# HW3: Stacks

## Due by Midnight 2/25/15 (Thursday)

Using `java.util.Stack` – **don't write your own stack class** – write two programs corresponding to the algorithms described in class.

Use the class names prescribed. Do not put classes in a package. Make sure your code behaves as described.

### Program 1

Name this class `Balanced`.

Repeatedly read a line from `System.in` and print out either `balanced` or `imbalanced` depending on whether or not the delimiters are balanced.

Do not print anything else. I will be grading this assignment with an automated script.

Exit the program when the user enters a blank line.

Read in the line and iterate over the characters like so:

```
String line = input.nextLine(); // input is the Scanner

for (int i=0; i<line.length(); i++)
{
    char c = line.charAt(i);

    // do something with c
}
```

### Program 2

Name this class `Postfix`.

Read a line from `System.in` representing a postfix expression. Evaluate the expression and print out the numeric result, or `Error` if the expression is invalid. Use `double` for all numeric types.

Do not print anything else. I will be grading this assignment with an automated script.

Exit the program when the user enters a blank line.

All symbols will be separated by spaces. Process the input with a loop like so:

```
String line = input.nextLine(); // input is the Scanner

// TODO: make sure to check for blank lines...

// this scanner will break line into words
Scanner lineScanner = new Scanner(line);

while (lineScanner.hasNext())
{
    if (lineScanner.hasNextDouble())
    {
        double d = lineScanner.nextDouble();

        // process the number
    }
    else
    {
        String operator = lineScanner.next();

        // process the operator
    }
}
```

## Turn in

The two java files. Make sure to put your name in comments at the top of every source code file. Code must compile to be worth any points.