**Problem Description**

Modify the RISCV code given on page 44 of the lecture materials of Chapter 2 so that it can be repetitively executed to compute n! for different n’s. Besides, the program should also count the instructions executed to compute n!. The count should only Include the instructions on page 44. For this part, you may employ the concept of basic blocks given on page 33 of the lecture materials of Chapter 2. In addition to practicing the RISC-V instructions to compute n!, you will learn how to use Application Binary Interface (ABI) to carry out input/output tasks. Note that the given number n should not be too large such that n! will be too large to be represented in 32 bits.

**Input Format**

When the code is executed on Jupiter, follow the instruction presented on the monitor to provide input data. Each input line should contain only one data item (this restriction is imposed by the simulator).

**Output Format**

The output should be exactly the same as the example (except name and ID#) given below, starting from the banner (Jupiter icon) till the given input number -2. However, your name and student ID number should be correctly presented.

What Should Be Handed In:

* Assembly code for the whole program. A comment should start with # at the beginning of the comment. You should write as many comments as you can. For example, each line of code has a comment. The file name of the assembly code should be sID.s where ID is your student ID number. A valid file name should look like s1091111.s . There is a header before the RISCV code. The header is formed by putting a number of comment lines together. The header should include the title of homework, your name, student ID number, and your answers to the following questions (see example below) : (a). How many hours did you spend for this homework? (a). Who has helped you solve the coding problems? (c). Do you copy someone’s code? If yes, give the name of code owner and the number of lines of the code you copy.
* Some clips like the one shown in the example of input and output below. Save the clips as a file called sID.pdf, where ID is your student ID number. A valid file name for an output clip should look like s1091111.pdf. You can paste the clips into a WORD file and then create a PDF file from the WORD file. Only a PDF file is accepted.
* If you compress a file, only .zip file is acceptable.
* The homework will not be graded if you do not follow the above rules.

一張含有 文字, 電子產品, 螢幕擷取畫面, 字型 的圖片

AI 產生的內容可能不正確。

The code from page 44:

fact:

addi sp, sp, -8

sw x1, 4(sp)

sw x10, 0(sp)

addi x5, x10, -1

bge x5, x0, L1

addi x10, x0, 1

addi sp, sp, 8

jalr x0, 0(x1)

L1:

addi x10, x10, -1

jal x1, fact

RA:

addi x6, x10, 0

lw x10, 0(sp)

lw x1, 4(sp)

addi sp, sp, 8

mul x10, x10, x6

jalr x0, 0(x1)