

ANL251
Python Programming

Tutor-Marked Assignment

July 2020 Presentation

TUTOR-MARKED ASSIGNMENT (TMA)

This assignment is worth 18% of the final mark for ANL251 Python Programming.

The cut-off date for this assignment is 4 August 2020, 2355hrs.

Up to 25 marks of penalties will be imposed for inappropriate or poor paraphrasing. For serious cases, they will be investigated by the examination department. More information on effective paraphrasing strategies can be found on <https://academicguides.waldenu.edu/writingcenter/evidence/paraphrase/effective>.

Note to Students:

You are to include the following particulars in your submission: Course Code, Title of the TMA, SUSS PI No., Your Name, and Submission Date.

Question 1

Write a Python program to implement the Standard Chartered (SCB) Bank BonusSaver interest rate calculator for calculating total interest earned per month. You are to research and extract more information from <https://www.sc.com/sg/save/current-accounts/bonussaver/>.

The following screenshot shows an *example* of how it works. (Note: The following screenshot may not show the latest computation you see online). You should follow the latest computations found online and document the calculations clearly in your assignment.

Bonus\$aver Calculator²
Increase your returns by earning higher interest from your deposits.

Enter your estimated Bonus\$aver average daily balance
S\$ 20,000

Your estimated annual interest²
S\$ 776 @ 3.88 % p.a.

Spend	Salary Credit	Invest or Insure	Bill Payment
Select your estimated monthly card spending	Would your monthly salary credit be S\$3,000 or more?	Would you insure or invest in eligible products?	Would you make at least 3 bill payments online?
<input type="radio"/> less than S\$500 <input type="radio"/> S\$500 to S\$1,999 <input checked="" type="radio"/> S\$2,000 or greater	<input type="radio"/> No <input checked="" type="radio"/> Yes	<input type="radio"/> No <input checked="" type="radio"/> Yes	<input type="radio"/> No <input checked="" type="radio"/> Yes
Interest (p.a) earned 1.50% <small>(Inclusive of prevailing interest rate)</small>	Interest (p.a) earned 1.00%	Interest (p.a) earned 1.28%	Interest (p.a) earned 0.10%

(Source: <https://www.sc.com/sg/save/current-accounts/bonussaver/>)

- (a) Describe the necessary user inputs to your program using the following table format. Choose the appropriate data type to store each user input and explain your choice. Provide a screenshot of your Python code ONLY for prompting and storing user input.

Note that you are expected to take into consideration the value(s) of each transaction category. For example, your program should assess the transaction amount of each bill paid by the user before classifying it under the bill payment category.

input	data type chosen and why

(15 marks)

- (b) Draw a detailed flowchart; and then analyse and describe the logical program flow for calculating the interest earned based on the input information.

(15 marks)

- (c) Apply your Python programming skills to write a program named "tma.py". Ensure that you do not change this program file name. Your program shall calculate the total interest earned per month.

The program should have sufficient comments, which should include your name and PI number at the beginning of the source codes, as well as explanations of the corresponding execution steps, program logic and flow you described in (b).

The use of effective data structures and control structures to streamline your program and reduce lengthy/repetitive coding will be considered in the awarding of marks.

Submit your program "tma.py" through Canvas separately from the written report.

(45 marks)

- (d) Develop **three (3)** test cases to test the conditional constructs in Question (b) in the most comprehensive manner possible, such that most of the conditions are tested. For each test case, describe the inputs, expected output and the screenshots of executing your program "tma.py" with EACH given set of inputs.

(15 marks)

The remaining 10 marks will be awarded based on the quality of report writing and presentation, based on criteria such as formatting, clarity and logic of explanations, use of charts/figures and spelling/grammatical errors, etc.

Note that you will have to keep the size of your document to 4 MB or less upon submission.

---- END OF ASSIGNMENT ----