LAB1 – Testing and Writing Script with PYTHON

Due date: WEDNESDAY (01/02/2023)

//Week 3: SATURDAY (04/02/2023): PT1

This Lab1 is offered to *SWT students – Spring-2023 FPT by tdque* to write script for unit testing in Python.

Question 1 (2 mrks): Given a following Loan application

Customer name:		2-24 chars
Account number:		6 digits, 1st non-zero
Loan amount requested:		$500 to $9000
Term of loan:		1 to 10 years
Monthly repayment:		minimum $100

1. Compute how many possible test cases we need to perform for the above application
2. How much time to test all these test cases?
3. Present briefly 7 testing principles and show two examples to illustrate two principles (option)

Question 2 (2 mrks):

1. Write a function for finding minimum **minSeq(s)** of an array of numbers using the function **min2(x,y)** of two numbers which is edited by yourself. Write and run **all possible test cases** and **data** for testing this module with **unittest** library

Note: You must store **min2(x,y)** and **minSequence(s)** in two files named **min2.py** and **minSeq.py**, respectively.

2. Given a function **funct(x,y)** which is defined as follows:
   - If 0 < x <= 1 and y < 0, it returns x+y;
   - If x > 1 and 0 < y <= 5, it returns x*y;
   - It returns x-y otherwise.

   Write the function in python & run **all possible test cases** and **data** for testing this function with **unittest** library

Question 3 (2 mrks):

Given a function f(x,y,z) which is defined as follows:

f(x,y) = x-y-1 if -1< x < 1 and -1<y<1
f(x,y) = x+y-1 if x >=1 and y>=1
f(x,y)= x*y-1 if x < -1 and y>0
f(x,y)= x-1 otherwise

1. Write a python function for the above calculation
2. Write and run **all possible test cases and data** for testing this function with **unittest** library

Question 4 (2 mrks):

An e-commerce site offers discount in a table as follows:

Purchase amount (in Rs)	Discount (%)
>=999	5
>=1999	10
>=3999	15
>=5999	25
>=7999	35
>=9999	50

1. Write the function in python for computing the corresponding discount
2. Write and run **all possible test cases and data** for testing this function with **unittest** library

Question 5 (2 mrks): The discount in supermarket is computed based on two factors: *types of card (yellow or white)* and *cost of the bill at the current payment*. The bill over 500$ with yellow card is discounted 6% but with white one is discounted 5%; the bill over $300 and =< $500 with yellow card is discounted 4% but with white one is discounted 3%; the bill >= $200 and =<300 with yellow card is discounted 3% but not discounted for white one. There is no discount for the remaining cases.

1. Write a python function **discountComput()** for the above calculation
2. Write & run **all possible test cases and data** for testing this function with **unittest** library

Reference

Student may refer to the following link for more information

https://realpython.com/python-testing/