# Department of Computing

**EE 433: Digital Image Processing**

**Class: BSCS10ABC**

# Lab 1: Introduction to Python

### Tasks part 1

### Question 1: Addition

Open addition.py and look at the definition of add:

def add(a, b):

"Return the sum of a and b"

"\*\*\* YOUR CODE HERE \*\*\*"

return 0

You now pass all tests, getting full marks for question 1. Notice the new lines "Passed a=..." which appear before "\*\*\* PASS: ...". These are produced by the print statement in add. You can use print statements like that to output information useful for debugging. You can also run the autograder with the option --mute to temporarily hide such lines, as follows:

[cs188-ta@nova ~/tutorial]$ python autograder.py -q q1 --mute

Starting on 1-22 at 14:15:33

Question q1

===========

\*\*\* PASS: test\_cases/q1/addition1.test

\*\*\* add(a,b) returns the sum of a and b

\*\*\* PASS: test\_cases/q1/addition2.test

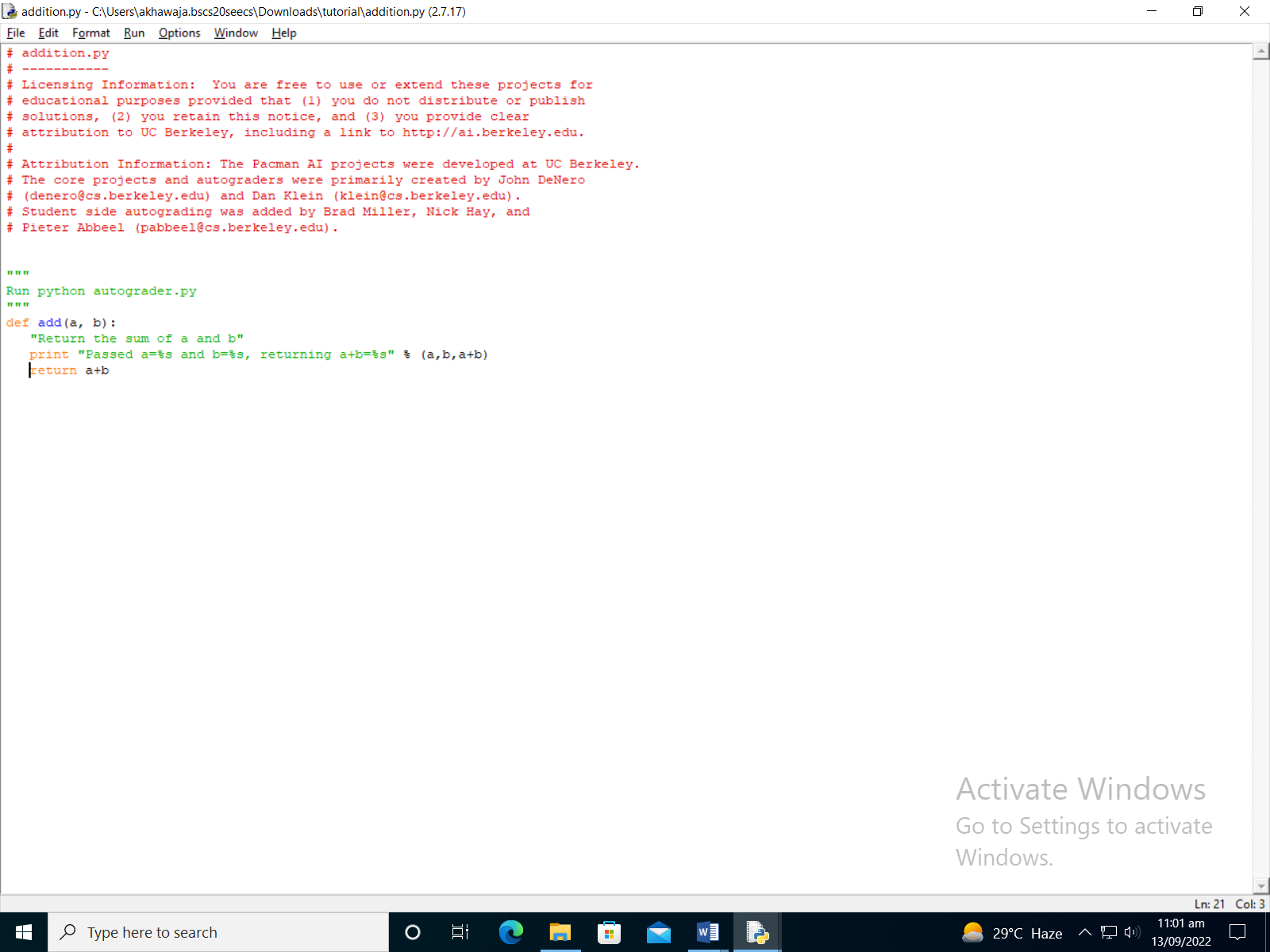
\*\*\* add(a,b) returns the sum of a and b

\*\*\* PASS: test\_cases/q1/addition3.test

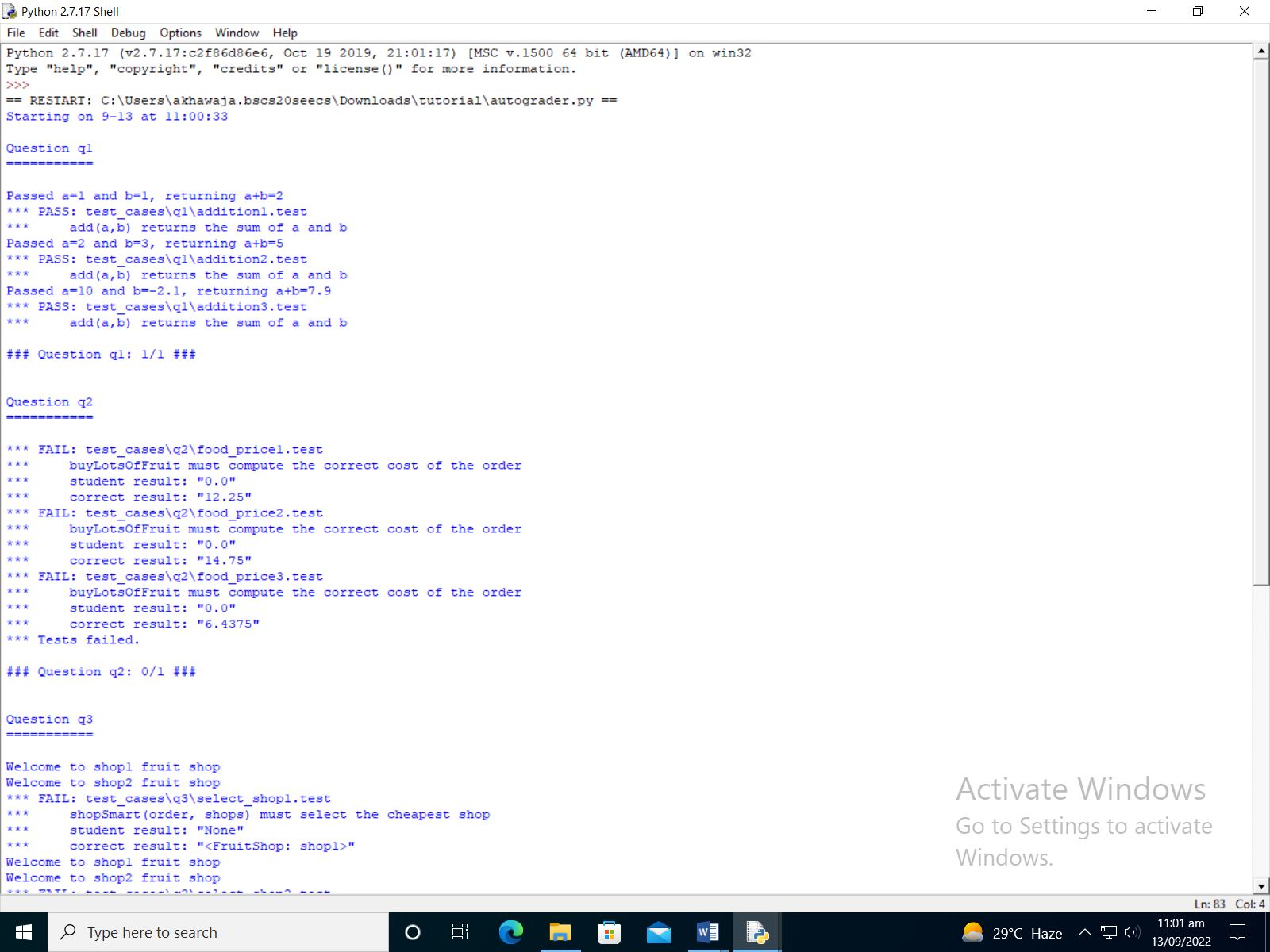
\*\*\* add(a,b) returns the sum of a and b

### Question q1: 1/1 ###

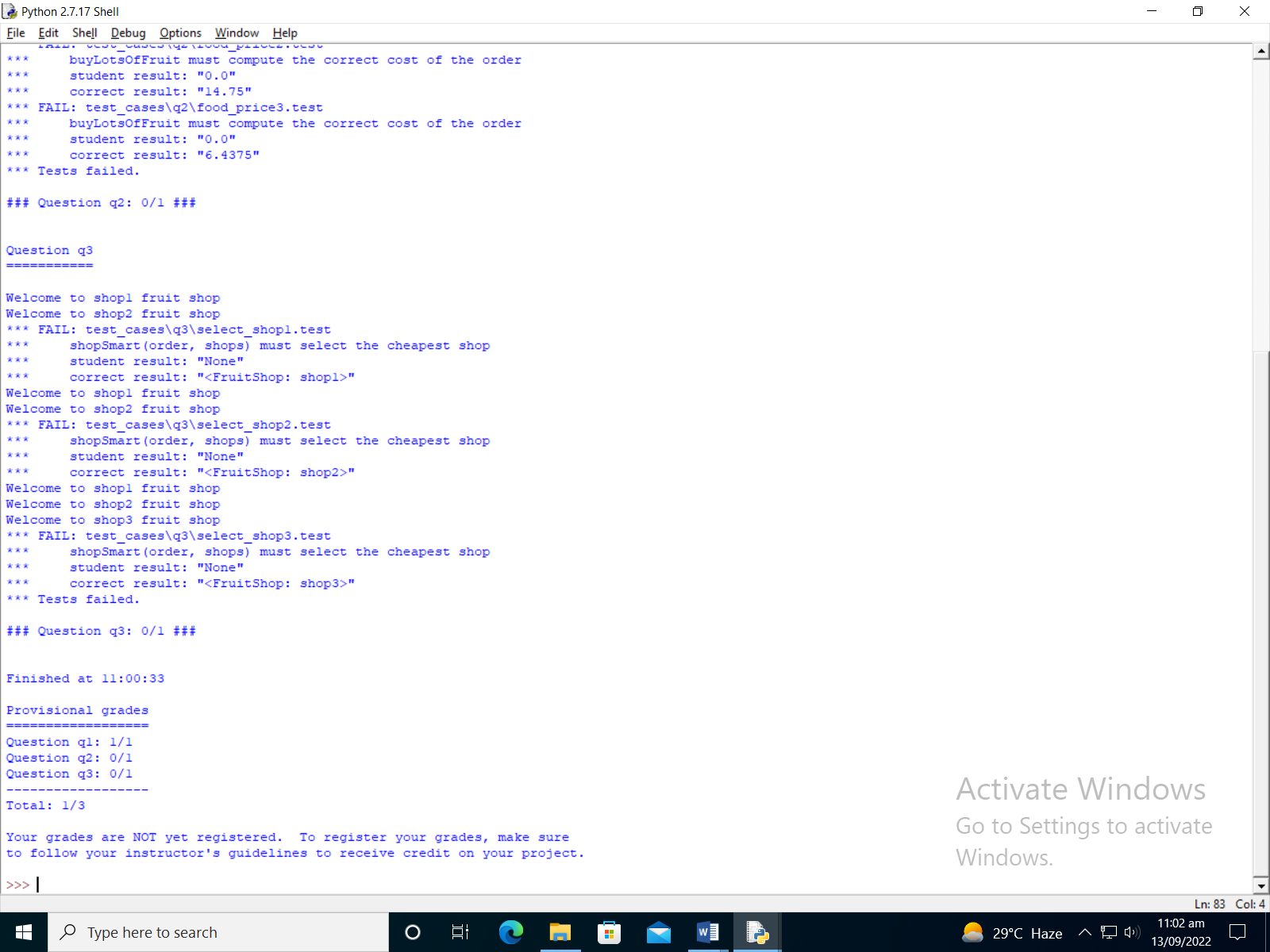
**Code:**



**Screenshot:**



* Shows that Question q1 has passed values properly.



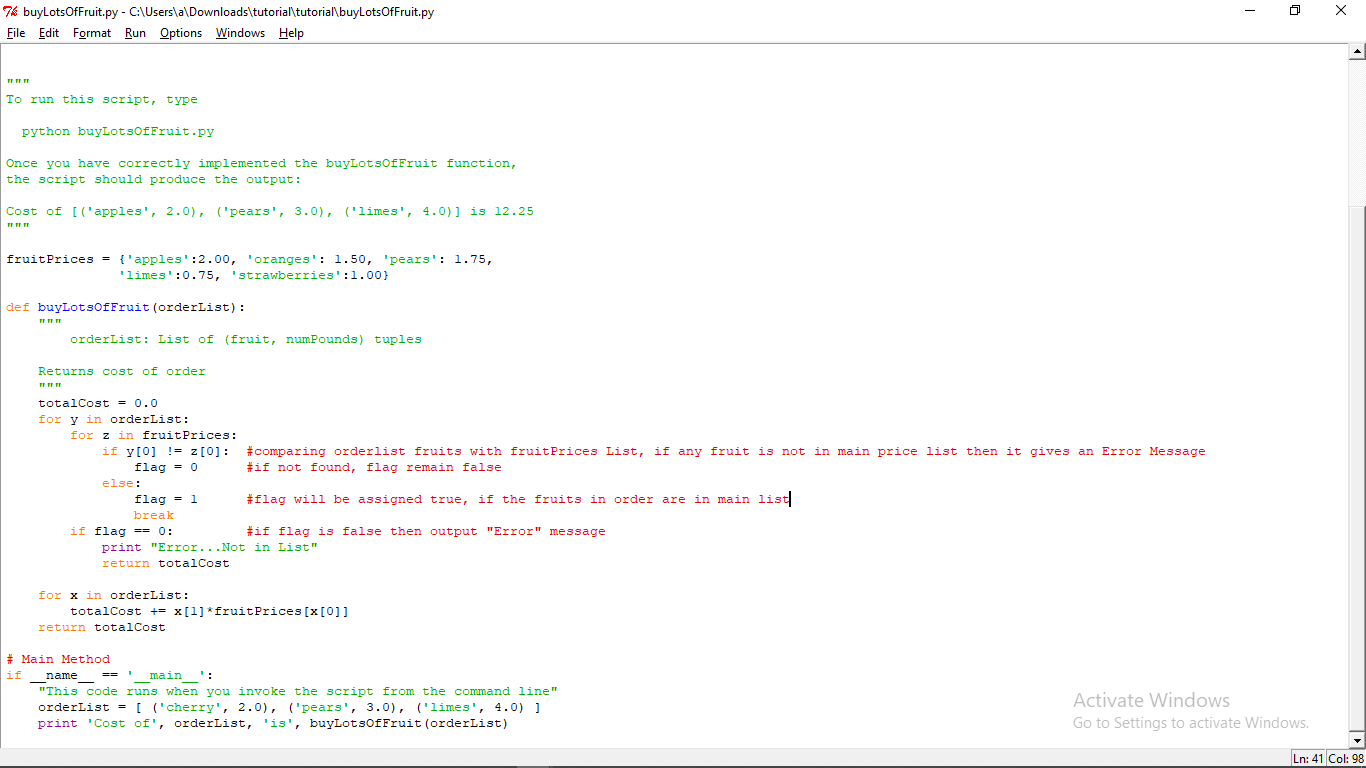
### Question 2: buyLotsOfFruit function

Add a buyLotsOfFruit(orderList) function to buyLotsOfFruit.py which takes a list of (fruit,pound) tuples and returns the cost of your list. If there is some fruit in the list which doesn't appear in fruitPrices it should print an error message and return None. Please do not change the fruitPrices variable.

Run python autograder.py until question 2 passes all tests and you get full marks. Each test will confirm that buyLotsOfFruit(orderList) returns the correct answer given various possible inputs. For example, test\_cases/q2/food\_price1.test tests whether:

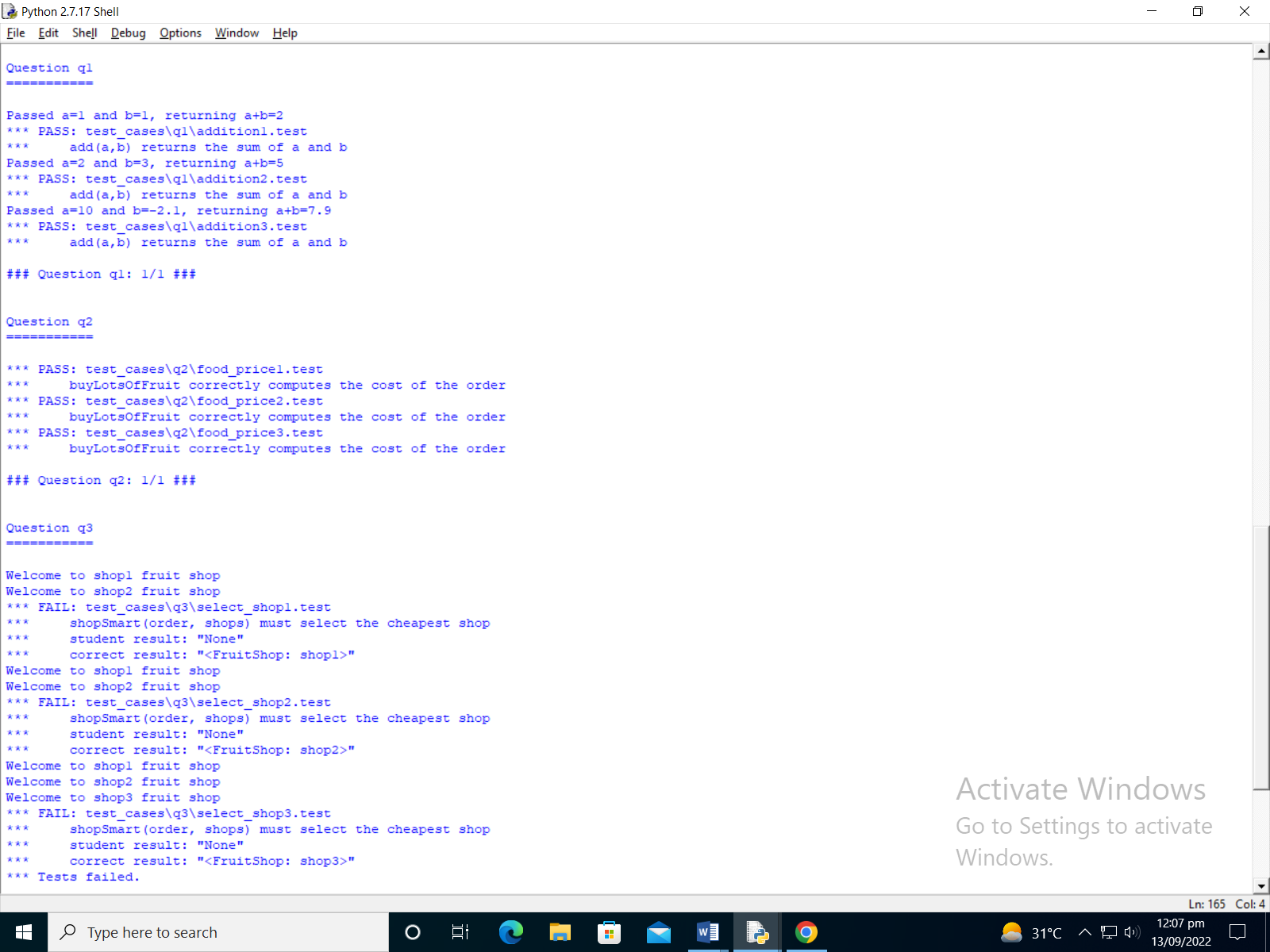
Cost of [('apples', 2.0), ('pears', 3.0), ('limes', 4.0)] is 12.25

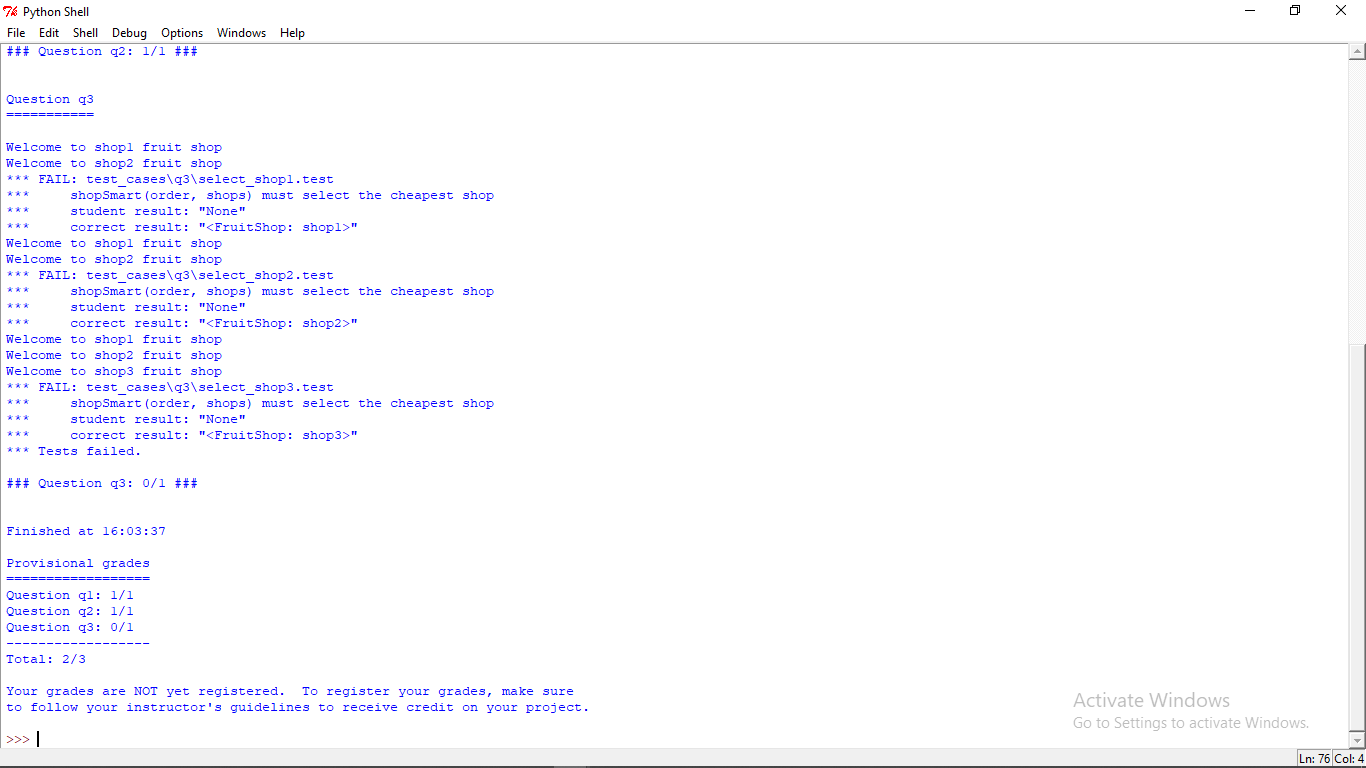
**Code:**



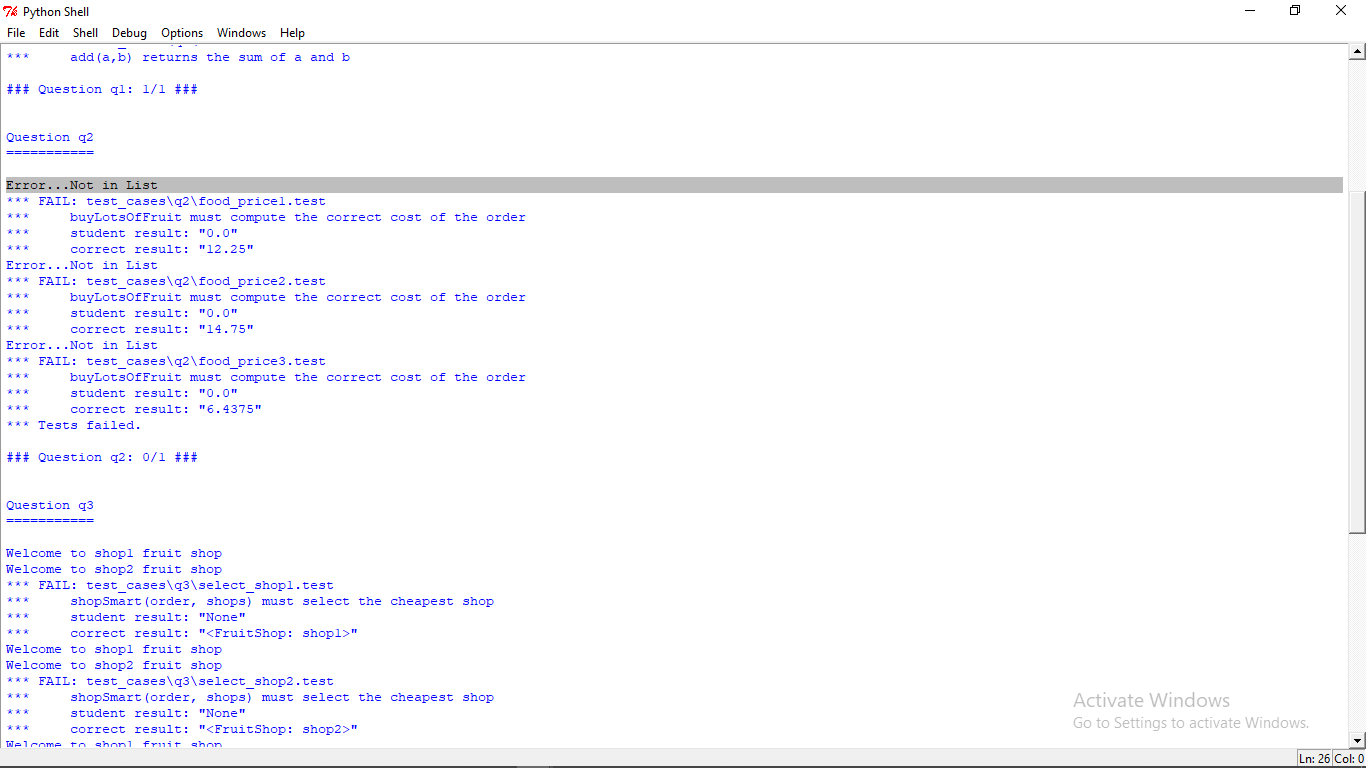
* Order List contents can be changed to error message list, if fruit name is added that is not in main price list. E.g., in this case we added cherry in place of apple in order List.

**Screenshots:**





**Error Message Screenshot**:



Graphical user interface, text, application, Teams

Description automatically generated

### Question 3: shopSmart function

Fill in the function shopSmart(orders,shops) in shopSmart.py, which takes an orderList (like the kind passed in to FruitShop.getPriceOfOrder) and a list of FruitShop and returns the FruitShop where your order costs the least amount in total. Don't change the file name or variable names, please. Note that we will provide the shop.py implementation as a "support" file, so you don't need to submit yours.

Run python autograder.py until question 3 passes all tests and you get full marks. Each test will confirm that shopSmart(orders,shops) returns the correct answer given various possible inputs. For example, with the following variable definitions:

orders1 = [('apples',1.0), ('oranges',3.0)]

orders2 = [('apples',3.0)]

dir1 = {'apples': 2.0, 'oranges':1.0}

shop1 = shop.FruitShop('shop1',dir1)

dir2 = {'apples': 1.0, 'oranges': 5.0}

shop2 = shop.FruitShop('shop2',dir2)

shops = [shop1, shop2]

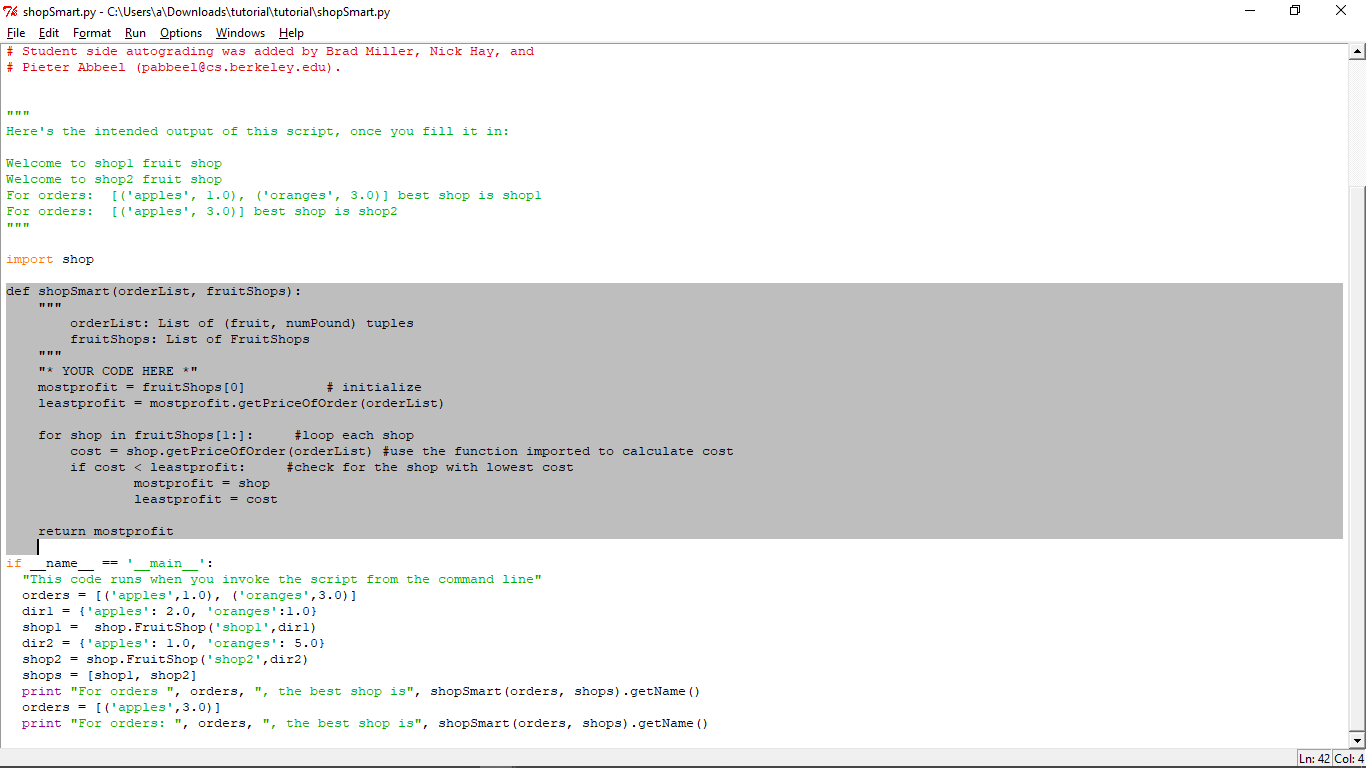
test\_cases/q3/select\_shop1.test tests whether:

shopSmart.shopSmart(orders1, shops) == shop1

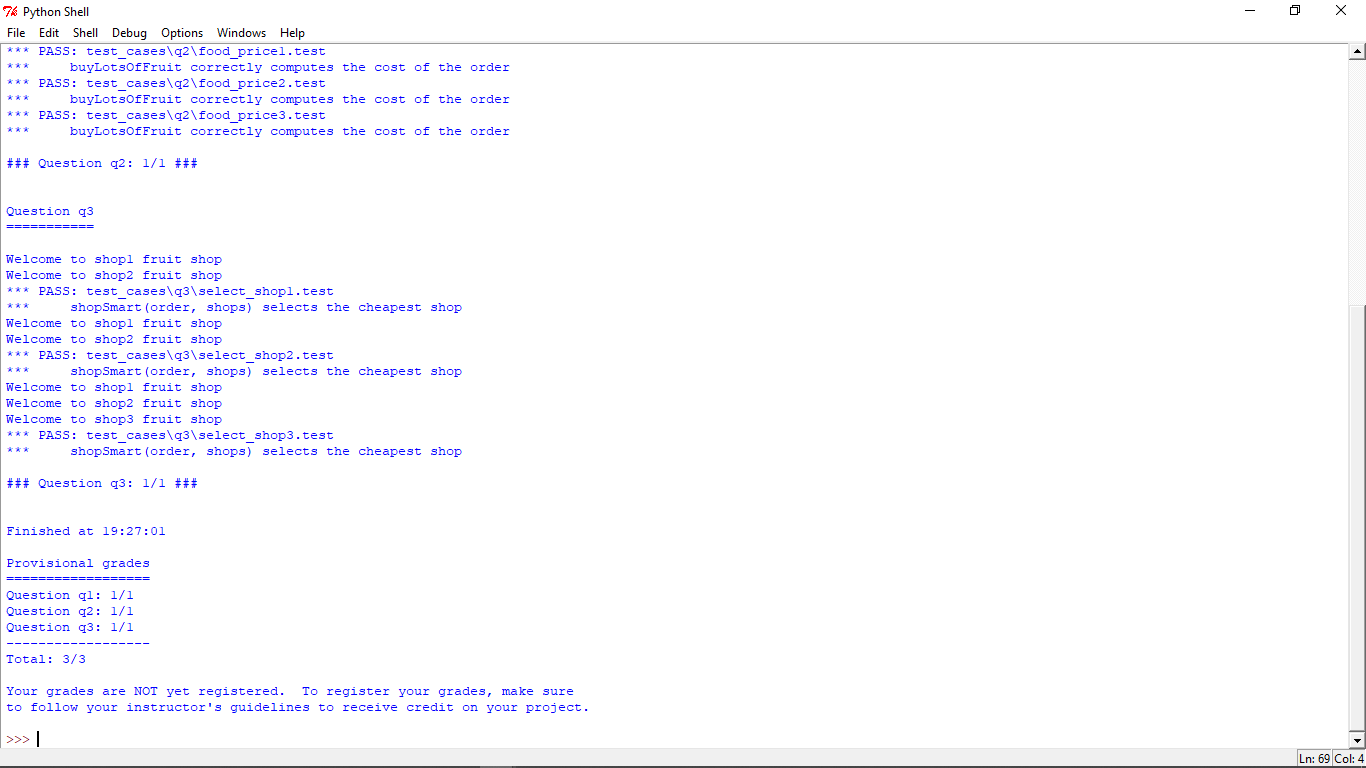
and test\_cases/q3/select\_shop2.test tests whether:

shopSmart.shopSmart(orders2, shops) == shop2

**Code:**



**Screenshot:**



**Task’s part 2:-**

**Task1**

Write a program to remove a specific character from a string using Python. Your code should be able to take string and index (index of the character to be removed) as input and display the output string with removed characters from mentioned index.

**Code:**

def calculate() :

username = input("Enter username:") //take username for user

print("Username is: " + username) //printing username

index = int(input("Enter Index: ")) //take input for position index to be removed

character = username[index]

length = int(len(username))

username = username[0:index] + username[index+1:length] //slice the string in two half, first till the character to be removed ,and concatenate the other half after the removed character

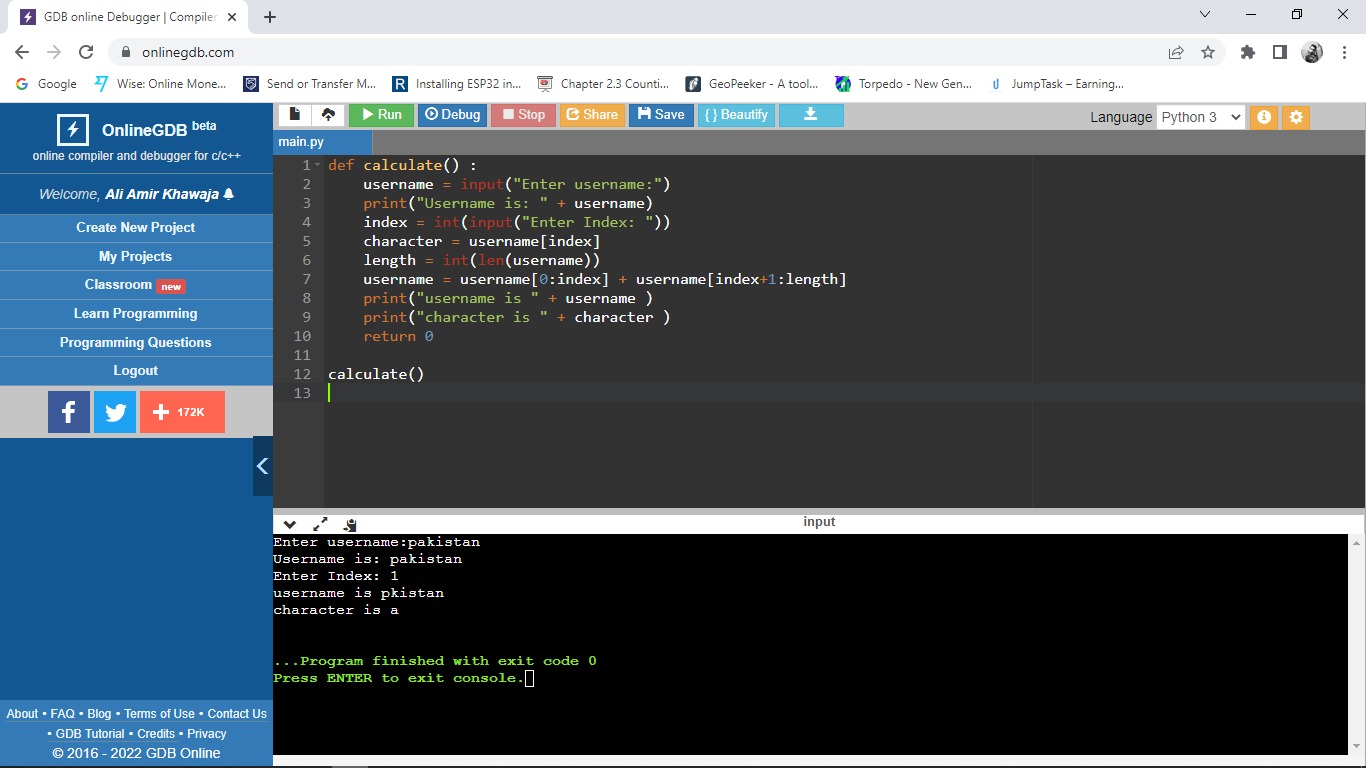
print("username is " + username )

print("character is " + character )

return 0

calculate()

**Screenshot:**



**Task2**

Write a program in Python to calculate the time elapsed to execute the code. You may calculate the elapsed time of any of the task you have performed in this lab. But please specify the full piece of code in your lab report.

Code:

import time //time library

def calculate() :

x = time.time() //note time before execution

username = input("Enter username:")

print("Username is: " + username)

index = int(input("Enter Index: "))

character = username[index]

length = int(len(username))

username = username[0:index] + username[index+1:length]

print("username is " + username )

print("character is " + character )

y = time.time()//note time after the execution

return (y-x) //return difference

print(calculate())

Screenshot:

* 45.851ms to execute this program

