

```
1 C:\Users\kavan\PyCharmMiscProject\venv\Scripts\python.exe "C:\Users\kavan\PyCharmMiscProject\AIML INTERNSHIP\task8.py"
2 Dataset loaded successfully!
3
4    age      job   marital  education ...  pdays  previous poutcome  y
5    0      58  management    married  tertiary ...    -1      0  unknown  no
6    1      44  technician     single  secondary ...    -1      0  unknown  no
7    2      33  entrepreneur    married  secondary ...    -1      0  unknown  no
8    3      47  blue-collar    married  unknown ...    -1      0  unknown  no
9    4      33       unknown     single  unknown ...    -1      0  unknown  no
10
11 [5 rows x 17 columns]
12
13 Dataset Info:
14 <class 'pandas.core.frame.DataFrame'>
15 RangeIndex: 45211 entries, 0 to 45210
16 Data columns (total 17 columns):
17 #   Column  Non-Null Count Dtype
18 ---  --  --  --  --  --
19 0   age      45211 non-null  int64
20 1   job      45211 non-null  object
21 2   marital  45211 non-null  object
22 3   education 45211 non-null  object
23 4   default  45211 non-null  object
24 5   balance  45211 non-null  int64
25 6   housing  45211 non-null  object
26 7   loan     45211 non-null  object
```

```
27 8 contact 45211 non-null object
28 9 day 45211 non-null int64
29 10 month 45211 non-null object
30 11 duration 45211 non-null int64
31 12 campaign 45211 non-null int64
32 13 pdays 45211 non-null int64
33 14 previous 45211 non-null int64
34 15 poutcome 45211 non-null object
35 16 y 45211 non-null object
36 dtypes: int64(7), object(10)
37 memory usage: 5.9+ MB
38 None
39
40 Missing Values Check:
41 age 0
42 job 0
43 marital 0
44 education 0
45 default 0
46 balance 0
47 housing 0
48 loan 0
49 contact 0
50 day 0
51 month 0
52 duration 0
53 campaign 0
```

```
54 pdays      0
55 previous   0
56 poutcome   0
57 y          0
58 dtype: int64
59
60 Handled 'unknown' values
61
62 Categorical features encoded
63
64 Feature matrix shape: (45211, 38)
65 Target shape: (45211,)
66
67 Train size: (36168, 38)
68 Test size : (9043, 38)
69
70 Decision Tree model trained successfully!
71
72 Test Accuracy: 0.8959416122968041
73
74 Classification Report:
75
76           precision      recall  f1-score   support
77    False        0.91       0.97     0.94     7952
78    True         0.63       0.33     0.43     1091
79
80 accuracy      0.90      0.90     0.90     9043
```

```
81 macro avg    0.77    0.65    0.69    9043
82 weighted avg 0.88    0.90    0.88    9043
83
84 Train Accuracy: 0.9028422915284229
85 Test Accuracy : 0.8959416122968041
86
87 Task 8 Completed Successfully!
88
89 Process finished with exit code 0
90
```