D-BAUG Informatik I

Exercise session: week 11

HS 2018

Homework

- Questions?

Use case

Reverse polish notation calculator.

A calculator with a stack.

Reverse polish notation (RPN) calculator

Supported operations

- push(value) push a value on top of the stack
- pop() pop and display value on top of stack
- add(), subtract(), multiply(), divide() basic arithmetic binary operations: pop values *v1* and *v2* from stack and push *v1* op *v2* i.e. *push(pop()* op *pop())*

Reverse polish notation (RPN) calculator

$$(4 \cdot 2) - (5 + 1)/2 = 5$$

Reverse polish notation (RPN) calculator

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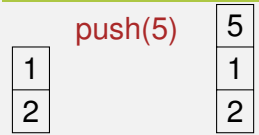

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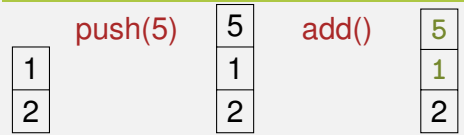

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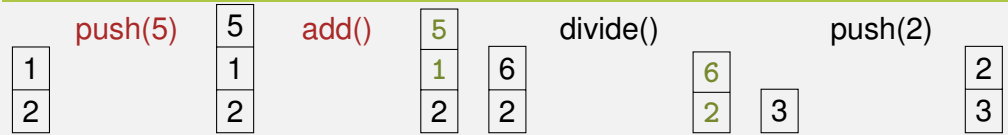

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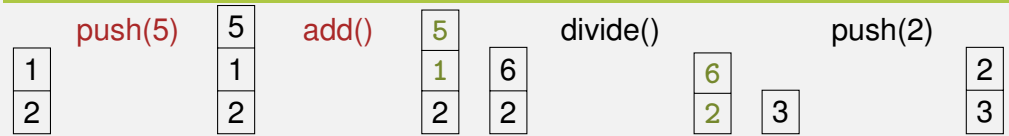

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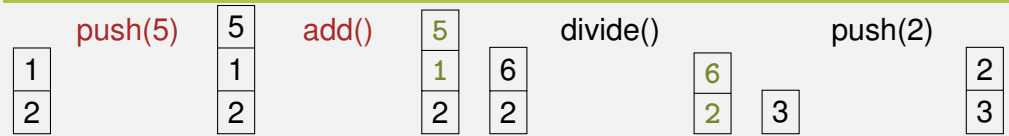

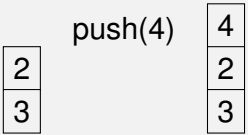

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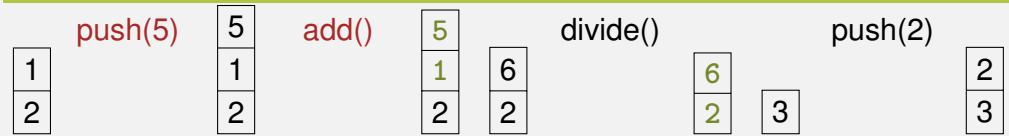

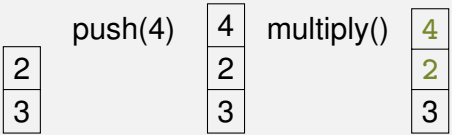

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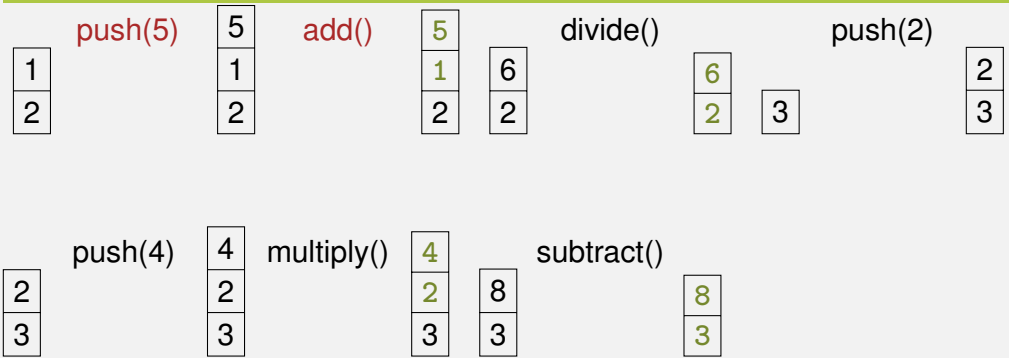

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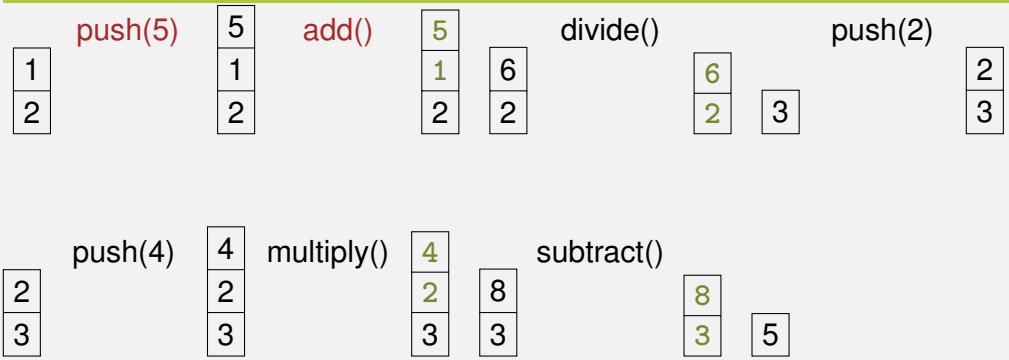

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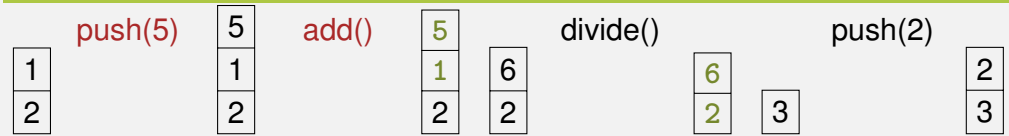

Reverse polish notation (RPN) calculator

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`2 1 5 + / 2 4 * - =`

Commands:

- `value` $\rightarrow$ push(value)
- `=` $\rightarrow$ pop()
- `+`, `-`, `*`, `/` $\rightarrow$ add(), subtract(), multiply(), divide()

Reverse polish notation (RPN) calculator

Implement the stack datastructure for the calculator.