Instruction Count of Execution of a Program

Due: June 7, 2023

Problem Description

Modify the StringToNumber assembly program given along with this homework so that the modified program should only count the number of instructions **originally** being executed at each run. That is to say, any instructions added into the program should not be counted if they are executed. The number of instructions added should not exceed **30**. You should use RISC-V instruction set simulator **Jupiter** (with I, F, M extensions) to develop and execute the assembly code. You will be given four text files, each of which contains a number of integers. You should run your program four times , each of which processes an individual file.

What Should Be Handed in:

- The modified assembly code. **The first line of assembly code should consist of your student ID number and your name**. Every **added** instruction should have a comment after it starting with ##. For example,
  addi x20,x20, 1 ## There are 4 numbers executed in this block
- The file name of the assembly code should be **sID.s** where ID is your student ID number. A valid file name will look like s1091111.s .
- A clip like the one shown in the example of input and output below. 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 s1091111.png .
- The homework will not be graded if you do not follow the above rules.

Examples of Input and Output

The output generated by processing input file example1.txt. The output except the first number in the first line should be exactly the same as given below.

```
4 35
9 -12 1312 865 24 88 900 1000 20 -1
Total number instructions executed: 546
```

The output generated by processing input file example2.txt. The output except the first number in the first line should be exactly the same as given below.

```
4 78
19 -12 1312 865 24 88 900 1000 20 -1 123 -12 1312 865 24 88 900 1000 20 -1
Total number instructions executed: 1122
```

The output generated by processing input file example3.txt. The output except the first number in the first line should be exactly the same as given below.

```
4 99
24 -12 1312 865 24 -12 1312 865 -24 88 900 -1000 20 -1 123 -12 -1312 865 24 88 900 1000 20 1 0
Total number instructions executed: 1408
```

The output generated by processing input file example4.txt. The output except the first number in the first line should be exactly the same as given below.

```
4 108
24 -12 1312 865 24 -12 1312 865 -24 88 900 -1000 20 -1 123 -12 -1312 865 24 88 900 1000 20 1 0
Total number instructions executed: 1468
```