Stacks



Stacks

Introduction

# Background

You have already created stack library in your original Stack and Queues assignment.

In this assignment you are going to replace the Queue part (application using stack) of the previous assignment with the calculator part (another application using the stack).

Write a calculator that uses reverse polish notation (postfix) to calculate the results **by using your stack library**. The calculator shall support the following operations: +, -, \*, /, x2, √. The calculator must be precise up to 3 decimals. +, -, \* and / are binary operations i.e. they operate on two operands that are located on the stack. x2 and √ are unary operators i.e. they operate on one operand (the top of the stack) only. The result of each operation is always pushed on top of the stack.

Example calculations:

| Result | Calculation |
| --- | --- |
| 3 | 1 2 + |
| 7 | 1 2 3 \* + |
| 8 | 5 6 9 √ - + |
| 19 | 5 3 \* 4 + |

Please hand in:

1. All code of all assignment parts
   1. Your design
   2. How you tested your implementation including proof ( how you validated the results and so on)
   3. Reflection on what you have learned
   4. Bibliography (sources)