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April 4, 2019
Foundations of Programming, Python
Assignment 02

Basic Math Python Script

Introduction

In this assignment I will explain the steps I used to create a Python Script that asks the user to enter two numbers and then performs and prints a variety of operations on these two numbers. This script incorporates such elements as capturing input data, creating variables, changing the data type of the variable and using operators.

Drafting the Code

Defining Variables

I began writing my code in the IDLE development tool. I knew that I would need to have two variables since the math operations I would be performing require to operands. Since the variables would be chosen by the user, I used the input() function to define each variable. I chose a simple and direct name for the two variables, num1 and num2 in my initial code.

Choosing a Data Type

Looking at the output of the code in the Assignment02 file (Figure 1), I noticed that there were decimals after the output numbers, even though the user had entered integers "10" and "2". This information told me that the data type would need to be changed from integer to float at the level of the variable definition. At this point, I added the float() function to code to be performed to the user input numbers. I used Table 2.4 of our textbook to identify the data conversion function (**Python Programming for the absolute beginner 3rd addition, Michael Dawson, Cengage learning 2010, p. 43**). I also added "flt" to my variable naming, changing the names to fltnum1 and fltnum2, a naming method I learned from course videos for **Module 02-05 "Choosing Data Types"** (https://www.youtube.com/watch?v=O9v-_Zi0nAo&list=PLfycUyp06LG_Ui56yzznsHhfEosKZSahX&index=6&t=0s (external site).

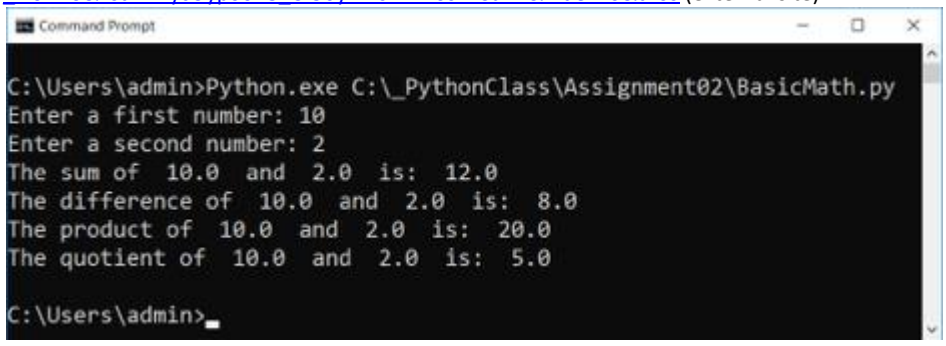

Figure 1: Decimals indicating the code must contain a data type change from integer to float.

Performing and Printing Operations

I decided to start with just one of the four operations and test my code instead of writing all four print () statements and then testing. I tested my script from IDLE This process allowed me to troubleshoot a more simple code. Then, I was able to copy and paste my initial print () statement, once it was functioning, and replace the names of the operator in the string portion as well as the operator itself. I chose to concatenate my text and operations within the print() method using commas.

Final touches

After my code was completely functioning, I added some more program details to my notes. For the sake of developing good habits, I also added some additional notes to the code body to identify the operation within each line. You can see my final code below (Figure 2)

```
#--------------------------------------#
# Title:Basic Math Script
# Purpose:  User enters two numbers,
#           program performs 4 basic math
#           operations and then prints text
#           describing operations and the answers
# Dev: M[redacted]e
# Date: April 4th, 2019
#ChangeLog:
#  MarieAugustine,4/4/2019,Created Script
#--------------------------------------#

#Get User Input data
fltnum1 = float(input('Enter a first number: '))
fltnum2 = float(input('Enter a second number: '))
#Perform and print basic math operations
#sum
print('The sum of ',fltnum1,' and ',fltnum2,' is: ',fltnum1+fltnum2)

#difference
print('The difference of ',fltnum1,' and ',fltnum2,' is: ',fltnum1-fltnum2)

#product
print('The product of ',fltnum1,' and ',fltnum2,' is: ',fltnum1*fltnum2)

#quotient
print('The quotient of ',fltnum1,' and ',fltnum2,' is: ',fltnum1/fltnum2)
```

Figure 2: Screen shot of my final script in IDLE development program.

Saving the Script

I created a folder in Documents/_PythonClass/ called “Assignment02” and saved my python script as BasicMath.py.

Running the Script in OS Command

I opened Terminal console on my Mac, navigated to the correct folder using the cd (change directory) and ls (list files) commands. Then I used the python3 command along with the file name, BasicMath.py, to run my script. I followed the user prompts to enter the two numbers. The script ran as expected (Figure 3).

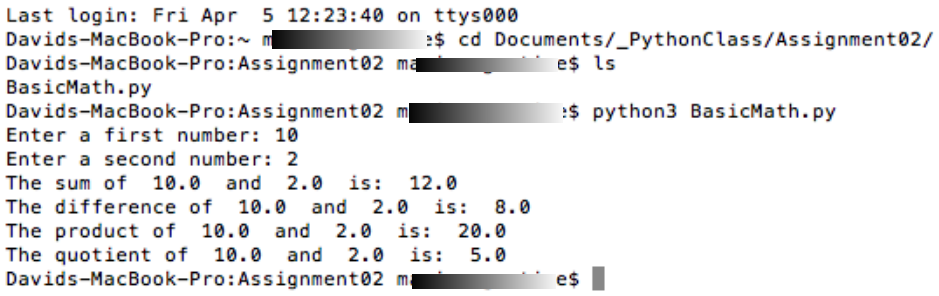

Figure 3: Screen shot showing commands to locate proper folder and run BasicMath.py

Summary

Using the textbook, the Module 02 documentation and videos, and the supplemental websites and video, I was able to successfully create the BasicMath program. The program demonstrates my knowledge of variables, data types, concatenation and operations.