Indian Institute of Technology (IIT-Kharagpur)

AUTUMN Semester, 2023

COMPUTER SCIENCE AND ENGINEERING

Computer Organization and Architecture Laboratory

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AIM: To get acquainted with MIPS assembly language and the system calls. Partial marks will be awarded for incorporating interactive interface as specified, appropriate use of system calls for printing and taking inputs, suitable commenting and correct implementation of the logic.

Question 1 (Tutorial: Do not submit the solution)

Write a complete MIPS-32 program that -

1. Reads one positive integer ($n > 0$) with the prompt – "Enter a positive integer:". (After the input number is collected from the user, there should be sanity checking to ensure that the integer is positive.)
2. Calculate the sum of all integers from 1 to n (including n).
3. Accordingly, print the calculated sum with the message – "The sum of the first $< n >$ integers is "

Steps to follow in QtSpim:

1. Write your MIPs code in a text file with ".s" extension.
2. Open QtSpim and load the $< filename.s >$ file.
3. You can run the code by clicking on the "play" button at the top.
4. Put your inputs in the console. The output will be displayed.
5. To debug, you can execute the program in a single step fashion and reading the intermediate values in the register.
6. Every time you execute the program, you need to Reinitialize and Reload the $< filename.s >$ file.