Object Oriented Programming with Java

Lab Practice:10

1. Write a program that uses the following subroutine, to solve equations specified by the user.

```
/**
 * Returns the larger of the two roots of the quadratic equation
 * A*x*x + B*x + C = 0, provided it has any roots.  If A == 0 or
 * if the discriminant, B*B - 4*A*C, is negative, then an
exception
 * of type IllegalArgumentException is thrown.
 */

static public double root( double A, double B, double C )
                                  throws IllegalArgumentException {
    if (A == 0) {
      throw new IllegalArgumentException("A can't be zero.");
    }
    else {
       double disc = B*B - 4*A*C;
       if (disc < 0)
          throw new IllegalArgumentException("Discriminant <
zero.");
       return  (-B + Math.sqrt(disc)) / (2*A);
    }
}
```

   Your program should allow the user to specify values for A, B, and C. It should call the subroutine to compute a solution of the equation. If no error occurs, it should print the root. However, if an error occurs, your program should catch that error and print an error message. After processing one equation, the program should ask whether the user wants to enter another equation. The program should continue until the user answers no.

2. Write a program that will read a sequence of positive real numbers entered by the user and will print the same numbers in sorted order from smallest to largest. The user will input a zero to mark the end of the input. Assume that at most 100 positive numbers will be entered. Do not use any built-in function such as Arrays.sort(). Do the sorting yourself.

   This program reads positive integers(input) from the user and prints them in sorted order. Input ends when the user enters a non-positive integer. The numbers are read and inserted into an array. The array is maintained at all times in sorted order.