Simple Linear Regression

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Machine Learning

Simple Linear Regression Model

- Simple Linear Regression comes under Supervised Learning Linear Regression Model

- To build Simple Linear Regression model we will use
  - pandas
  - matplotlib.pyplot
  - sklearn (model_selection & linear_model)

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Simple Linear Regression Model (STEPS) – SPYDER ANACONDA

- Importing numpy (will not be used), pandas & matplotlib
- Reading & Dividing dataset into dependent and independent variable
- Training & Testing the model (Tested the model with 15%)
- Building the **SIMPLE LINEAR REGRESSION** model
- Prediction
- Plotting the graphs of training set and test set

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CODE

```python
#----------------------
#1. Import packages

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

#----------------------
#2. Reading & Splitting

dataset = pd.read_csv(r"C:\Users\G AKHILA\Desktop\Datasets\Machine Learning\Salary_Data.csv")
x = dataset.iloc[:,:-1]
y = dataset.iloc[:,1]

#----------------------
#3. x-Train, x-Test, y-Train & y-Test

from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test = train_test_split(x,y, test_size=0.15, random_state=0)

#----------------------
#4. Building Simple Linear Regerssion model

from sklearn.linear_model import LinearRegression
regressor = LinearRegression()
regressor.fit(x_train, y_train)

#----------------------
#5. Predictions

y_pred = regressor.predict(x_test)

#----------------------
#6. Plot the graphs of training set

plt.scatter(x_train,y_train, color='red')
plt.plot(x_train,regressor.predict(x_train), color='blue')
plt.title('Salary vs Experience (Training Test)')
plt.xlabel('Years of experience')
plt.ylabel('Salary')
plt.show()

#----------------------
#7. Plot the graphs of testing set

plt.scatter(x_test,y_test, color='red')
plt.plot(x_train,regressor.predict(x_train), color='blue')
plt.title('Salary vs Experience (Test set)')
plt.xlabel('Years of experience')
plt.ylabel('Salary')
plt.show()
```

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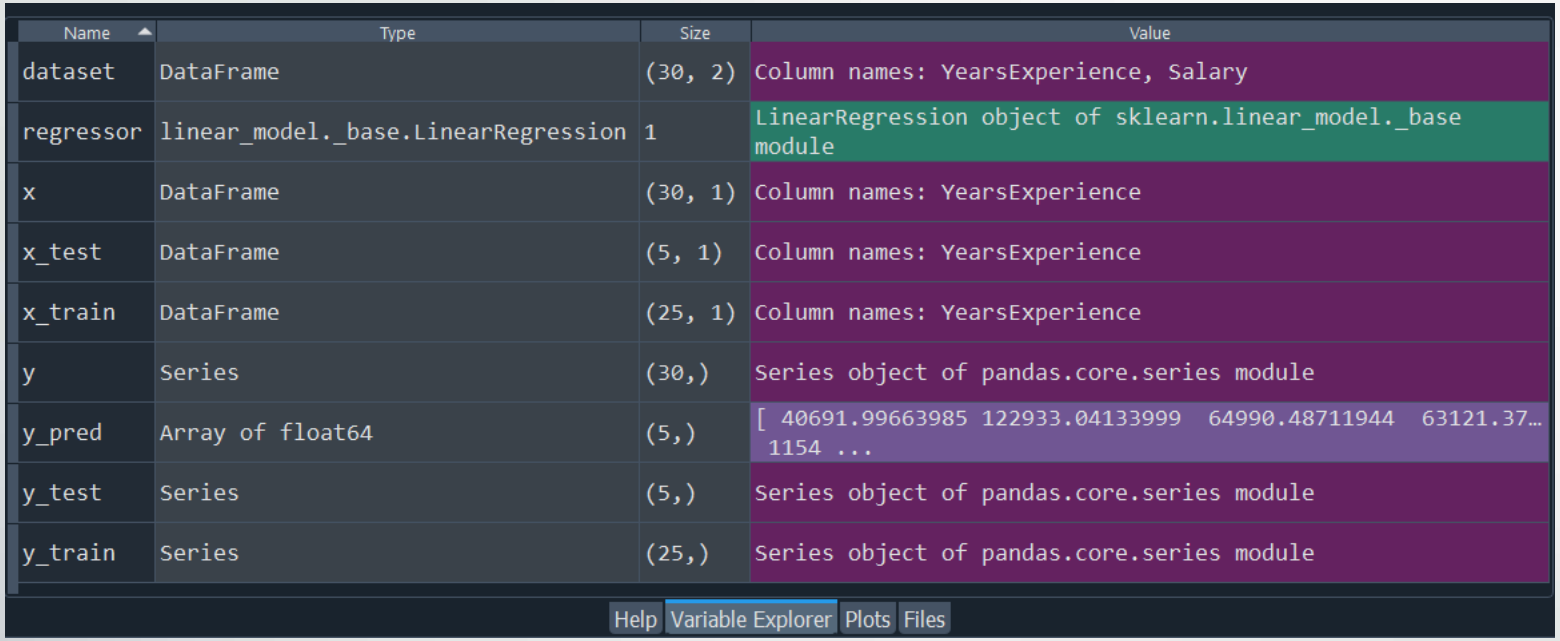
VARIABLE EXPLORER TAB



Name	Type	Size	Value
dataset	DataFrame	(30, 2)	Column names: YearsExperience, Salary
regressor	linear_model._base.LinearRegression	1	LinearRegression object of sklearn.linear_model._base module
x	DataFrame	(30, 1)	Column names: YearsExperience
x_test	DataFrame	(5, 1)	Column names: YearsExperience
x_train	DataFrame	(25, 1)	Column names: YearsExperience
y	Series	(30,)	Series object of pandas.core.series module
y_pred	Array of float64	(5,)	[40691.99663985 122933.04133999 64990.48711944 63121.37… 1154 ...
y_test	Series	(5,)	Series object of pandas.core.series module
y_train	Series	(25,)	Series object of pandas.core.series module

Help | Variable Explorer | Plots | Files

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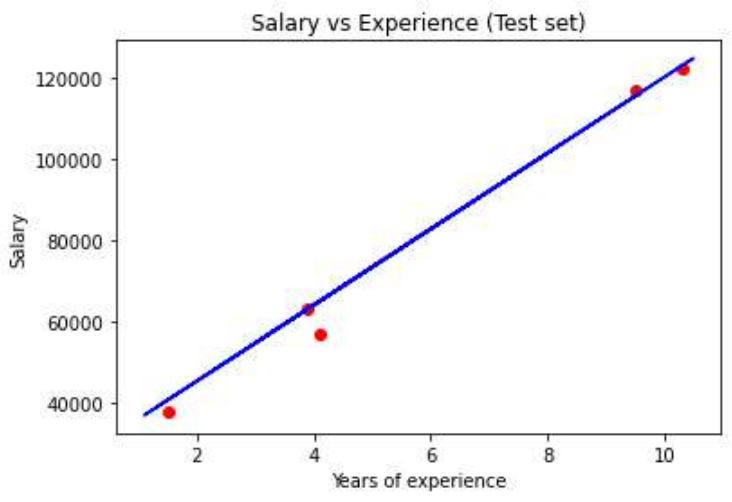
PLOT

24 Attributes
(Training Test)



6 Attributes
(Test Set)

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