

```

1 C:\Users\kavan\PyCharmMiscProject\.venv\Scripts\python.exe "C:\Users\kavan\
  PyCharmMiscProject\AIML INTERNSHIP\task9.py"

```

```

2 Dataset loaded successfully!

```

```

3
4      rownames card  reports      age      ...      dependents      months      majorcards      active
5 0          1   yes        0  37.66667      ...          3          54          1          12
6 1          2   yes        0  33.25000      ...          3          34          1          13
7 2          3   yes        0  33.66667      ...          4          58          1          5
8 3          4   yes        0  30.50000      ...          0          25          1          7
9 4          5   yes        0  32.16667      ...          2          64          1          5

```

```

10
11 [5 rows x 13 columns]

```

```

12
13 Card Distribution:

```

```

14 card
15 yes    1023
16 no     296

```

```

17 Name: count, dtype: int64

```

```

18

```

```

19 Dataset after encoding:

```

```

20      card  reports      age      income      ...      majorcards      active      owner_yes      selfemp_yes
21 0        1        0  37.66667    4.5200      ...          1          12          True          False
22 1        1        0  33.25000    2.4200      ...          1          13          False          False
23 2        1        0  33.66667    4.5000      ...          1          5          True          False
24 3        1        0  30.50000    2.5400      ...          1          7          False          False
25 4        1        0  32.16667    9.7867      ...          1          5          True          False

```

```

26

```

```
27 [5 rows x 12 columns]
```

```
28
```

```
29 Feature matrix shape: (1319, 11)
```

```
30 Target shape: (1319,)
```

```
31
```

```
32 Baseline Model (Logistic Regression) Report:
```

```
33           precision    recall  f1-score   support
```

```
34
```

```
35           0           0.88      0.98      0.93         59
```

```
36           1           0.99      0.96      0.98        205
```

```
37
```

```
38           accuracy
```

```
38           0.97      0.97      0.97         264
```

```
39           macro avg
```

```
39           0.94      0.97      0.95         264
```

```
40           weighted avg
```

```
40           0.97      0.97      0.97         264
```

```
41
```

```
42
```

```
43 Random Forest model trained successfully!
```

```
44
```

```
45 Random Forest Classification Report:
```

```
46           precision    recall  f1-score   support
```

```
47
```

```
48           0           0.88      1.00      0.94         59
```

```
49           1           1.00      0.96      0.98        205
```

```
50
```

```
51           accuracy
```

```
51           0.97      0.97      0.97         264
```

```
52           macro avg
```

```
52           0.94      0.98      0.96         264
```

```
53           weighted avg
```

```
53           0.97      0.97      0.97         264
```

```
54
55
56 Model saved as 'random_forest_credit_model.pkl'
57
58 Task 9 Completed Successfully!
59
60 Process finished with exit code 0
61
```