



## ASSIGNMENT NO.5

Name-Amruta Patil

Roll no-2317088

Batch-'A'

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In [3]: import numpy as np
        from sklearn.linear_model import LogisticRegression
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In [25]: # Dataset
experience = np.array([2,5,3,7,1,6,4,8])
gender = np.array([0,0,0,0,1,1,1,1]) # 0 = Female, 1 = Male
hired = np.array([1,1,1,1,0,0,0,0]) # 1 = Hire, 0 = Rejected

# Combine features
X = np.column_stack((experience, gender))
y = hired

# Train model
model = LogisticRegression()
model.fit(X, y)

# Test case: Female with 5 years experience
test = np.array([[5, 0]])

prediction = model.predict(test)
probability = model.predict_proba(test)

if prediction[0] == 1:
    print("Prediction: Hire")
else:
    print("Prediction: Rejected")

print("Probabilities of rejected and hire is:",probability)
```

Prediction: Hire

Probabilities of rejected and hire is: [[0.34587169 0.65412831]]

```
In [61]: import pandas as pd
        import numpy as np
        from sklearn.linear_model import LogisticRegression
        from sklearn.metrics import accuracy_score, classification_report
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In [65]: df = pd.read_csv("Downloads/recruitment_data.csv")
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In [67]: X = df.drop("HiringDecision", axis=1)
        y = df["HiringDecision"]
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In [69]: model = LogisticRegression(max_iter=1000)
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model.fit(X, y)
y_pred = model.predict(X)
accuracy = accuracy_score(y, y_pred)
print("Accuracy:", accuracy)

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Accuracy: 0.862

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In [71]: cl=classification_report(y, y_pred)
print(cl)

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	precision	recall	f1-score	support
0	0.88	0.93	0.90	1035
1	0.82	0.71	0.76	465
accuracy			0.86	1500
macro avg	0.85	0.82	0.83	1500
weighted avg	0.86	0.86	0.86	1500

```

In [73]: # Analyze hiring by gender
print("\nHiring Distribution by Gender:",df.groupby("Gender")["HiringDecision"]
print(df.groupby("Gender")["HiringDecision"].value_counts())

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Hiring Distribution by Gender:
Gender  HiringDecision
0      0                525
      1                237
1      0                510
      1                228
Name: count, dtype: int64

```

In [ ]: