Mobile App Development

Tutorial Assignment: Start another activity in the Java Android app

Develop a Java Android app and run it on the Android physical/virtual device. Please use three activities and the class Intent in this app. Please use different names of activities, e.g., “Tutorial no. 5”, “Second exercise”, and “Third exercise”. For this purpose, you can modify the file Androidmanifest.xml. An example for the activity DisplayMessageActivity is as follows:

```
<activity android:name=".DisplayMessageActivity"
android:parentActivityName=".MainActivity" android:label="@string/second_activity">
```

Exercise 1 (Integer expressions and loops)

Write a Java program that asks the user for a non-negative integer n, and then prints the Fibonacci numbers F_0, ... ,F_n. The Fibonacci numbers are recursively defined as follows:

$F_0 = 0$

$F_1 = 1$

$F_n = F_{n-1} + F_{n-2}$ for $n \geq 2$

Up to which number can the data type `int` calculate the sequence correctly? How can this be handled in the program?

In this exercise, please use the vertical scrollbar for the TextView component:

```
android:scrollbars="vertical"
android:fadeScrollbars="false"
```

Exercise 2 (Nested loops)

Write a Java program that asks the user for a positive integer n, and then prints a right-aligned triangle of stars ’*’ consisting of n rows. You are not allowed to use if-statements in your program.

Example: For n=10, the output shall look as in the figure below.

```
**********
 *********
  ********
   *******
    ******
     *****
      ****
       ***
        **
         *
```

Please use the `textEnd` in the `textAlignment` property of the TextView.

Exercise 3 (Strings)

Write a Java program that simulates a simple calculator. It should ask the user for two integers *a* and *b*, as well as request an operation: addition (+), subtraction (-), multiplication (*), or division (/). Then it shall print the result according to the operation entered by the user (*a*+*b*, *a*-*b*, *a**b*, *a*/*b*, respectively).

Make sure that your program handles potential division by zero errors correctly.

To develop the above-stated apps, please use the instructions written in 1st, 2nd, 3rd, 4th, 5th, and 6th presentations.