5COSC023W - Tutorial 3 Exercises

As part of this tutorial for this week, you should complete **ALL** the tasks described in the following specifications: (**make sure that you ask questions to your tutor for anything that you do not understand or if you are stuck at any point**).

> Tutorial sessions are practical sessions that you need to work towards the exercises set. They will give you the chance to practice the material learned in the lectures and learn new things as well.
>
> **You should not use these sessions to work towards the assessed assignments!** If you decide to work towards your assessed work instead, then you are not considered as part of the tutorial session. You will not get any help on the code of the assessed work by your tutor but you can ask your tutor ONLY about any clarifications you might need regarding the specification of the coursework.

Like all other modules, you are expected to study towards you module outside the lecture and dedicated tutorial slots for a number of hours. If you do not finish all of the exercises in the tutorial session, make sure that you finish them on your own time and by the end of the week. This is a normal process and part of your university learning.

1 The Lottery Program

Implement the Lottery Android app developed in the lecture. **Make sure that you type the code and NOT simply copy and paste. Make sure that you understand the full code**.

As a reminder the following was implemented in the lecture:

A lottery ticket consists of 6 unique numbers in the range between 1 and 59.

Write an Android application which calculates such a 6 lucky random unique numbers which the program user can play in the next lottery. Every time a button is pressed a new set of unique numbers is generated.

2 Extending the Lottery Program

1. Extend your Lottery application so that it uses 6 separate `Text` composables to display the 6 generated numbers. The 6 `Text`s should have some horizontal space between them.

   Hint1: Use a `Row` Composable.

   Hint2: You could create 6 different variables which are states of the GUI function. Each one of them represents one number of the lottery draw.

2. Extend your Lottery program so that it contains 6 additional buttons. Once the 6 random numbers are generated by the previously implemented button, the user can use one of the 6 buttons to change one of the generated numbers.

   For example, pressing the 3rd button will replace the third number with a newly generated unique number while the rest of the numbers remain the same (i.e. the first, second, fourth, fifth and sixth number do not change). The newly generated number should be unique (i.e. not the same with the rest of the unchanged numbers).

3. Add a second button next to the first one generating the numbers (**Hint:** use a `Row` Composable) which every time that it is clicked it sorts the results generated in ascending order.

   Hint: You can use the `sort()` function of a list to sort it.

4. Modify your code so that the second button sorts the results in ascending order if the number of button clicks is odd and in descending order if the number of button clicks is even (i.e. every time the button is clicked the order of the results changes from ascending to descending order).

   Hint: Look up the `reverse()` function of a List.