Name: Samarth Shah
WPI ID: 590146168
Date: 09/06/2021
Course: CS539-Machine Learning

Homework #1

Part 2: Credit Risk Prediction:

Task 2-1: Draw Tree and compute risk for Tom and Ana

- First, I trained the model I developed with the help of the dataset provided.
- Next, I inferred the Tree from the code and plotted it on an online platform: https://www.smartdraw.com/decision-tree/. The tree is shown below(Fig 1)
- Then I calculated accuracy using the same data. I got 100% accuracy (as shown in Fig 2)
- Also, I found the credit risk for Tom and Ana using the same code.
  - → Credit Risk for Tom = LOW
  - → Credit Risk for Ana = HIGH

The credit Risk for both can also be inferred from the decision tree drawn below

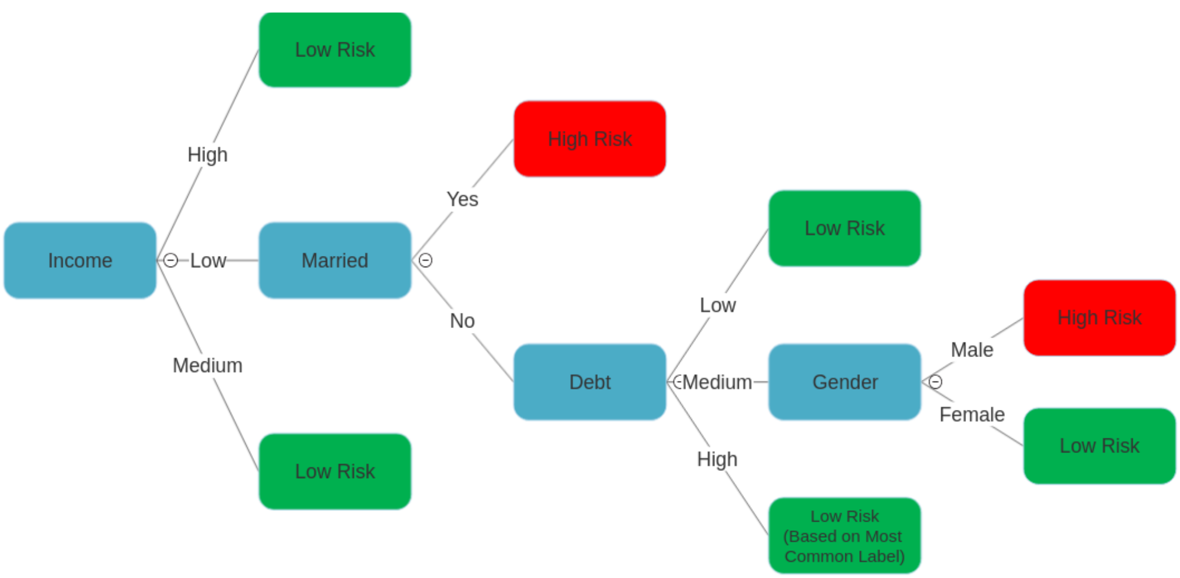

Figure 1: Decision Tree

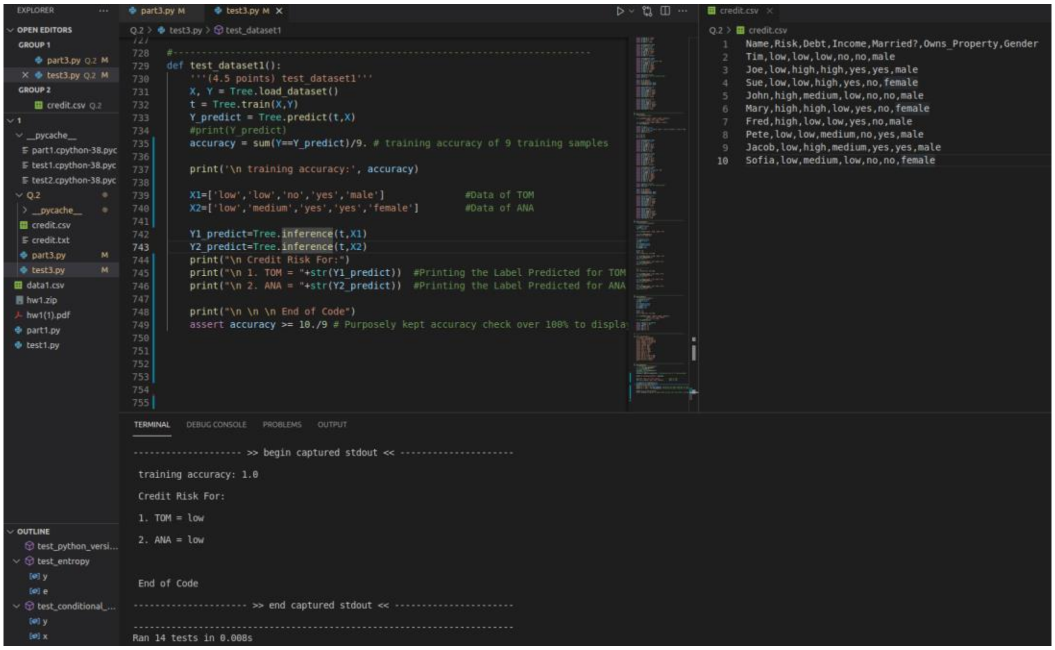

Figure 2: Code O/P

<u>Task 2-2</u>: Change Risk for Sofia to “High” and construct a decision tree.

- First, I changed the risk of Sofia to “High” and trained the model based on the new dataset. Below is the Tree that I have plotted using the website mentioned on page 1.

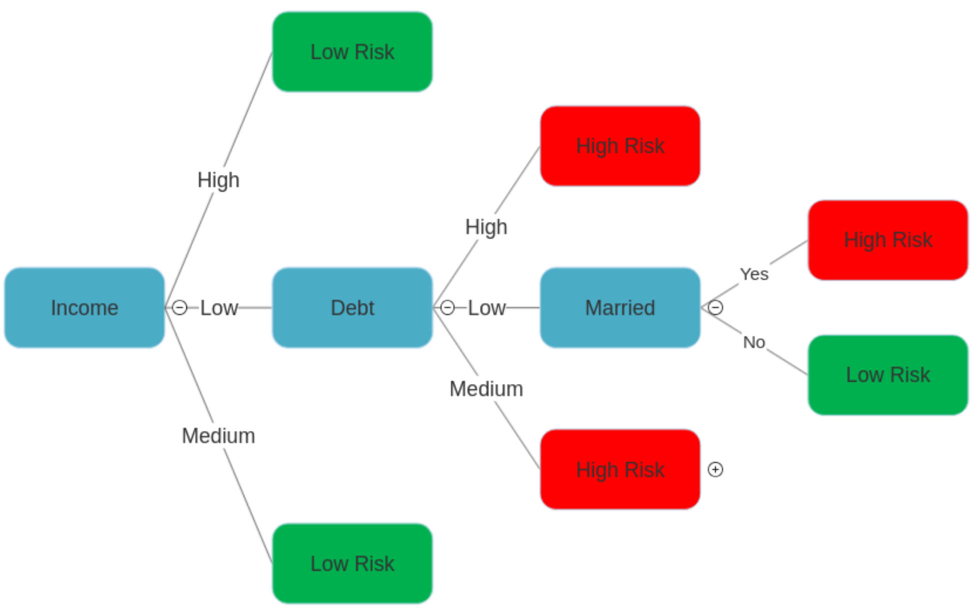

Figure 3: New Decision Tree

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- I achieved training accuracy as 100% and Low risk for both TOM and ANA. It can be viewed in the Code Snapshot below (Figure 4)

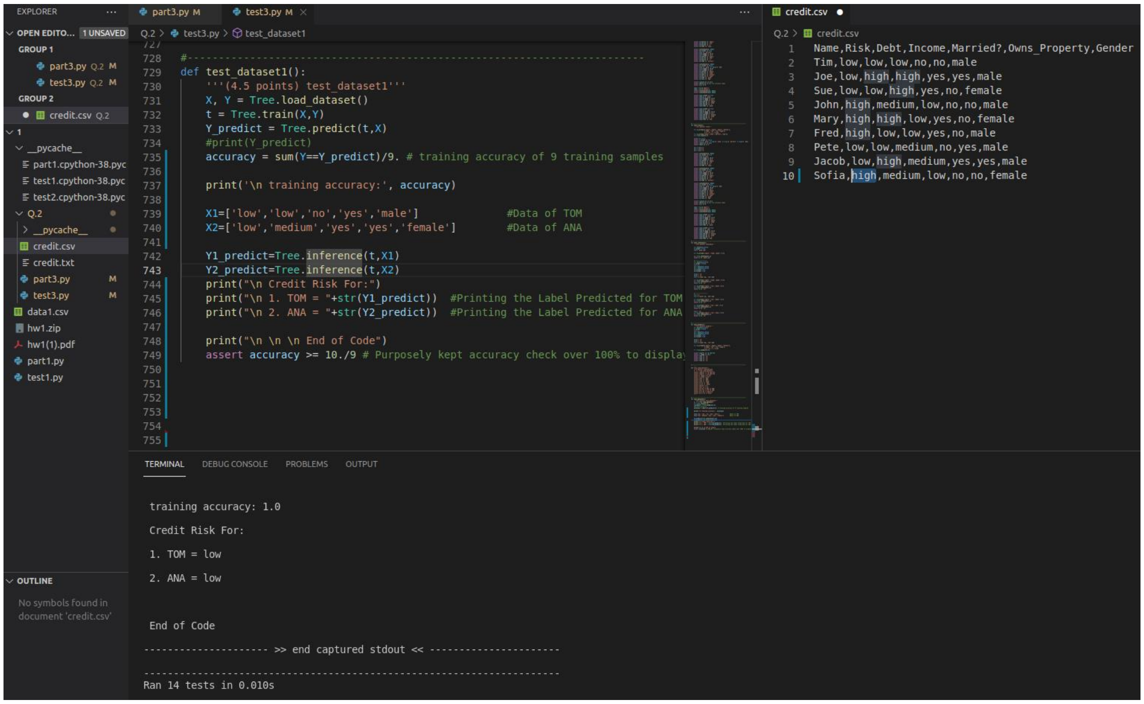

Figure 4: Code O/p

- Features not playing a role in the first decision tree is: **"Own_Property"**