Dream Maker Assignment Template

Dream Maker Team

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Introduction

By now you would have completed Weeks 1 and 2. If you have not completed the first two weeks yet, please do so before attempting this project.

The major parts of this project will include building your own functions, if statements, and boolean operations.

1 Warm Up

To get started, open up IDLE and click on **File** → **New File**. This is where we can freely write code on more than one line. This is called a **script**.

1.1 Write a discount program

Let's write a function that checks to see how much of a discount a customer can apply to their purchase of items. Here's how it works:

1. A customer can have up to 25% off of their purchase, and only one discount per customer.
2. If they purchase at least 20 items, they get a 25% discount
3. If they purchase at least 15 items, they get a 20% discount
4. If they purchase at least 10 items, they get a 5% discount
5. Otherwise, no discount is added.

And your function should look like:

```
def calculate_discount(num_items, cost_before_discount) -> total_before_tax
```

To make sure your code works, run your code and try 1.2 examples out. If your code produces anything different from these examples, then something is wrong with the code you wrote. This is a good time to introduce a new skill that is arguably the most useful skill you will learn about coding: **DEBUGGING YOUR CODE**. This means multiple things. The simplest way to explain debugging is to run a small example in your head and check the flow of the way your code works. Another great tool (which can be found on our website) is the Python Visualizer, which let's you step through your code, so you can see exactly what's happening.

1.2 Examples

```
>>> calculate_discount(25,3)
2.25
>>> calculate_discount(19, 30)
24.0
>>> calculate_discount(19,19)
15.2
>>> calculate_discount(5,5)
5
>>> calculate_discount(10,10)
9.5
```

2 Calculator

Let's make a calculator. To get started, open up IDLE and click on **File** → **New File**.

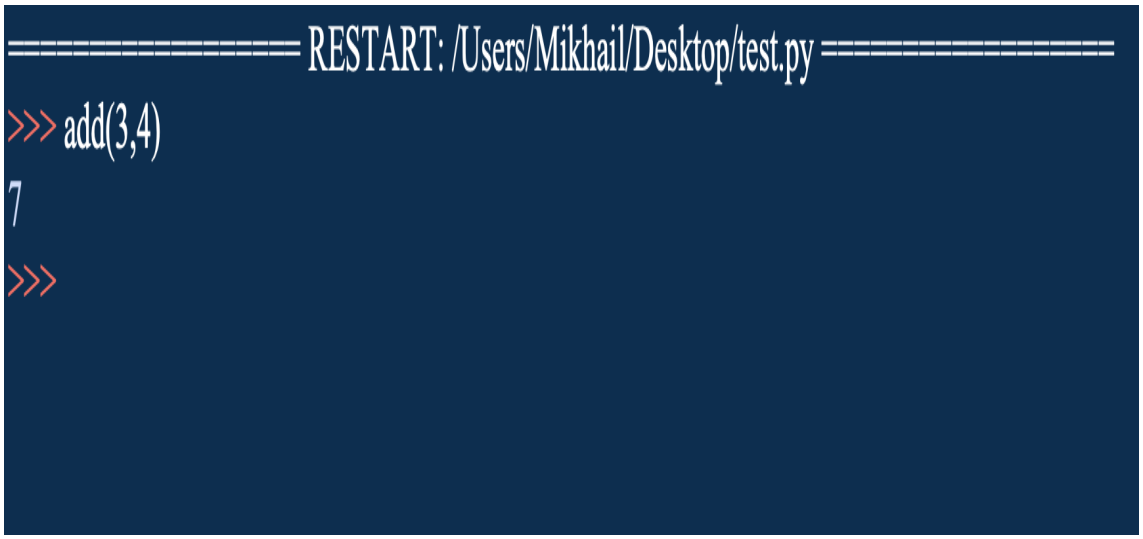
2.1 Write the 4 basic functions of a calculator

Recall the 4 basic functions are addition, subtraction, multiplication, and division. Write separate Python functions for each of these, where each will take two parameters (the numbers on either side of the operation). So, for example, we want add(x,y) - this should return the sum of x and y.

Note: Indentation is VERY important in Python.

2.2 Test that these functions are working as you expect them to.

On your task bar, click **Run** → **Run Module** (or press **F5**)
Now, the Python shell will launch. type **add(3,4)** and you should see the terminal return 7.



2.3 Our Calculator

Now that you have the 4 basic functions, let's make one function that uses everything. Let's call it calculator that takes parameters num1, num2, operation.

This function will examine the operation using if statements and determine which of your functions to call. For example, if the operation is "x", we want to return the value that multiply(x,y) will return.

HINT: In order to check the value of **operation**, your boolean statement will look like this:

```
operation == "x"
operation == "+"
operation == "-"
operation == "/"
```

NOTE: Those symbols can be anything you want! If you want division when the operation is your name, you can do that! As long as they are in the quotes! For example,

```
operation == "Mikhail"
```

2.4 Test your code

To test your code, Run it in the Shell by SAVING, and then going to Run → Run Module. Then type:

```
>>> calculator(1,2,"+")
3
>>> calculator(2,3,"-")
-1
>>> calculator(4,5,"x")
20
```

Play around with this. Make sure everything works.

2.5 Add New Functions!

Now, the rest is up to you! Look at your calculator and add some more functions to your current application! Remember how to create new symbols!