Purpose: The purpose of this Lab assignment is to:
- Practice the use of instance methods in Java classes
- Practice the use of static methods in Java classes

Exercise 1:

Write a Java application that simulates a test. The test contains **at least five** questions about first three lectures of this course. Each question should be a multiple-choice question with 4 options.

Design a **Test** class. Use programmer-defined methods to implement your solution. For example:
- create a method to simulate the questions – *simulateQuestion*
- create a method to check the answer – *checkAnswer*
- create a method to display a random message for the user – *generateMessage*
- create a method to interact with the user - *inputAnswer*

Display the questions using methods of **JOptionPane** class. Use a loop to show all the questions.

For each question:
- If the user finds the right answer, display a random congratulatory message ("Excellent!","Good!","Keep up the good work!", or "Nice work!").
- If the user responds incorrectly, display an appropriate message and the correct answer ("No. Please try again", "Wrong. Try once more", "Don't give up!", "No. Keep trying..").
- Use random-number generation to choose a number from 1 to 4 that will be used to select an appropriate response to each answer.
- Use a switch statement to issue the responses, as in the following code:
  ```
  switch ( randomObject.nextInt( 4 ) )
  {
  case 0:
  return( "Very good!" );
  ……
  }
  ```

At the end of the test display the number of correct and incorrect answers, and the percentage of the correct answers.

Your main class will simply create a Test object and start the test by calling **inputAnswer** method.

(5 marks)

Exercise 2:

Design a Lotto class with one array instance variable to hold three random integer values (from 1 to 9). Include a constructor that randomly populates the array for a lotto object. Also, include a method in the class to return the array.

Use this class to simulate a simple lotto game in which the user chooses a number between 3 and 27. *The user runs the lotto up to 5 times and each time the sum of lotto numbers is calculated. If the number chosen by the user matches the sum*, the user wins and the game ends. *If the number does not match the sum within five rolls*, the computer wins.
Use methods of JOptionPane class to interact with the user.

Exercise 3:

Write a Java class that implements a set of three overloaded static methods. The methods should have different set of parameters and perform similar functionalities. Call the methods within main method and display the results.

(2 marks)