# Stair climbing problem

Due: May 4, 2023

**Problem Description**

A person can climb one or two stairs in each single step. The stair-climbing problem is to find out all possible step combinations in a given number of total stairs. In this project, you are required to list all step combinations for at most 12 stairs by using a recursive algorithm.

Please make the first line of the printed message be your student ID number.

You should use RISC-V instruction set simulator **RARS** to develop and execute the assembly code. The RARS simulator can be downloaded from <https://www.rose-hulman.edu/class/csse/csse232/Lab1/rars_27a7c1f.jar> .

**Input Format**

When the code is executed on RARS, Just follows the instruction presented on the monitor to provide input data.

**Output Format**

The output format should be exactly the same as the example given below. Certainly, different input will result in different numbers presented on the monitor.

**What Should Be Handed In:**

* Assembly code for modified <https://hackmd.io/@linyu413/riscv-002>. **The first line of assembly code should consist of your student ID number**. Every **added** instruction should have a comment to explain what the instruction does. a comment should start with ### at the beginning of the comment. The file name of the assembly code should be **sID.asm** where ID is your student ID number. A valid file name will look like s1111111.asm .
* A clip like the one shown in the example of input and output below (the stairs should be more than 4). Save the clip as a file called **sID.png**, where ID is your student ID number. A valid file name for an output clip will look like s1111111.png .
* The homework will not be graded if you do not follow the above rules.

**Example of input and output :**

S111111111 (student ID)

**How many stairs?**

**5**

Step combinations:

1: { 1 1 1 1 1 }

Step combinations:

2: { 1 1 1 2 }

Step combinations:

3: { 1 1 2 1 }

Step combinations:

4: { 1 2 1 1 }

Step combinations:

5: { 1 2 2 }

Step combinations:

6: { 2 1 1 1 }

Step combinations:

7: { 2 1 2 }

Step combinations:

8: { 2 2 1 }

S111111111 (student ID)

**How many stairs?**

**1**

Step combinations:

1: { 1 }

S111111111 (student ID)

**How many stairs?**

**3**

Step combinations:

1: { 1 1 1 }

Step combinations:

2: { 1 2 }

Step combinations:

3: { 2 1 }

Reference code in C++

