

Importing needful libraries and modules

```
In [ ]: import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split #For splitting the data into train & test
from sklearn.linear_model import LinearRegression #Linear regression model
from sklearn.metrics import mean_squared_error #Metric for regression MSE
```

```
In [ ]: data=pd.read_csv("D:\\Workshops\\W 15 - Data Science Masterclass\\Data\\Boston.CSV")
data.head()
```

Seperating independent data matrix & response vector

```
In [ ]: x=data.iloc[:,12].values
y=data.iloc[:,12].values
```

Splitting data into training & testing sets (Validation set approach)

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In [ ]: x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_state=0)
```

Creating a linear regression model object

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In [ ]: model=LinearRegression()
```

Training the model with training data

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In [ ]: model.fit(x_train,y_train)
```

Estimated model parameters for independent variables

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In [ ]: model.coef_
```

Intercept of the model

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In [ ]: model.intercept_
```

R-Squared value for the trained model

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In [ ]: model.score(x_train,y_train)*100
```

Predicting the response for the unseen testing independent data

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In [ ]: y_pred=model.predict(x_test)
```

Mean Squared Error for the testing data

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In [ ]: MSE=mean_squared_error(y_pred,y_test)
MSE
```

Root Mean Squared Error

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In [ ]: np.sqrt(MSE)
```

Predictions

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In [ ]: arr=np.array([0.00632,18.0,2.31,0.538,6.575,65.2,4.0900,1,296,15.3,396.90,4.98]).reshape(1,12)
```

```
In [ ]: model.predict(arr)
```