PLC Laboratory 10

Obsah

Virtual Machine Interpreting Arithmetic Expressions

In our previous laboratory (Laboratory 9), we have generated a stack-based code defining the computation for arithmetic expressions.

The target stack-based code consist of following instructions:

- `ADD, SUB, MUL, DIV, MOD` - it takes two values from the stack, computes the appropriate values, and stores the result on stack. If necessary, integers are automatically casted into floating-point numbers. `MOD` works only for integers.
- `PUSH (I|F)` `n` - it stores the value `n` on stack. It will be either `int` or `float`.
- `LOAD a` - it loads the value of variable `a` to the stack.
- `SAVE (I|F)` `a` - it takes the value from the stack and stores in into variable `a` of given type.
- `PRINT (I|F)` - it takes a value from stack and **based on its type**, prints it on output.

Input specification

Input is a **correct** program composed from instructions described above.

Output specification

Interpret the instructions from the input and write the result on the standard output.

Example

- Input

```
PUSH I 15
SAVE b
LOAD b
SAVE a
LOAD a
PRINT I
LOAD a
LOAD b
ADD
PRINT I
LOAD a
LOAD b
MOD
PRINT I
LOAD a
LOAD b
```

```
ADD
SAVE c
LOAD c
PRINT F
LOAD c
LOAD a
ADD
PRINT F
LOAD a
SAVE c
LOAD c
PRINT F
LOAD c
PUSH F 1.1
ADD
PRINT F
PUSH I 10
LOAD a
MOD
PRINT I
```

- Output

```
15
30
0
30
45
15
16.1
10
```

Solution

- You can download the solution: PLC_Lab10_solution.zip (http://linedu.vsb.cz/~beh01/wiki_data/PLC_Lab10_soluti on.zip)

Citováno z „http://behalek.cs.vsb.cz/wiki/index.php?title=PLC_Laboratory_10&oldid=3815“

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