

LAB -4 OUTPUT : 1BM22CS259

1)

```

satisfaction_level    0
last_evaluation        0
number_project        0
average_monthly_hours  0
time_spend_company    0
Work_accident         0
left                  0
promotion_last_5years  0
Department            0
salary               0
dtype: int64

satisfaction_level  last_evaluation  number_project  \
count      14999.000000      14999.000000      14999.000000
mean         0.612834         0.716102         3.803054
std          0.248631         0.171169         1.232592
min          0.090000         0.360000         2.000000
25%          0.440000         0.560000         3.000000
50%          0.640000         0.720000         4.000000
75%          0.820000         0.870000         5.000000
max          1.000000         1.000000         7.000000

average_monthly_hours  time_spend_company  Work_accident  left  \
count      14999.000000      14999.000000      14999.000000      14999.000000
mean         201.050337         3.498233         0.144610         0.238083
std          49.943099         1.460136         0.351719         0.425924
min          96.000000         2.000000         0.000000         0.000000
25%         156.000000         3.000000         0.000000         0.000000
50%         200.000000         3.000000         0.000000         0.000000
75%         245.000000         4.000000         0.000000         0.000000
max         310.000000        10.000000         1.000000         1.000000

```

```

promotion_last_5years
count      14999.000000
mean         0.021268
std          0.144281
min          0.000000
25%          0.000000
50%          0.000000
75%          0.000000
max          1.000000
satisfaction_level    float64
last_evaluation        float64
number_project        int64
average_monthly_hours  int64
time_spend_company    int64
Work_accident         int64
left                  int64
promotion_last_5years  int64
Department            object
salary               object
dtype: object

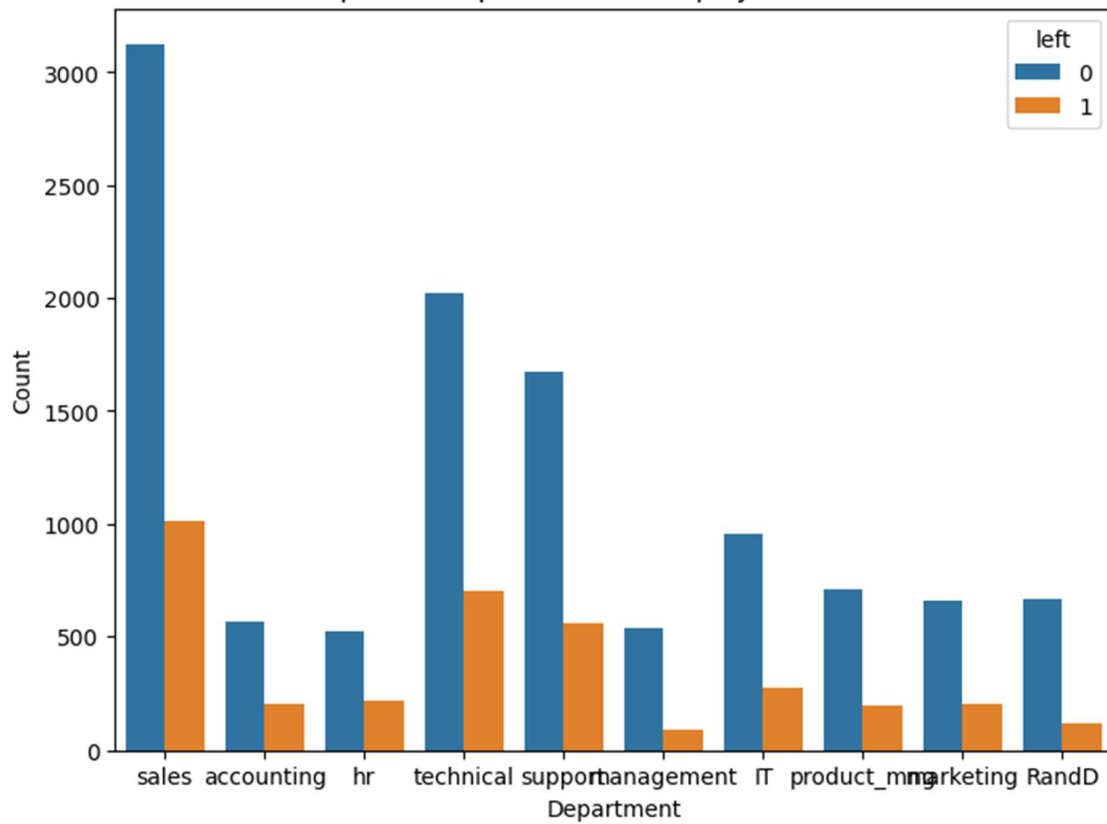
satisfaction_level  last_evaluation  number_project  average_monthly_hours  \
0          0.38          0.53          2          157
1          0.80          0.86          5          262
2          0.11          0.88          7          272
3          0.72          0.87          5          223
4          0.37          0.52          2          159

time_spend_company  Work_accident  left  promotion_last_5years  Department  \
0          3          0          1          0          sales
1          6          0          1          0          sales
2          4          0          1          0          sales
3          5          0          1          0          sales
4          3          0          1          0          sales

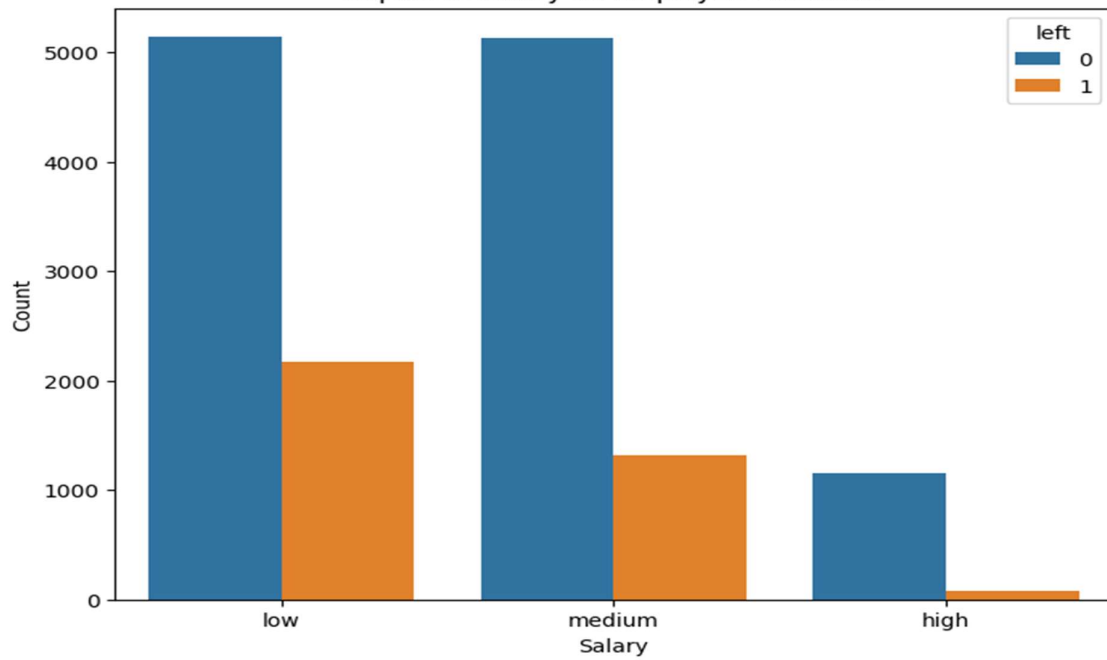
salary
0    low
1  medium
2  medium
3    low
4    low

```

Impact of Department on Employee Retention



Impact of Salary on Employee Retention



Accuracy of the Logistic Regression model: 0.7843

Confusion Matrix:

[[2116 178]

[469 237]]

Classification Report:

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| 0 | 0.82 | 0.92 | 0.87 | 2294 |
| 1 | 0.57 | 0.34 | 0.42 | 706 |
| accuracy | | | 0.78 | 3000 |
| macro avg | 0.69 | 0.63 | 0.65 | 3000 |
| weighted avg | 0.76 | 0.78 | 0.76 | 3000 |

2)

