

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

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

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

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

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

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

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

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

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

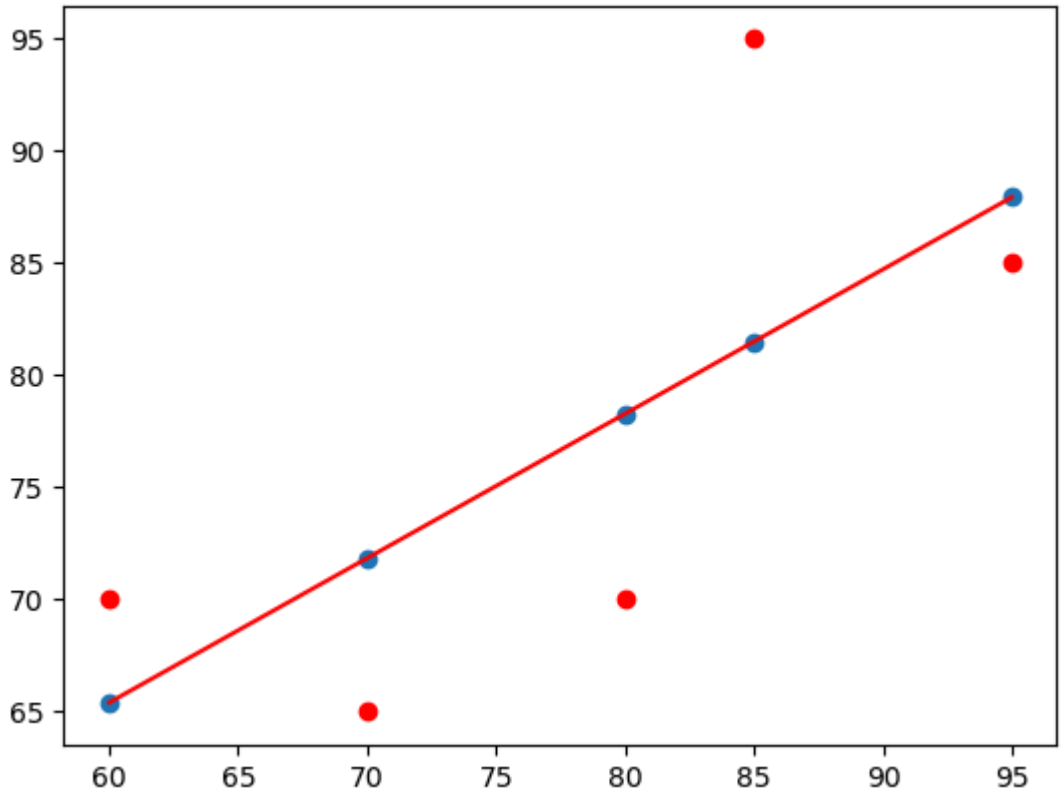
In [12]:
```
r2_score(y, y_pred)
```

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

In [13]:
```
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)
plt.scatter(x,y,c='r')
```

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



In [ ]:
```
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