

Quiz4 ECE2560 Au 2021

Due date: Monday, Nov. 14, 11:59pm

Collaboration with other students is not allowed

Write a **subroutine** named **SumDiff** which satisfies the following contract:

Name: SumDiff

Picture of the Stack when subroutine is entered:

SP -> Return Address

Word Length Input, Num1

Word length Input, Num2

Word Length Output, Num2 - Num1

Word Length Output, Num2 + Num1

If you use local variables in the subroutine then the subroutine should save all local variables on the stack. In the subroutine, do not use core registers or variables stored in the .text or .data regions.

Write a **main** program which calls this subroutine. Test this subroutine in the **main code** by using Num1 = 25 decimal, and Num2 = 12 decimal. In the main program store the first output in a variable named "Diff" (in .data section) and store the second output in a variable named "Sum" (in .data section)

There is no need for pseudo-code or flow chart in this Quiz. Also, there is no need to write your own contract for the subroutine, simply include the contract given above, at the beginning of your subroutine. Although all screencasts are important, specifically watch screencasts 16, 17, 18 and 19 for relevant material.

Instructions: Use the word template and instructions contained on our web site to submit your screenshots to Carmen. Do not email directly to your TA or me. Files emailed to the TA or me will not be accepted. Include the following in your submission:

- i) Assembly language source code (Word format)
- ii) Screenshot of the memory browser showing the stack (bottom of RAM) right after you exit the subroutine, with program paused)
- iii) Screenshot of the memory browser at the end of the program showing the top of the .data region where the variables "Sum" and "Diff" are stored (with the program paused)