**King Saud University**
**College of Computer & Information Science**
**CSC113 – Computer Programming II**
**Lab06: Recursion I**

---

## Submission rules:

- The project name must be: Lab06_ID_FirstName_LastName.zip. For example: Lab06_123456789_Marwan_Almaymoni.zip
- Use the default package.
- The due date is Wednesday 04/11/2020 11:59 PM via lms.ksu.edu.sa
- Email submissions will not be accepted.
- ***This is a recursion lab. All questions must be solved using recursion. Otherwise, you will receive 0 for answers without recursion.***

Answer all of the following questions in one class called **Lab6**.

## Question 1:

Write a recursive method ***recPower*** that takes a base number and its power, computes the power recursively, then returns the answer. For example: recPower(2, 4) returns 16. Do not use Math.pow. The method's header should be:

```
public static int recPower(int base, int power)
```

## Question 2:

Write a recursive method ***recFactorial*** that takes a number and computes its factorial.

$$recFactorial(x) = \begin{cases} 1 & if\ x = 0 \\ x * (x-1)! & if\ x > 0 \end{cases}$$

For example: recFactorial(4) returns 24. The method's header should be:

```
public static int recFactorial(int x)
```

## Question 3:

Write a recursive method ***recAverage*** that takes an array of double values, computes their average recursively, then returns the answer. Assume that the array is full.

For example: double[] arr = {3.3, 4, -17, 23.7, 14.78, 6.4}, recAverage(arr) returns 5.863333333. The method's header should be:

```
public static double recAverage(double[] arr)
```

## Question 4:

Write a recursive method ***recReverseString*** that takes a String and prints it in reverse. For example: recReverseString("Hi my name is Marwan") prints "nawraM si eman ym iH". You can use `str.charAt(index)` to access the characters in the String. The method's header should be:

```
public static void recReverseString(String str)
```