

ENGR/CS 101 CS Session

Fall 2014 – Homework 2

Out: November 5, 2014

Due: November 12, 2014 at 4:30pm

Problem Statement

We would like a program that simulates a simple calculator. It should be able to add, subtract, multiply, and divide two operands and display the result of applying the operation to the operands. It should repeatedly perform a computation until the user chooses to quit.

Assignment

Write a Python program that does the following repeatedly: present the user with a menu, asks the user for an operation and two operands, computes the result of doing the operation on the operands, and displays the result.

Your program must define and use at least three functions:

- **getOperation()** - this function prints out the menu of operations, asks the user for their choice, and *returns* the user's choice of operation.
- **computeResult(operation, operand1, operand2)** - this function *receives* an operation and two operands, computes the result of applying the operation to the operands, and *returns* the result. Note that division by 0 will cause a run-time error and crash the program. The function should check that the second operand of a division operation is not 0 before computing the result. If the second operand for a division is 0, the function should return 0.
- **main()** - this function encompasses the main program. It should have the main menu-driven loop that repeatedly asks the user for an operation and operands, then computes and displays the result. It should use the other two functions.

Your program must interact with the user in exactly the manner shown in the sample run on the back page, stopping when the user enters **q** for the chosen operation.

Coding Notes

- To make a Python file with a main function into a program that runs, put **main()** at the end of the program file. This will call the main function, so the program will run when the module is run. Otherwise, to run the program, type **main()** at the interpreter prompt.
- Use the **raw_input** function to ask the user for characters and strings. Use the plain **input** function to ask the user for numbers.

How to Submit

The submission system will not be ready to accept assignment until class time on Monday, November 10.

Make sure to write a comment (lines starting with **#**) at the top of the program file with your name and the phrase **"CS 101 Homework 2"** with exact spacing, capitalization and spelling. This will be used to make sure you submit the correct program file. Save your program file and make sure it still runs.

In a web browser, go to URL submission.evansville.edu. Your login name is your ACENET username (unless you also are in CS 210, then your login name has "-cs101" appended to it). If you didn't change your password, it is your student ID with the leading 0. It is recommended that you change your password.

Click on the Submit Solution link for Homework 2, then click on the Browse button. Browse to your Homework 2 program file. Right-click on the program file, select Send to, then select Compressed (zipped) folder. Double-click on the

ZIP folder, then click on the Submit button. (If you are using a Mac, you need to compress your program before going to the submission system, and just choose the zipped folder.)

The submission system checks for the "CS 101 Homework 2" comment. It must be **exactly** as shown including spacing, capitalization and spelling. When this comment is not found, the submission will fail. Correct the comment, save the program file, then zip and submit it again.

Sample Run

(shown in two columns to save space, user input shown in **bold**)

SIMPLE CALCULATOR

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: **+**

Enter a number: **5**

Enter another number: **7**

5 + 7 = 12

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: **-**

Enter a number: **5**

Enter another number: **7**

5 - 7 = -2

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: *****

Enter a number: **5**

Enter another number: **7**

5 * 7 = 35

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: **/**

Enter a number: **5**

Enter another number: **7**

5 / 7 = 0

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: **/**

Enter a number: **5**

Enter another number: **0**

5 / 0 = 0

Choose an operation:

+ : Add two numbers
- : Subtract two numbers
* : Multiply two numbers
/ : Divide two numbers
q : Quit

Enter your choice: **q**

All done