```python
In [13]:  import numpy as np
          import pandas as pd
          import matplotlib.pyplot as plt
```

```python
In [14]:  x=np.array([95,85,80,70,60])
          y=np.array([85,95,70,65,70])
```

```python
In [15]:  model=np.polyfit(x,y,1)
```

```python
In [17]:  model
```

```
Out[17]:  array([ 0.64383562, 26.78082192])
```

```python
In [18]:  predict=np.poly1d(model)
```

```python
In [19]:  predict(65)
```

```
Out[19]:  68.63013698630137
```

```python
In [20]:  y_pred=predict(x)
```

```python
In [21]:  y_pred
```
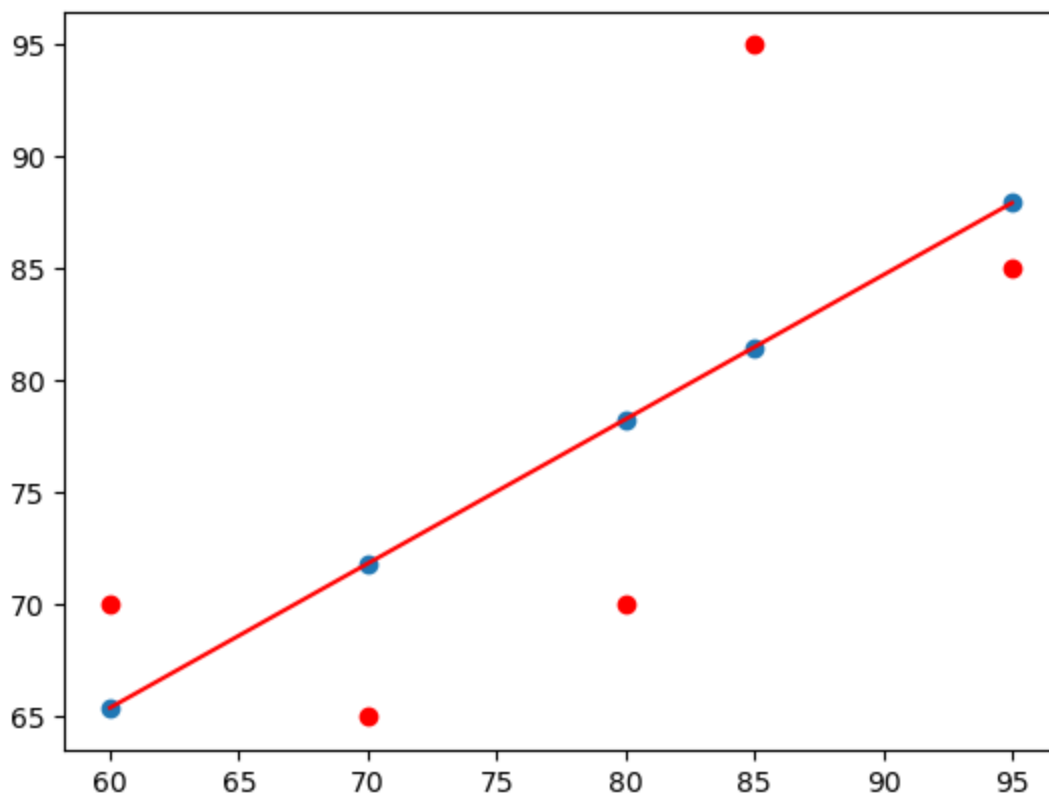
```
Out[21]:  array([87.94520548, 81.50684932, 78.28767123, 71.84931507, 65.4109589 ])
```

```python
In [23]:  from sklearn.metrics import r2_score
```

```python
In [24]:  r2_score(y,y_pred)
```

```
Out[24]:  0.4803218090889326
```

```python
In [27]:  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')
          plt.show()
```

In [28]:
```python
data=pd.read_csv("/home/student/Desktop/Boston.csv")
```

In [29]:
```python
data.head(9)
```

Out[29]:

	Unnamed: 0	crim	zn	indus	chas	nox	rm	age	dis	rad	tax	ptratio	black	lstat	medv
0	1	0.00632	18.0	2.31	0	0.538	6.575	65.2	4.0900	1	296	15.3	396.90	4.98	24.0
1	2	0.02731	0.0	7.07	0	0.469	6.421	78.9	4.9671	2	242	17.8	396.90	9.14	21.6
2	3	0.02729	0.0	7.07	0	0.469	7.185	61.1	4.9671	2	242	17.8	392.83	4.03	34.7
3	4	0.03237	0.0	2.18	0	0.458	6.998	45.8	6.0622	3	222	18.7	394.63	2.94	33.4
4	5	0.06905	0.0	2.18	0	0.458	7.147	54.2	6.0622	3	222	18.7	396.90	5.33	36.2
5	6	0.02985	0.0	2.18	0	0.458	6.430	58.7	6.0622	3	222	18.7	394.12	5.21	28.7
6	7	0.08829	12.5	7.87	0	0.524	6.012	66.6	5.5605	5	311	15.2	395.60	12.43	22.9
7	8	0.14455	12.5	7.87	0	0.524	6.172	96.1	5.9505	5	311	15.2	396.90	19.15	27.1
8	9	0.21124	12.5	7.87	0	0.524	5.631	100.0	6.0821	5	311	15.2	386.63	29.93	16.5

In [30]:
```python
data['crim']
```

Out[30]:
```
0        0.00632
1        0.02731
2        0.02729
3        0.03237
4        0.06905
          ...
501      0.06263
502      0.04527
503      0.06076
504      0.10959
505      0.04741
Name: crim, Length: 506, dtype: float64
```

```
In [31]:   data.isnull().sum()

Out[31]:   Unnamed: 0     0
           crim           0
           zn             0
           indus          0
           chas           0
           nox            0
           rm             0
           age            0
           dis            0
           rad            0
           tax            0
           ptratio        0
           black          0
           lstat          0
           medv           0
           dtype: int64
```
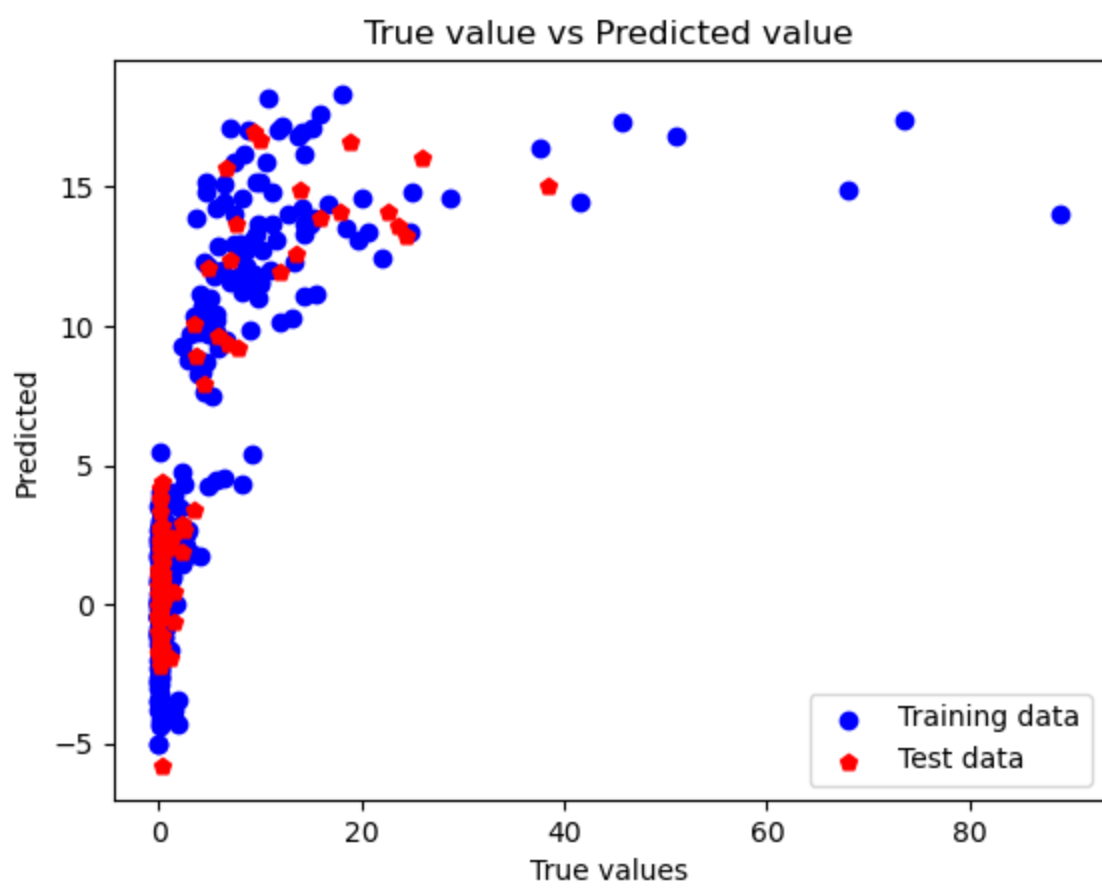
```python
In [33]:   x=data.drop(['crim'],axis=1)
           y=data['crim']
```

```python
In [34]:   from sklearn.model_selection import train_test_split
           xtrain,xtest,ytrain,ytest=train_test_split(x,y,test_size=0.2)
```

```python
In [37]:   import sklearn
           from sklearn.linear_model import LinearRegression
           lm=LinearRegression()
           model=lm.fit(xtrain,ytrain)
```

```python
In [38]:   ytrain_pred=lm.predict(xtrain)
           ytest_pred=lm.predict(xtest)
```

```python
In [39]:   data=(ytrain_pred,ytrain)
           data=(ytest_pred,ytest)
```

```python
In [44]:   plt.scatter(ytrain,ytrain_pred,c='blue',marker='o',label='Training data')
           plt.scatter(ytest,ytest_pred,c='red',marker='p',label='Test data')
           plt.xlabel('True values')
           plt.ylabel('Predicted')
           plt.title("True value vs Predicted value")
           plt.legend(loc='lower right')
           plt.plot()
           plt.show()
```

True value vs Predicted value

In [ ]: