Experiment 3: Implement Simple Linear Regression Model by using Salary Dataset

In [76]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn import linear_model
```

In [77]:
```
df = pd.read_csv('Salary_dataset.csv')
df
```

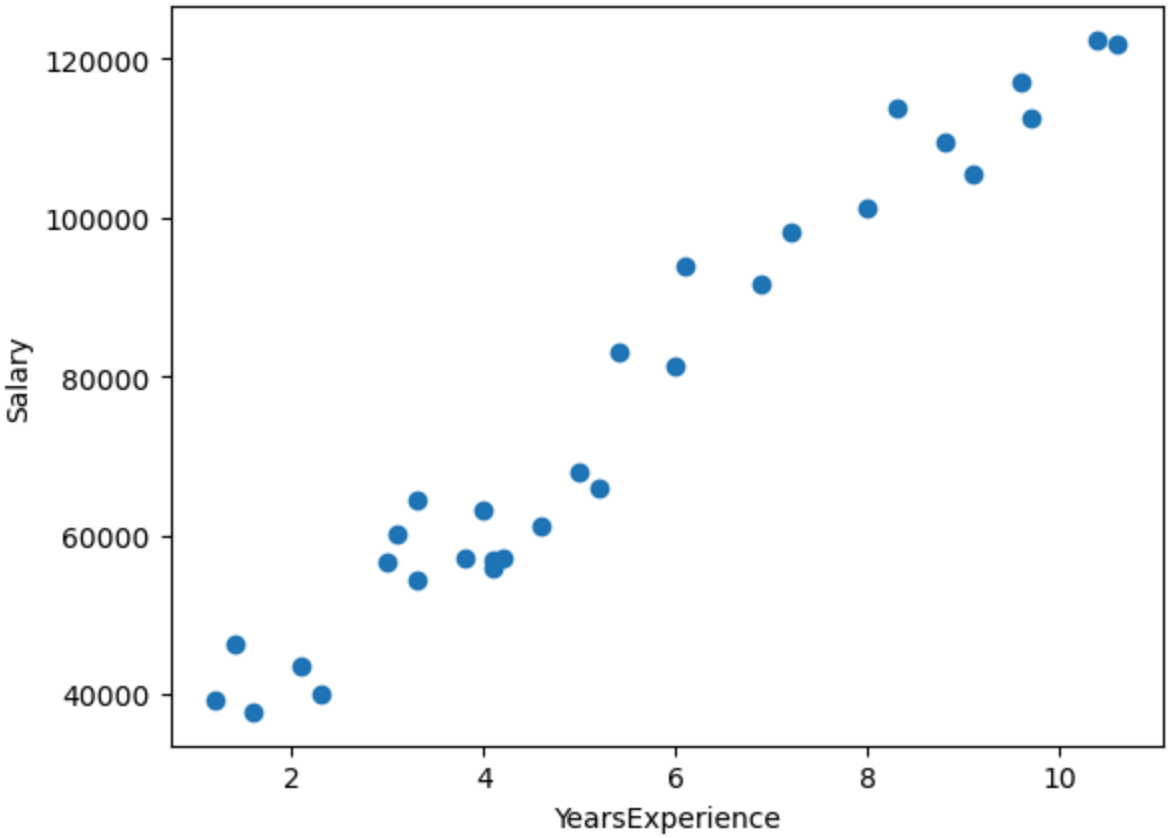
Out[77]:

	YearsExperience	Salary
0	1.2	39344
1	1.4	46206
2	1.6	37732
3	2.1	43526
4	2.3	39892
5	3.0	56643
6	3.1	60151
7	3.3	54446
8	3.3	64446
9	3.8	57190
10	4.0	63219
11	4.1	55795
12	4.1	56958
13	4.2	57082
14	4.6	61112
15	5.0	67939
16	5.2	66030
17	5.4	83089
18	6.0	81364
19	6.1	93941
20	6.9	91739
21	7.2	98274
22	8.0	101303
23	8.3	113813
24	8.8	109432
25	9.1	105583
26	9.6	116970
27	9.7	112636
28	10.4	122392
29	10.6	121873

In [78]:

```
plt.scatter(df.YearsExperience, df.Salary)
plt.xlabel('YearsExperience')
plt.ylabel('Salary')
```

Out[78]: Text(0, 0.5, 'Salary')



In [79]:
```
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

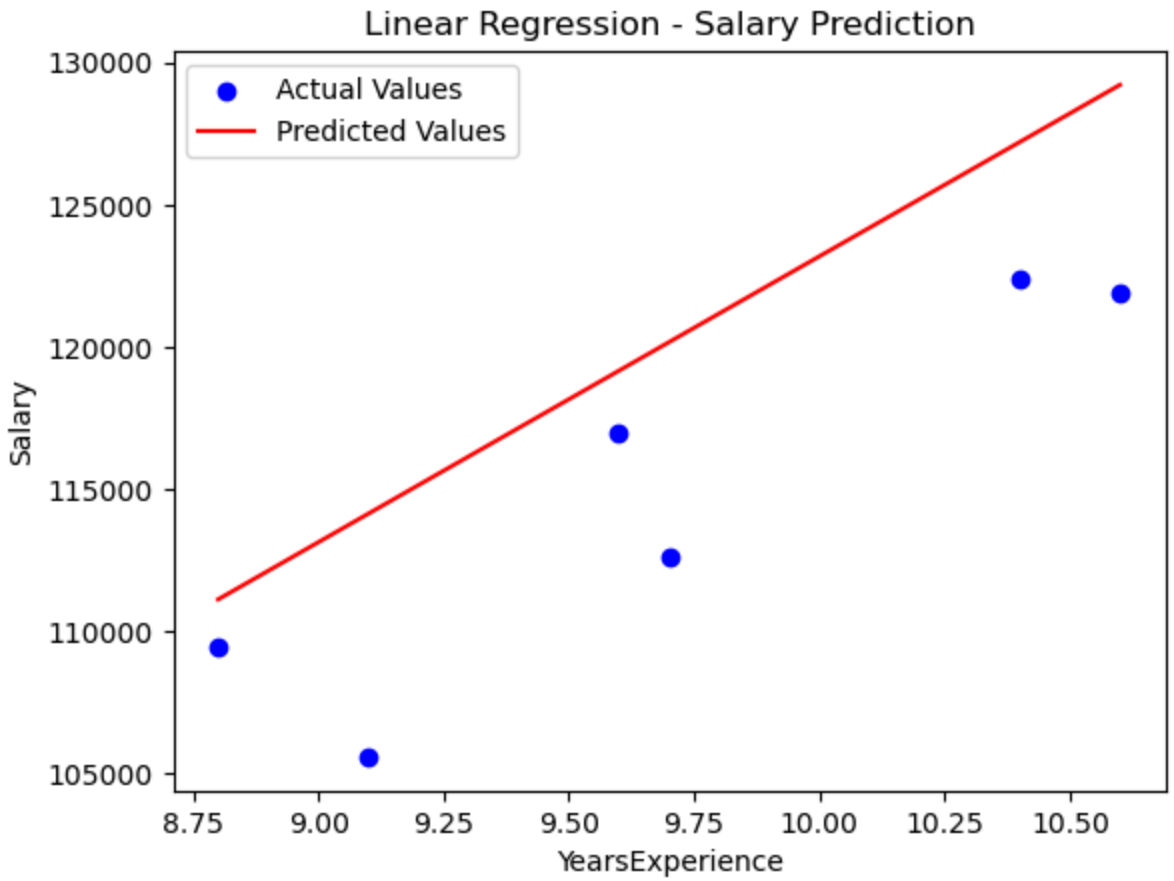
In [80]:
```
x_train, x_test, y_train, y_test = train_test_split(df[['YearsExperience']],
```

In [81]:
```
model = LinearRegression()
model.fit(x_train, y_train)
```

Out[81]:
```
LinearRegression
LinearRegression()
```

In [82]:
```
y_pred = model.predict(x_test)
```

In [83]:
```
# Step 8: Visualize the Results
plt.scatter(x_test, y_test, color='blue', label='Actual Values')
plt.plot(x_test, y_pred, color='red', label='Predicted Values')
plt.xlabel('YearsExperience')
plt.ylabel('Salary')
plt.title('Linear Regression - Salary Prediction')
plt.legend()
plt.show()
```



In [84]:
```
model.predict([[1.4]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
  warnings.warn(
```

Out[84]:
```
array([36729.47069073])
```

In [85]:
```
model.predict([[2.3]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
  warnings.warn(
```

Out[85]:
```
array([45776.97824144])
```

In [86]:
```
model.predict([[10.6]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
  warnings.warn(
```

Out[86]:
```
array([129215.10343133])
```