AP Computer Science Name: _____
Chapter 3 & 4 Programs

1. Write a program that prompts the user to enter three integers and sorts the three integers. The integers are entered from the input dialogs and stored in variables `num1`, `num2`, and `num3` respectively. The program sorts and outputs the numbers from smallest to largest.

2. Write a program that plays the popular rock-paper-scissor game. (Paper covers rock, rock beats scissor, and scissors cuts paper.) The program randomly generates a number 0, 1, or 2 representing scissor, rock, and paper. The program prompts the user to enter a number 0, 1, or 2 and displays a message indicating whether the user or the computer wins, loses, or draws. Here are sample runs:

rock (0), paper (1), scissor (2): 1
The computer is rock. You are paper. You won.

rock (0), paper (1), scissor (2): 1
The computer is paper. You are paper too. It is a draw.

The program should let the user continuously play until either the user or the computer wins more than two times.

3. (Counting positive and negative numbers and computing the average of numbers) Write a program that reads an unspecified number of integers. Determines how many positive and negative values have been read, and computes the total and average of the input values (not counting zeros). Your program ends with the input `0`. Display the average as a floating-point number. Here is a sample run:

```
Enter an int value, the program exits if the input is 0:
 1 2 -1 3 0
The number of positives is 3
The number of negatives is 1
The total is 5
The average is 1.25
```

4. Write a program that prompts the user to select from 4 different patterns and displays the chosen pattern.

```
Pattern I          Pattern II         Pattern III        Pattern IV
1                  1 2 3 4 5 6                  1      1 2 3 4 5 6
1 2                1 2 3 4 5                2 1          1 2 3 4 5
1 2 3              1 2 3 4                3 2 1            1 2 3 4
1 2 3 4            1 2 3                4 3 2 1              1 2 3
1 2 3 4 5          1 2                5 4 3 2 1                1 2
1 2 3 4 5 6        1                6 5 4 3 2 1                  1
```