QMB 6358: Software for Business Analytics
Department of Economics
College of Business
University of Central Florida
Spring 2022

Assignment 1

Due Sunday, January 23, 2021 at 11:59 PM
in your GitHub repository

Instructions:

Complete this assignment within the space on your GitHub repo in a folder called `assignment_01`. When you are finished, submit it by uploading your files to your GitHub repo using the interface in a browser. You are free to discuss your approach to each question with your classmates but you must upload your own work.

Question 1:

In this exercise, you will run the program `SUB_1_2_3_4.txt`, which subtracts the number in register 2 from the number in register 1 and saves the result in registers 3 and 4. Register 4 will hold the absolute value of the difference and register 3 will hold an indicator for a minus sign: a zero in register 3 indicates that the difference is positive and a one in register 3 indicates that the difference is negative.

a) Browse to the Webpage `https://rodrego.it.tufts.edu/`, on which you will run the RAP program.

b) Choose two numbers to subtract from each other to test this program. Enter the first number in register 1 and the second in register 2.

c) Take a screen shot of the Rodrego program in this initialized state and save it in `png` format as `SUB_1_2_3_4_init.png`. You might want to crop the image to show only the Rodrego screen, without the rest of your desktop on display.

d) Run the program `SUB_1_2_3_4.txt` to completion.

e) Take a screen shot of the Rodrego program in this completed state and save it in `png` format as `SUB_1_2_3_4_end.png`.

f) Upload the two `png` files into the `assignment_01` folder your GitHub repo. When you refresh your browser, you should see the images appear on the page. If not, verify that you have named the files precisely as specified and upload a new image file, as necessary.

Question 2:

In this exercise, you will run the program `DIV_1_2_3_4.txt`, which divides the content of register 1 by the content of register 2, and puts the answer in register 3, with the remainder in register 4. This program works by repeatedly subtracting one number from the other and counting the number of subtractions, leaving a partial subtraction as a remainder.

a) Browse to the Webpage `https://rodrego.it.tufts.edu/`, on which you will run the RAP program.

b) Choose two numbers to divide to test this program. Enter the first number in register 1 and the second in register 2.

c) Take a screen shot of the Rodrego program in this initialized state. Wait until you see the result to name this file.

d) Run the program `DIV_1_2_3_4.txt` to completion.

e) Check the result. Are the correct values in registers 3 and 4?

   i) If so, name the first image `DIV_1_2_3_4_init_success.png`. Then take a screen shot of the Rodrego program in this completed state and save it as `DIV_1_2_3_4_end_success.png`.

   ii) If not, name the first image `DIV_1_2_3_4_init_problem.png`. Then take a screen shot of the Rodrego program in this completed state and save it as `DIV_1_2_3_4_end_problem.png`.

f) Repeat the process in steps (a)–(d) with different values until you find a case that succeeded and another that caused a problem. *[Hint: Think about what can go wrong with division. Another hint: If you would like to terminate a program, you can press the "Reset" button on the Rodrego interface.]* Name the two additional files of your second case as in step (e)(i) or (e)(ii), according to the outcome.

g) Upload all four `png` files into the `assignment_01` folder your GitHub repo. When you refresh your browser, you should see the images appear on the page. If not, verify that you have named the files precisely as specified and upload a new image file, as necessary.