

FileEditViewNavigateCodeRefactorBuildRunToolsVCSWindowHelpAssignment 4 Q1 - Main.java

Assignment 4 Q1src> InfixToPostfixprecedence

ProjectMain.java x

1import java.util.Stack;

2

3class InfixToPostfix {

4

5// A utility function to return precedence of a given operator

6// Higher returned value means higher precedence

7usages

7private static int precedence(char ch) {

8switch (ch) {

9case '+':

10case '-':

11return 1;

12case '\*':

13case '/':

14return 2;

15case '^':

16return 3;

17}

18return -1;

19}

20

21// The main method that converts given infix expression to postfix expression

22usage

22@public static String infixToPostfix(String expression) {

23String result = new String( original: "");

24Stack<Character> stack = new Stack<>();

25

26for (int i = 0; i < expression.length(); ++i) {

27char c = expression.charAt(i);

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13:22LFUTF-8Assignment 4 Q1Material Oceanic4 spaces

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Assignment 4 Q1src> InfixToPostfixinfixToPostfix

ProjectMain.java x

26for (int i = 0; i < expression.length(); ++i) {  
27char c = expression.charAt(i);  
28  
29// If the scanned character is an operand, add it to output  
30if (Character.isLetterOrDigit(c)) {  
31result += c;  
32}  
33// If the scanned character is an '(', push it to the stack  
34else if (c == '(') {  
35stack.push(c);  
36}  
37// If the scanned character is an ')', pop and output from the stack  
38// until an '(' is encountered  
39else if (c == ')') {  
40while (!stack.isEmpty() && stack.peek() != '(') {  
41result += stack.pop();  
42}  
43  
44if (!stack.isEmpty() && stack.peek() != '(')  
45return "Invalid Expression"; // invalid expression  
46else  
47stack.pop();  
48} else { // an operator is encountered  
49while (!stack.isEmpty() && precedence(c) <= precedence(stack.peek())) {  
50if (stack.peek() == '('  
51return "Invalid Expression";  
52result += stack.pop();  
53}  
54stack.push(c);

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Notifications

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Assignment 4 Q1srcInfixToPostfixmain

ProjectMain.java x

47stack.pop();

48} else { // an operator is encountered

49while (!stack.isEmpty() && precedence(c) ≤ precedence(stack.peek())) {

50if (stack.peek() == '(')

51return "Invalid Expression";

52result += stack.pop();

53}

54stack.push(c);

55}

56}

57

58// Pop all the remaining operators from the stack

59while (!stack.isEmpty()) {

60if (stack.peek() == '(')

61return "Invalid Expression";

62result += stack.pop();

63}

64

65return result;

66}

67

68public static void main(String[] args)

69String expression = "a+b\*(c^d-e)^(f+g\*h)-i";

70System.out.println(infixToPostfix(expression));

71

72}

73

6 2

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Assignment 4 Q1srcInfixToPostfixmain

Main.java x

Run: InfixToPostfix x

Project

Run

Structure

Bookmarks

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Process finished with exit code 0

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FileEditViewNavigateCodeRefactorBuildRunToolsVCSWindowHelpAssignment 4 Q2 - Main.java

Assignment 4 Q2srcReverseLinesmain

ProjectMain.java x

1import java.io.BufferedReader;  
2import java.io.FileReader;  
3import java.io.IOException;  
4import java.util.Stack;  
5  
6class ReverseLines {  
7  
8public static void main(String[] args) {  
9String filePath = "TestFile.txt"; // Replace with your file path  
10  
11try (BufferedReader br = new BufferedReader(new FileReader(filePath))) {  
12String line;  
13while ((line = br.readLine()) != null) {  
14System.out.println(line); // Print the line as it is  
15printReversedLine(line); // Print the reversed line  
16System.out.println(); // Print a blank line  
17}  
18} catch (IOException e) {  
19e.printStackTrace();  
20}  
21}  
22  
231 usage  
24private static void printReversedLine(String line) {  
25Stack<Character> stack = new Stack<>();  
26  
27// Push all characters of the line to the stack  
28for (int i = 0; i < line.length(); i++) {  
29stack.push(line.charAt(i));  
30}  
31  
32// Pop characters from the stack and print them  
33while (!stack.isEmpty()) {  
34System.out.print(stack.pop());  
35}  
36System.out.println();  
37}  
38}

Structure  
Bookmarks

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Assignment 4 Q2srcReverseLinesmain

ProjectMain.java x

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```
        printReversedLine(line); // Print the reversed line
        System.out.println(); // Print a blank line
    }
} catch (IOException e) {
    e.printStackTrace();
}

}

}

1 usage

@ private static void printReversedLine(String line) {
    Stack<Character> stack = new Stack<>();

    // Push all characters of the line to the stack
    for (int i = 0; i < line.length(); i++) {
        stack.push(line.charAt(i));
    }

    // Pop characters from the stack and print
    while (!stack.isEmpty()) {
        System.out.print(stack.pop());
    }
}

}
```

Structure

Bookmarks

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Assignment 4 Q2srcReverseLinesmain

ProjectMain.java x

Run: ReverseLines x

▶↑"C:\Program Files\Java\jdk-19\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1\lib\idea\_rt.jar=49412:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1\b

↓Object-Oriented Programming (OOP) Concepts:

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Class: A blueprint for creating objects, bundling data and methods.

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Object: An instance of a class, representing a real-world entity.

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Inheritance: A mechanism where a new class inherits properties and behavior from an existing class.

.ssalc gnitsixe na morf roivaheb dna seitreporp stirehni ssalc wen a erehw msinahcem A :ecnatirehni

Polymorphism: The ability of different classes to be treated as instances of the same class through inheritance.

.ecnatirehni hguorht ssalc emas eht fo secnatsni sa detaert eb ot sessalc tnereffid fo ytiliba ehT :msihpromyloP

Abstraction: Hiding complex implementation details and showing only the necessary features of an object.

.tcejbo na fo serutaef yrassecen eht ylno gniwohs dna sliated noitatnemelpmi xelpmoc gnidiH :noitcartsbA

Encapsulation: Keeping the data inside a class private, then exposing only the required parts via public methods.

.sdohtem cilbup aiv strap deriuqer eht ylno gnisopxe neht ,etavirp ssalc a edisni atad eht gnipeek :noitaluspacnE

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