COMP2120 - Fall 2020

Lab 2 Activities

Activity 1.

Write a Java program to the following tasks. Use Java API Documentation to find suitable **String** methods to complete the tasks when needed.

- Declare a ***String*** variable ***str***.
- Set the value of ***str*** to your complete name, one word for your first name (without space) and one word for your last name (without space), having one space between them, and all in lowercase. (Therefore, the format of the ***String str*** is something like "xxxxxx xxxxxxxxxx".)
- Display the value of ***str***.
- Display the length of ***str***.
- Extract your first name from ***str*** and put it into another ***String*** variable, called ***firstName***.
- Do the same for your last name and put it into a ***String*** variable, called ***lastName***.
- Declare another ***String*** variable, ***str2***, and initialize it with ***lastName***, a comma, a space and then ***firstName***.
- Display ***str2***.
- Display the position (index) of the first occurrence of the last character of your lastname in your firstname.
- Display the position (index) of the last occurrence of the first character of your lastname in your firstname.
- Replace the first character of the ***firstName*** variable with its uppercase and put it back into ***firstName*** variable.
- Do the same for ***lastName***.
- Display ***firstName*** and ***lastName***.

***Note that you are not allowed to use fixed numbers to apply the requested tasks. It means that when you do the tasks, assume that you don't know the exact contents of the variables.**

Activity 2.

In this activity we are going to use the Random class which is inside one of the standard packages in Java API.

- Find the document of this class using the Java API Documentation.
- Create a class for this activity, called TestRandomClass.java.
- Import Random class to your java class from its package.
- Create the main method in your class.
- Inside your main method:
    - Create one instance object of the Random class.
    - Create and print out five random integers.
    - Create and print out five floating point (double) numbers.
    - Create and print out five random integers between 10 and 20, both inclusive.
    - Create and print out five floating point (double) numbers between 1, inclusive, and 10, exclusive.
    - Create and print out five random **even** integers between 10 and 100, both inclusive.

- Which method from the Random class we can use to simulate random flipping a coin? Use it to simulate random flipping a coin five times and show the results, using two words "Tail" and "Head".

Activity 3.

Follow the steps to implement a Java class for the following requirements' specification:

Alice wants to store information about all her **book**s. She would like to be able to **create a new book** by giving its **name** as the mandatory value. Sometimes she creates a new book by indicating **name** and **author**. Except for name and author, any book can have a **year of publication** and **number of pages**. Alice wants to have the following functionalities as well:

1- Get the name of a book
2- Get the author of a book
3- Get the year of publication of a book
4- Get the number of pages of a book
5- Set/change each of the information of a book

Having the above requirements, provide a Java class for Alice, named **Book**, by using all the steps we learned in order. Then, create a testing class and test the class Book you have created.