**Stacks and Queues Project part 1 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**You are going to create a project called StacksAndQueues. For now, you are simply going to create a main class and a “Stack” class.**

**Stack class:**

**1 private ArrayList of Strings**

**1 constructor to initialize the ArrayList**

**3 public methods:**

**push(String a) will take a string and add it to the end of the ArrayList.**

**pop() will remove the last item from the ArrayList and return it.**

**getSize() will return the size of the ArrayList.**

**Main class:**

**Create an instance of the Stack object and also a String that can be scanned in from a user. The class should analyze the String using the substring method and then check to see if the String contains all appropriate delimiters. Delimiters are the following 6 characters: ( ) [ ] { }. As you analyze the String you can store any occurrences of the three opening delimiters in your Stack, and then as you find any closing delimiters, compare them to the most recent opening delimiter by “popping” the Stack. As a result of your program you should identify one of three things: The String contained all appropriate delimiters with their pairs in the correct order, the String was missing a closing delimiter or the String was missing an opening delimiter. If a delimiter is missing, identify which one it is.**

**note: As you are analyzing the input String, you only need to identify the FIRST missing delimiter. You can stop analyzing the input String once you find a problem.**

**Example: If the user enters the following String of characters:**

**A j k f d s ( [ f d w o j m n { } j I d o a ] f a**

**The program should do the following:**

**push( ( );**

**push( [ );**

**push( { );**

**pop() and compare to }**

**– if a pair is not found, state the problem and end the program**

**pop() and compare to ]**

**– if a pair is not found, state the problem and end the program**

**When reaching the end of the String, check to see if all opening delimiters have a matching closing delimiter. Then state the result.**

**This particular String would result in a display that:**

**“The String was missing a closing delimiter, ).”**