CS 254 PROGRAMMING ASSIGNMENT #1

Add Four

Spring 2022

Write a program in MIPS assembly that computes the sum of four **positive** integers of your choice. Do this by loading registers at the beginning of the program with ***ori*** instructions.

Don't do input or output or loading and storing from memory (since we have not covered this yet.) The instructions up through chapter 10 are enough. Put the result in register ***$10*** at the end of the program. You will need several **addu** instructions since machine instructions have only two operands. Use only registers selected from **$8** through **$15**.

Execute your program by repeated "single steps" through the machine code. At the end, ***$10*** should hold the value you expect.

Create your source file using Notepad++ or other text editor. Align columns, do not use tab characters. Set your editor to use space characters when the tab key is pressed. Every assembly language statement should have a comment that explains what it is doing in terms of the problem. Start your source file with

```
## CS 254  Program 1  Spring 2022
##
## Compute a + b + c + d
##
## Programmer:
## Date:
```

Set SPIM options to the following (See chapter 9 page 6):

ON	Bare machine	**ON**	Delayed Branches
OFF	Allow pseudo instructions	**ON**	Delayed Load
OFF	Load Exception Handler	**OFF**	Mapped I/O

Set these options as specified or SPIM will start up with options you don't want. You *may* have to set the options, close SPIM, and then restart it for the options to have an effect. Use only those instructions that have been discussed in the notes through chapter 10.

Turn In: Your source program. This is a text file ending with the extension "asm". Verify that columns are aligned vertically and that the file contains no tab characters.

Labels (symbolic addresses) should start in column one. Nearly every line of the program will have a meaningful comment. All comments should start in the same column, perhaps column 35.