

## CSI 202 — Computer Science II

### Homework #07

In this assignment you will build a system to compute the result of arithmetic equations using a stack. Due to the precarious nature of entering items, operations are defined by the following integers:

- 1 denotes addition
- 2 denotes subtraction
- 3 denotes multiplication
- 4 denotes division
- 5 denotes the modulus operator

Sequences are given in reverse polish notation notation where the operator appears after its operands. For example the expression  $(10+5)/3$  would be written:

```
10 5 + 3 /
```

Due to our special notation, this is written

```
10 5 -1 3 -4
```

It should evaluate to 5. You are guaranteed that no input shall be negative and that the subtraction operation will never produce negative results. Negative numbers therefore, should never be pushed onto the stack. If the stack ends up with a size greater than one, list the stack size followed by all elements remaining on the stack. If the stack is empty, give an output message. Input will end when -6 appears as an integer. So, to evaluate the original expression above, the input will be

```
10 5 -1 3 -4 -6
```

If a pop “would” ever occur from an empty stack, print an error message, but keep processing. Sample executions are shown below on the back.

## Sample executions:

```
./hw7
1 -1 -2 -3 -4 -5 1 -1 -6
ERROR: insufficient operands
ERROR: insufficient operands
ERROR: insufficient operands
ERROR: insufficient operands
ERROR: insufficient operands
2
```

```
./hw7
3 2 -2 -6
1
```

```
./hw7
-6
Empty Stack
```

```
./hw7
1 2 3 -1 -6
Size is 2
5
1
```