Review Assignment 05
Submission Deadline 11:59 PM, Sunday, February 19th
Total 50 points

Instruction.

1. **Download the assignment sheet.**
2. **Enter your answer.**
3. **Upload your answer sheet.**

Question 1. String methods (2 points each; 18 points altogether).
Let `word1` and `word2` be `String` variables whose values are equal to the `String` literals `"Coral"` and `"Coral_Gables, FL"`, respectively (that is, the double quotation marks are markers and not part of the `String` values).

State the following values:

a) `word1.startsWith( word2 )` : False
b) `word1.compareTo( word2 ) >= 0` : False
c) `word1.length()` : 5
d) `word2.substring( 14 )` : FL
e) `word2.indexOf( ",” )` : 12
f) `word2.lastIndex( "a" )` : Error: No such method exists, but “lastIndexOf(“a”)” returns 7
g) `word1.toUpperCase()` : CORAL
h) `word2.charAt( 1 )` : o
i) `word2.charAt( 2 ) – 'a'` : 17

Question 2. Upside-down right-angle triangle (10 points altogether).
Suppose we are to produce, on the screen, an upside-down right-angle triangle so that the upper-left corner has the right angle, where the triangle is printed with '+'. The dimension of the triangle is specified in an `int` variable `dim`. The variable specifies the number of '+' that appears in the first line. Then the number of '+' decreases each time the output goes to the next line. The number of '+' in the last line of the output is 1. For example, the program may run like:

```
Specify dimension: 9
+++++++++
++++++++
+++++++
++++++
+++++
++++
+++
++
+
```

A straightforward way to write the program is to use a double for-loop with the external loop iterating over the line positions and the internal loop the positions within a line. Below is the central part of the program, where `row` and `col` are the two iteration variables. By properly setting the two for-loops, using the two "print" statements, the task can be completed. Fill the blanks.

```
Scanner keyboard;
int dim, row, col;
keyboard = new Scanner( System.in );
System.out.print( "Specify dimension: " );
dim = keyboard.nextInt(); // receive input, 2 points
        // external loop, the line position; 4 points
row = dim;
col = dim;
for (int r=0; r<row; r++) {
        // internal loop, the position within line; 4 points
  for (int c=0; c<col; c++) {
    System.out.print( "+" );
  }
  col--;
  System.out.println();
}
```

Question 3. String and for-loop (22 points altogether).
Let `word` be a `String` variable whose content is already given. Suppose you want to compute two `int` quantities about the `String` variable, `nAlpha` and `nEnd`, where `nAlpha` is the number of lowercase letters in `word` and `nEnd` is the number of end markers (the period, the question mark, and the exclamation mark) appearing in the `String`. In addition, we want to compute nRest as the number of all other types of characters in `word`. Suppose you are to use the template below. The variable `k` should be used as the iteration variable in the for-loop. _____ indicates missing parts. Answer what should be in the missing parts.

```
int k, nAlpha, nEnd, nRest;
nAlpha = 0; // 2 points
nEnd = 0; // 2 points
for (k=0; k<word.length(); k++) { // 4 points
  if (Character.isLowerCase(word.charAt(k))) { // check for
nAlpha 3 points
    nAlpha++; // 3 points
  }
  else if (word.charAt(k) == '.' || word.charAt(k) == '?' ||
word.charAt(k) == '!' ) { // check for nEnd 3 points
    nEnd++; // 3 points
  }
}
nRest = word.length() – nEnd - nAlpha; // 2 points
System.out.println( nAlpha );
System.out.println( nEnd );
System.out.println( nRest );
```