

## CSE2312-002, Fall 2013, Programming Assignment 4

Due Date via Blackboard: Last Day of Class, December 2, 2014 at 11:59pm Central

In the fourth and final programming assignment, we will slightly change the input/output behavior of the 4-function calculator developed in programming assignment 3. In programming assignment 3, your calculator returned to accepting new operands after computing a result. Instead, we will now reuse the computed result as a next operand in PA4.

The encoding for the operations are the same as assignment 3, and are as follows:

- ADD: +: `result = input_1 + input_3`
- SUB: -: `result = input_1 - input_3`
- MUL: \*: `result = input_1 * input_3`
- DIV: /: `result = input_1 / input_3`
- NEG: -: `result = -input_2`

You should modify your program from assignment 3 to have input/output function as shown below in the example log. More examples are provided in the given files on the course website. If at any point the user enters invalid input, the calculator should reset itself to the initial state and display the string "Input operation or operand:" (provided in the original given files for PA3).

### Example Logs

```
$qemu-system-arm -nographic -s -M versatilepb -m 128M -d in_asm,cpu,exec -singlestep -D pa03.log -kernel pa03.bin
```

```
Starting calculator
```

```
Input operation or operand:
```

```
-
```

```
Input operand:
```

```
5
```

```
-5
```

```
Input operation:
```

```
+
```

```
Input operand:
```

```
10
```

```
5
```

```
Input operation:
```

```
*
Input operand:
10
Input operation:
-
Input operand:
10
40
Input operation:
/
Input operand:
4
10
Input operation:
q
Quitting calculator
```

### **Directory Structure, Given Files, and Submission**

Unlike the other assignments, no files are given for assignment 4. You should modify your pa03.s file to meet the requirements using the files given in assignment 3. You should turn in assignment 4 just as you did assignment 3 by zipping the pa03 folder, which contains your pa03.s file and all other given files. **DO NOT CHANGE THE NAME OF THE DIRECTORY OR ANY FILES TO pa04!!!**