

<i>PRG1</i>	Programming I Diploma in ISF / IT / FI Year 1 (2018/19) Semester 1	Week 6
		60 minutes
Programming Aptitude Test 1 (15 %)		

Instructions

Prior to test

- Create a folder on your desktop with your student id as the name
- Create 3 python files in that folder with the following naming convention
 - a. Q1_S12345678.py
 - b. Q2_S12345678.py
 - c. Q3_S12345678.py
- In each file, enter your **name**, **id** and **group** in the first line as comment:
 e.g. # John Tan (S12345678) – IT01

Submission

- Zip the folder containing the 3 python files

MeL

PRG1 > Assessment > Programming Aptitude Test 1 > Submission

- Upload .zip file and "Submit"

Note: It is your RESPONSIBILITY to ensure that the files are submitted correctly

1. The formula to calculate the discounted value of some payment is:

$$\text{discounted value} = \frac{p}{(1 + r)^n}$$

Where p is the payment,
 r is the interest rate (e.g., 0.01)
 and n is the number of years

Write a program that prompts the user to enter the necessary information. Then, calculate and display the discounted value to 2 decimal places.

(5 marks)

2. When money is withdrawn from an automated system, \$50 and \$10 notes are given. Write a program that
 - prompts the user to enter the amount in multiples of \$10 to withdraw,
 - calculates and displays the number of \$50 and \$10 notes to be given.

You may use operators such as /, // and %.

```
Enter amount to withdraw: 290
5 $50 notes 4 $10 notes
```

(5 marks)

3. String similarity is often used in machine learning. For 2 strings, the dissimilarity score is the number of positions at which the corresponding characters are different. For example, the dissimilarity score between 'AACC' and 'AABB' is 2, while that between 'AAAC' and 'AACC' would be 1.

	AACC	AAAC	AACC
	↕↕	↕	↕↕↕
	AABB	AACC	AZAZ
String Dissimilarity Score:	2	1	3

Write a program in Python that obtains 2 inputs: the main string for matching, and a target string that will match against the main string. The program will then calculate the dissimilarity score between the main string and the target string, and display whether the dissimilarity score is high or low. A dissimilarity score of 2 and above is considered low. You may assume that both the main string and target string to be 4 characters long.

The following shows 3 sample runs of the program. The input values are in black.

```
Please enter the main string: AACC
Please enter the target string: AABB
String Dissimilarity Score: 2
Low Similarity

Please enter the main string: AAAC
Please enter the target string: AACC
String Dissimilarity Score: 1
High Similarity

Please enter the main string: AACC
Please enter the target string: AZAZ
String Dissimilarity Score: 3
Low Similarity
```

(5 marks)

PLAGIARISM WARNING:

If a student is found to have submitted work not done by him/her, he/she will not be awarded any marks for this practical test. Disciplinary action may also be taken.

Similar action will be taken for student who allows other student(s) to copy his/her work, or posting any solutions or code related to the practical test before the end of the hour for the test.

*** END OF PAPER ***