

10.14 Lab Assignment 7

Start Assignment

Due Saturday by 11:59pm **Points** 95 **Submitting** a file upload **File Types** asm and s
Available after Apr 20 at 10am

Purpose: Write a program using two functions and the stack.

Program

Write a program that has a two functions -- a function named main, and another function named add4.

main is the first function executed in the program. main is used to load 4 integer values into registers \$t0, \$t1, \$t2, and \$t3. The integer values may be any four 32-bit values you wish and may be loaded by using immediate mode.

add4 is used to add 4 integer parameters together, and places the parameter's sum in the register \$v0.

Inside main you are to call add4. main is to pass the 4 integer values in \$t0, \$t1, \$t2, and \$t3 as parameters to the function add4. After the sum calculated by add4 is placed in register \$v0, add4 is to return to main. Once main is returned to, the value add4 placed in register \$v0 should be copied into register \$s1.

In performing this logic:

- you will have to use the stack by manipulating the \$sp register
- you will have to use the \$a0, \$a1, \$a2, and \$a3 registers in add4

[Use The MIPS Technical Document To See The MIPS Assembly Language instructions](https://ccsf.instructure.com/courses/47907/files/7405493/download?download_frd=1) ↓

(https://ccsf.instructure.com/courses/47907/files/7405493/download?download_frd=1) . You may wish to download the document and refer to it as you are writing the program.

Write comments in your program that state your name, the programming logic, and any details you feel you'd like to explain that state about how you are using the assembly language instructions.

This program is to be saved in its own file, with a .asm or a .s file extension. You may only use a .asm or .s file extension (MIPS assembly language programs are named using these file extensions). Once your program is working correctly, submit the program file to this assignment to receive a grade for your program.

Example Programs

Below is the source code of some example MIPS assembly language programs that can be used to help you write your programs.

[Example Function With Stack And Parameters \(as a text file\)](https://ccsf.instructure.com/courses/47907/files/7720481/download?download_frd=1) ↓ (https://ccsf.instructure.com/courses/47907/files/7720481/download?download_frd=1)

[add2integers.asm](https://ccsf.instructure.com/courses/47907/files/7720480/download?download_frd=1) ↓ (https://ccsf.instructure.com/courses/47907/files/7720480/download?download_frd=1)