



HACETTEPE UNIVERSITY
DEPARTMENT OF COMPUTER
ENGINEERING
BBM203
PROGRAMMING LAB.

ASSIGNMENT – 2

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Due Date: 29.07.2017

Aim

In this assignment, a C++ application was expected from us for developing which covers the following operations:

- Evaluating given expressions with using stack structure
- Writing prefix, infix and postfix forms of that given expressions and results of them to the output files

Also this application should take the input/outputs file names as arguments from command line.

Software Usage

For using this application you should prepare an input text file which contains N operators after N+1 numbers. Between them there should be only one white space.

Sample Input

"input.txt"

```
5 7 6 2 3 + / - *
2 12 8 6 3 2 ^ - * - +
4 5 2 6 7 3 8 5 + - / * + ^ -
12 6 3 19 8 2 / - + - *
2 17 25 20 13 * + / -
5 11 125 5 5 8 2 3 + - / * ^ - *
```

Sample Outputs

"output1.txt" (prefix)

```
+ 5 / 7 - 6 * 2 3
^ 2 - 12 * 8 - 6 + 3 2
+ 4 - 5 / 2 * 6 + 7 ^ 3 - 8 5
/ 12 - 6 + 3 - 19 * 8 2
* 2 + 17 / 25 - 20 13
+ 5 - 11 / 125 * 5 ^ 5 - 8 * 2 3
```

"output2.txt" (infix)

```
5 + 7 / ( 6 - 2 * 3 )
2 ^ ( 12 - 8 * ( 6 - ( 3 + 2 ) ) )
4 + ( 5 - 2 / 6 * ( 7 + 3 ^ ( 8 - 5 ) ) )
12 / ( 6 - ( 3 + ( 19 - 8 * 2 ) ) )
2 * ( 17 + 25 / ( 20 - 13 ) )
5 + ( 11 - 125 / 5 * 5 ^ ( 8 - 2 * 3 ) )
```

"output3.txt" (postfix)

```
5 7 6 2 3 * - / +
2 12 8 6 3 2 + - * - ^
4 5 2 6 7 3 8 5 - ^ + * / - +
12 6 3 19 8 2 * - + - /
2 17 25 20 13 - / + *
5 11 125 5 5 8 2 3 * - ^ * / - +
```

"output4.txt" (results)

```
NaN
16
9
NaN
40
15
```

NOTES

There are two bugs that I have received. First one is the unnecessary parentheses in infix expression. The other one is unnecessary white spaces at postfix file.

I used a string array for creating a stack structure and an integer 'stc' (stack counter) as stack pointer.

I implemented my program in dev machine and it works. But when I copy my input text file into dev, there is some problem with newline "\n" that I could not understand. So if you meet that problem just open input text file in dev, then delete every newline and enter again.