Loan Eligibility Determinator

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December 2018

Allegheny College
CS102

Overview

What actually is our project?

- Program determines if an applicant is eligible for loan based off answers to questions.
- 2 sets of questions.
  - Set of 3 Questions -- fast-track/preliminary.
    - If ineligible, person using program can move on to next set.
  - Set of 7 Questions -- in depth.
- Based off inputted answers, truth tables and boolean logic/equation used to determine eligibility.
- Option to save eligibility status to file.

Motivation

Why did we pick this topic?

- ★ Collectively interested in looking at how we could tie in 102 into economics.
- ★ One thing that came to our mind was how banks give out loans.
  - We enjoyed the lab and classes about boolean logic & truth tables.
  - How we could implement boolean truth tables for this concept?
- ★ **Real-World Importance**
  - Make sure people who are trying to acquire loans go through fair but reasonable questions.
  - There have been many studies on the implications of bad loans.

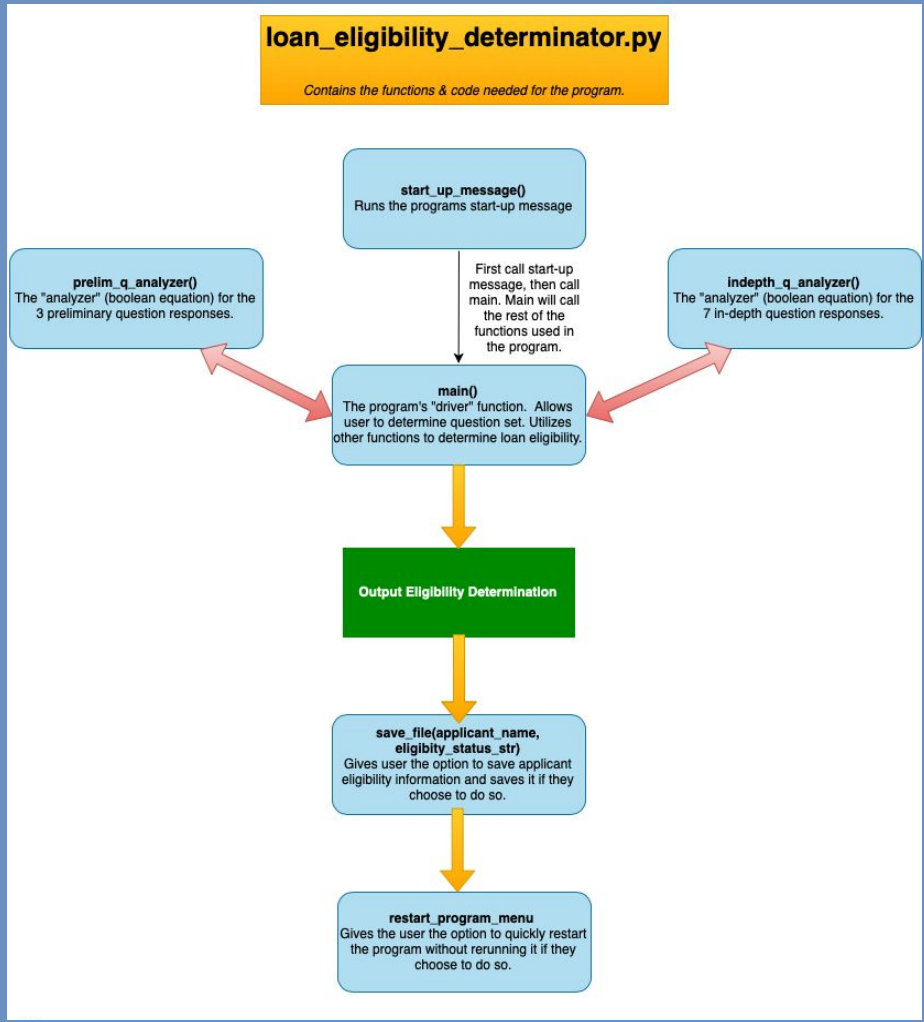
Challenges

What challenges did we face?

- Our biggest challenge was figuring out what questions to ask.
  - For example, our questions couldn't be too broad but also couldn't be applicable to one group of people.
  - Overcame this challenge by doing research and analyzing our potential questions..
- Coming up with an accurate equation for the boolean truth table.
  - Applicants can't have two no's on major questions and still be allowed a loan because they are above the threshold.
- Lastly we came across issues trying to send the outputs into a text file.
  - At first, you had to create a new text file every time; cumbersome and annoying.

Implementation

- ➔ Display startup messages (“print”); applicant enters name (“input”).
- ➔ User enters whether or not they want to go the fast track with 3 fast-track/preliminary questions or 7 in depth questions.
- ➔ Store responses in truth table list; use boolean equation to determine eligibility.
- ➔ Finally, regardless if you get the loan or not, you have the option for your name and eligibility status to be stored into a text file.
- ➔ Can choose to restart the program for convenience.



Activities Terminal Mon 3:47 PM

spurrm@aldenv178: ~/A_Junior_Year/cs102f2018/cs102f2018-spurrm/labs/lab5/cs102f2018-lab05-starter-absolute-units/src

File Edit View Search Terminal Help

```
| * About The Program: This program is for checking a applicant's eligibility  |
| for a loan from a bank.| The banker should ask the user questions and record |
| their Yes or No answers in the program.There are two sets of questions: one  |
| quick set and one longer set for more interesting cases. The program will    |
| give a determination on whether the user should recieve a loan.              |
--------------------------------------------------------------------------------

What is the applicant's name? -- Mikey

Do you want to begin with 3 preliminary questions? Type YES if you do, otherwise, hit en
oader set of questions! --
Please record applicant responses to the asked questions!
*** 7 In-Depth Questions ***
1) Is the applicant in good standing with the bank? YES or NO? -- yes
2) Is the applicant's credit score above a 580 ('Fair')? YES or NO? -- yes
3) Does the applicant have enough (or close to enough) collateral for their requested lo
ing collateral? YES or NO? -- no
4) Is the term for loan repayment requested by the applicant realistic? YES or NO? -- ye
5) Will the applicant be using the loan for a practical/realistic purpose that won't int
oan? YES or NO? -- yes
6) Does the applicant currently have any unpaid debts/outstanding payments? YES or NO? -
7) Is the applicant currently employed? YES or NO? -- yes
Mikey has been determined to be ELIGIBLE for the loan based off the preliminary question

Do you want to save the applicants's loan eligibility status to a text file? YES or NO -
Do you want to restart the program? YES or NO? --- no

Closing the program!
```

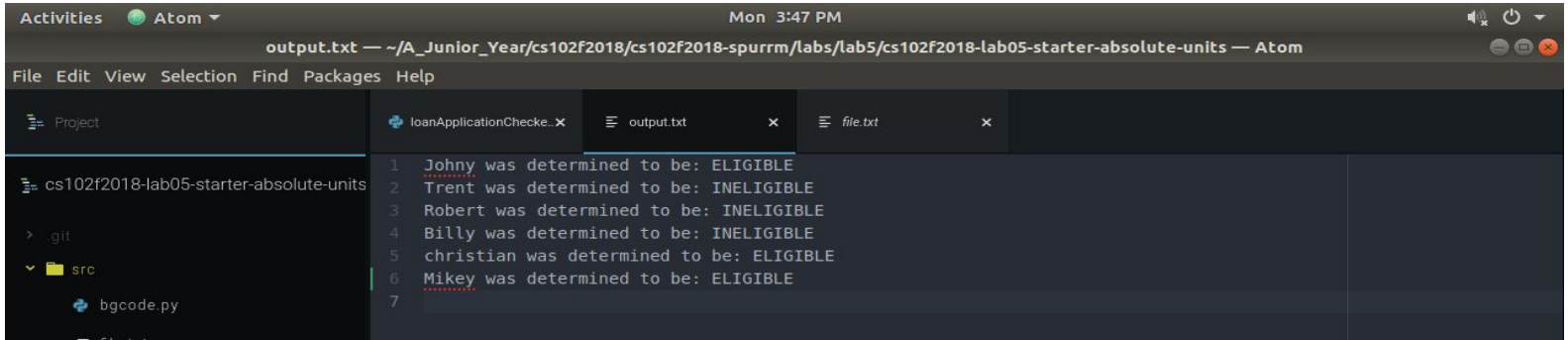
loan_eligibility_determinator.py

```python
def prelim_q_analyzer(in1_bool, in2_bool, in3_bool):
    """The analyzer code/equation for the preliminary question set."""
    return in1_bool and in2_bool and in3_bool


def indepth_q_analyzer(in1_bool, in2_bool, in3_bool, in4_bool, in5_bool, in6_bool, in7_bool):
    """The analyzer code/equation for the in-depth question set."""
    return in1_bool and in2_bool or in3_bool and in4_bool or in5_bool and in6_bool and in7_bo


def main():
    """The main 'driver' function of the program."""
    applicant_name = input("What is the applicant's name? -- ")
    print() # spacing line for better readability.
    which_qs = input("Do you want to begin with 3 preliminary questions? Type YES if you do,
    print("Please record applicant responses to the asked questions!")

    if which_qs == "YES" or which_qs == "yes" or which_qs == "Yes": # if statement that check
        print("** 3 Preliminary Questions **")
        ## Question 1
        q1_answer = input("1) Does the applicant present themselves well? YES or NO? -- ")
        q1_list = [] # creates list where question 1 answer boolean will be stored.
        if q1_answer == "YES" or q1_answer == "yes" or q1_answer == "Yes":
            q1_list = [True]
        else:
            q1_list = [False]

        ## Question 2
        q2_answer = input("2) Does the applicant have at least a credit score of at least 700
        q2_list = [] # creates list where question 2 answer boolean will be stored.
        if q2_answer == "YES" or q2_answer == "yes" or q2_answer == "Yes":
            q2_list = [True]
        else:
            q2_list = [False]
```

Results & Analysis

How did our program perform?

- Program runs smooth allowing the input or lowercase and uppercase for answers, quick restart of program option, etc.
- Program does a good job of weighting question importance, but could be more fine-tuned so that it makes a more accurate determination.
  - Improve upon the boolean/truth-table determination equation!



DEMONSTRATION

In the Linux terminal...

Any Questions?

Thank you!