Instituto Tecnológico de Nuevo León

Lenguaje y Autómatas II

Unidad 1

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```java
package
arbol;

    import java.util.Scanner;
    import java.util.Stack;

    public class ArbolExpresiones {

        public static void main(String[] args) {

            System.out.println("Escribe una expresión: ");

            Scanner leer = new Scanner(System.in);
            String exp = depurar(leer.nextLine());
            String[] arrayInfix = exp.split(" ");
            Stack< String> En = new Stack< >();
            Stack< String> Pt = new Stack< >();
            Stack< String> Sa = new Stack< >();

            for (int i = arrayInfix.length - 1; i >= 0; i--) {

                En.push(arrayInfix[i]);

            }
            try {
                while (!En.isEmpty()) {
                    switch (pref(En.peek())) {

                        case 1:
                            Pt.push(En.pop());
                            break;

                        case 4:
                            while (pref(Pt.peek()) >= pref(En.peek())) {
                                Sa.push(Pt.pop());
                            }

                            Pt.push(En.pop());

                            break;
                        case 2:
                            while (!Pt.peek().equals("(")) {
                                Sa.push(Pt.pop());
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                    }

                    Pt.pop();
                    En.pop();
                    break;

                default:
                    Sa.push(En.pop());
            }
        }

        String infix = exp.replace(" ", "");
        String postfix = Sa.toString().replaceAll("[\\]\\[,]", "");

        System.out.println("Expresion Infija: " + infix);
        System.out.println("Expresion Postfija: " + postfix);

    } catch (Exception ex) {
        System.out.println("Error en la expresión: ");
        System.err.println(ex);
    }
}
private static String depurar(String s) {

    s = s.replaceAll("\\s+", "");
    s = "(" + s + ")";
    String simbols = "+-*/()";
    String str = "";

    for (int i = 0; i < s.length(); i++) {
        if (simbols.contains("" + s.charAt(i))) {
            str += " " + s.charAt(i) + " ";
        } else {
            str += s.charAt(i);
        }
    }
    return str.replaceAll("\\s+", " ").trim();
}

private static int pref(String op) {

    int prf = 99;
    if (op.equals("^")) {
```

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            prf = 5;
        }
        if (op.equals("*") || op.equals("/")) {
            prf = 4;
        }
        if (op.equals("+") || op.equals("-")) {
            prf = 3;
        }
        if (op.equals(")")) {
            prf = 2;
        }
        if (op.equals("(")) {
            prf = 1;
        }
        return prf;
    }
}
```