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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
```

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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      precision    recall  f1-score   support
76
77      False      0.91      0.97      0.94      7952
78      True       0.63      0.33      0.43     1091
79
80      accuracy                0.90      9043
```

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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
```