

MIPS - Sum of Integers - 2018

Please copy the following program:

```
        .globl    main
main:                                # sum of integers from 1 to 100

        .text
add    $t0, $zero, $zero # I is zero
add    $s4, $zero, $zero # Sum is zero
addi   $t1, $zero, 100   # set the limit value (100)

loop:
    addi $t0, $t0, 1      # I = I + 1
    add  $s4, $s4, $t0    # Sum = Sum + I
    blt  $t0, $t1, loop   # I < 100 loop to do again

    addi $v0, $zero, 4    # print string
    la   $a0, str         # the text for output
    syscall               # call opsys

    addi $v0, $zero, 1    # print integer
    add  $a0, $zero, $s4  # the integer is Sum
    syscall               # call opsys

    addi $v0, $zero, 4    # print string
    la   $a0, stopped     # the text for output
    syscall               # call opsys

    addi $v0, $zero, 10   # finished .. stop .. return
    syscall               # to the Operating System

        .data
str: .asciiz "The sum of the integers 1 ... 100 is "
stopped:
    .asciiz "\nStopped."
```

Save the text file with the extension '.asm' or '.s'

Run the program in the QtSpim simulator.

Capture the Console screen image.

Modify the program to calculate the sum of the squares of the integers from 1 to 100.

The work products of this assignment are:

- 1) The .asm or .s text file with the modified source program code.
- 2) Screen captures showing the output results:
 - Both original sum, and the modified sum of squares

[50 points]