Programming Assignment 9-2

Create a class `SymbolBalancer` that has a constructor

```
SymbolBalancer(String filename)
```

which accepts the name of a file to examine, and that also has a method

```
boolean symbolsBalanced(String delimiters)
```

The delimiters argument is a list of all pairs of delimiters that will be used by your symbol balanced method. For example, here is a possible value of the delimiters parameter:

```
"[](){}"
```

The `String` that is passed into this argument must be parsed. You can do this in a loop with repeated calls to `charAt`.

Also, you should provide an instance variable `text` that will store the text to be parsed (which you will extract from the input file).

Your method `symbolsBalanced` should return true if the open/closed pairs of delimiters specified in the delimiters argument, as they occur in the text that is being examined, are balanced; false, otherwise. To accomplish this, use the following procedure, as described in the slides:

Procedure for Checking Delimiter Balance

- Begin with an empty Stack
- Scan the text (will ignore all non-bracketing symbols)
- When an open symbol (like '(' or '[') is read, push it
- When a closed symbol (like ')' or ']') is read, pop the Stack –
  i. if the stack is empty (so it can't be popped) return false.
  ii. if the popped symbol doesn't match the symbol just read, return false.
- After scanning is complete, if the Stack is not empty, return false.

We will explain more formally how to read a file in a later lesson. For now, we mention that a utility method in the Files class that can be used for this purpose. The following sample code shows how this can be done (and the implementation is given in the startup code):

```
void readFile() {
   String prefix = System.getProperty("user.dir") + "\\src\\";
   try {
      List<String> lines =
         Files.readAllLines(Paths.get(prefix, filename));
      StringBuilder textsb = new StringBuilder();
      for(String line : lines) {
         textsb.append(line + "\n");
      }
      text = textsb.toString();
   } catch(IOException e) {
      System.out.println("File not found: " + e.getMessage());
   }
   System.out.println(text);
}
```

Place the Employee.java class in the same package as SymbolBalancer.java. (See the readme.pdf file to see how to locate Employee.java as a file from within your code.)

Test your symbol-balanced-checking code in a `main` method by reading in the `Employee.java` class (provided in a folder in this directory) using `readFile()`. In your call to `symbolsBalanced()`, pass in the following `String` of delimiter pairs: "`[]{}<>()||`". Your `main` method should simply output either "true" or "false" to the console, indicating the result of the symbol-balanced test.

NOTE: Most of the set-up code described above has already been written for you in the start-up code for this exercise.