
Experiment No: 04

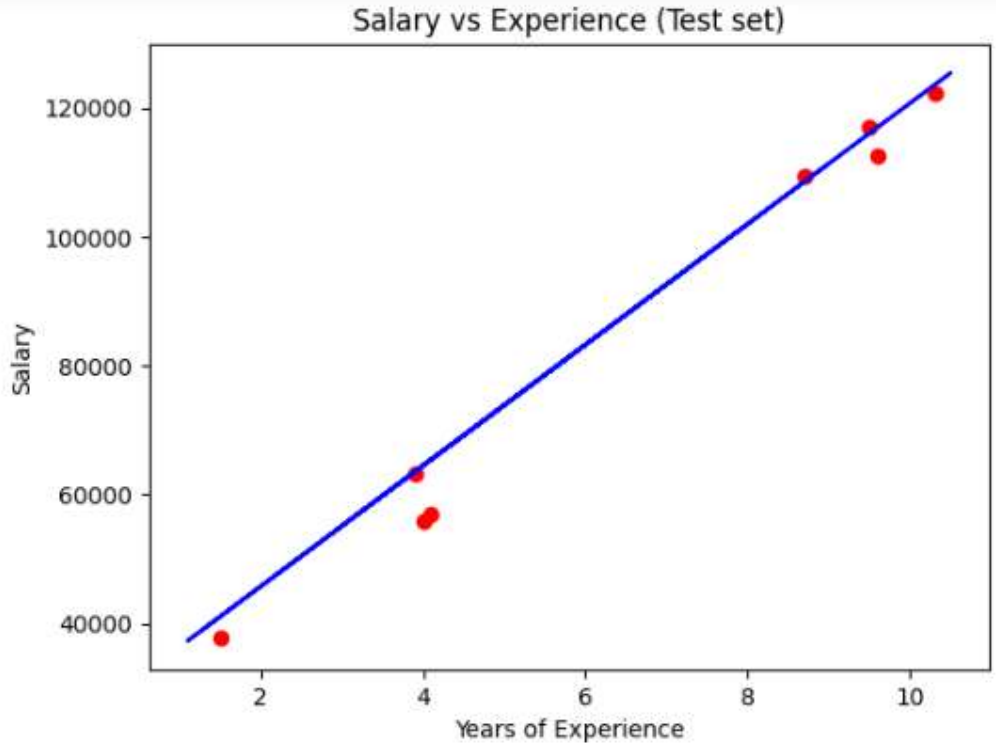
Code :-

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression


# Importing the dataset
dataset = pd.read_csv('Salary_Dataset.csv')
X = dataset.iloc[:, 0:1].values  # Features (Years of Experience)
y = dataset.iloc[:, 1].values      # Target variable (Salary)


# Splitting the dataset into the Training set and Test set
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=0)


# Fitting the Linear Regression model
regressor = LinearRegression()
regressor.fit(X_train, y_train)


# Print shapes for debugging
print("X_train shape:", X_train.shape)
print("y_train shape:", y_train.shape)
print("X shape:", X.shape)
print("y shape:", y.shape)
```

```
# Visualizing the Training set results
plt.scatter(X_train, y_train, color='red')
plt.plot(X_train, regressor.predict(X_train), color='blue')
plt.title('Salary vs Experience (Training set)')
plt.xlabel('Years of Experience')
plt.ylabel('Salary')
plt.show()

# Visualizing the Test set results
plt.scatter(X_test, y_test, color='red')
plt.plot(X_train, regressor.predict(X_train), color='blue')  # Using training data for the line
plt.title('Salary vs Experience (Test set)')
plt.xlabel('Years of Experience')
plt.ylabel('Salary')
plt.show()

# Predicting the Test set results
y_pred = regressor.predict(X_test)

# Displaying predictions
for pred in y_pred:
    print("Predicted Salary:", pred)
```

Code Output :-

```
X_train shape: (22, 1)
y_train shape: (22,)
X shape: (30, 1)
y shape: (30,)
```




```
Predicted Salary: 41056.25705465627
Predicted Salary: 123597.70938378121
Predicted Salary: 65443.50433371591
Predicted Salary: 63567.56223532671
Predicted Salary: 116093.9409902244
Predicted Salary: 108590.17259666757
Predicted Salary: 117031.912039419
Predicted Salary: 64505.53328452131
```