REG NO: 18/02397

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UNIT: BSD 2203: MOBILE PROGRAMMING

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QUESTION ONE (25 MARKS)

a. Create an Android app that inputs the name and average mark of a student using EditText widgets and then it displays the name and grade of the student in a TextView according to the table below after a push/click of a button. In your solution, include the activity, manifest, layout and string files

xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="32dp"
    android:text="@string/enter_name_and_grade"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextNumber" />
    <EditText
    android:id="@+id/editTextNumber"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="32dp"
    android:ems="10"
    ndroid:inputType="number"
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toBottomOf="@+id/textView1"
    android:hint="Grade"
    android:importantForAutofill="no" />
    <EditText
    android:id="@+id/editTextNumber"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    ndroid:layout_marginLeft="16dp"
    android:layout_marginTop="32dp"
    android:ems="10"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2"
    android:hint="Name"
    android:importantForAutofill="no" />
    <TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="32dp"
    android:text="@string/name_and_number"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextNumber" />
    <Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="32dp"
    android:text="@string/get_grade"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView3" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Java file:

```
package com.example.getgrade;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
```

```
    private EditText inputNumber;
    private Button getGrade;
    private TextView answerGrade;
    private EditText inputName;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        inputGrade = (EditText) findViewById(R.id.textView1);
        inputName = (EditText) findViewById(R.id.textView2);
        getGrade = (Button) findViewById(R.id.button);
        answerGrade = (TextView) findViewById(R.id.textView3);

        getGrade.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int inputGrade = Integer.parseInt(inputNumber.getText().toString(
));
                String grade;
                if (inputGrade >= 75 && inputGrade < 100) {
                    grade = "A";
                } else if (inputGrade >= 65 && inputGrade < 74) {
                    grade = "B";
                } else if (inputGrade >= 50 && inputGrade < 64) {
                    grade = "C";
                } else {
                    grade = "Fail";
                }
                answerGrade.setText(inputName + "your grade is a" + grade);

            }

        });
    }
}
```

b. Write an Android application that inputs the nth number and then computes the sum from 1 to the nth number as shown below. Your program should include the Java code, layout XML code and string values

xml file:

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.
android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="32dp"
        android:text="@string/enter_your_nth_number"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="32dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView"
        android:importantForAutofill="no" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="32dp"
        android:text="@string/answer"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="32dp"
```

```
        android:text="@string/sum_numbers"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView3" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Java file:

```
package com.example.nthnumber;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private EditText inputNumber;
    private Button add;
    private TextView answer;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        inputNumber = (EditText) findViewById(R.id.editTextNumber);
        add = (Button) findViewById(R.id.button);
        answer = (TextView) findViewById(R.id.textView3);
        add.setOnClickListener(new View.OnClickListener(){
            @Override
            public void onClick(View view){
                int number = Integer.parseInt(inputNumber.getText().toString());
                answer.setText(String.valueOf(sumOfDigitsFrom1ToN(number)));
            }
            int sumOfDigitsFrom1ToN(int n)
            {
                int result = 0;
                for (int x = 1; x <= n; x++)
                    result += sumOfDigits(x);

                return result;
            }

            int sumOfDigits(int x)
            {
                int sum = 0;
                while (x != 0)
```

```
                {
                    sum += x % 10;
                    x   = x / 10;
                }
                return sum;
            }

        });
    }
}
```

QUESTION TWO (25 MARKS)

a. Create an Android app that consists of two activities. When a button of the first activity is clicked it takes you to the second activity that enables the user to input two integer numbers through EditText widgets and then it computes the sum after a click of a button. Upon exit of the second activity, the sum of the two numbers is displayed in the first activity using a toast widget. In your solution include the activities, layouts, manifest and string files

xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView_answer"
        android:layout_width="100dp"
        android:layout_height="25dp"
        android:layout_marginLeft="130dp"
        android:layout_marginTop="300dp"
        android:text="0"
        android:textSize="20dp"/>
    <EditText
        android:id="@+id/editText_first_no"
        android:layout_width="150dp"
        android:layout_height="40dp"
        android:layout_marginLeft="200dp"
        android:layout_marginTop="40dp"
```

```
        android:inputType="number" />
    <TextView
        android:id="@+id/textView_first_no"
        android:layout_width="150dp"
        android:layout_height="25dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="50dp"
        android:text="First number"
        android:textSize="20dp" />
    <TextView
        android:id="@+id/textView_second_no"
        android:layout_width="150dp"
        android:layout_height="25dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="100dp"
        android:text="Second number"
        android:textSize="20dp" />
    <EditText
        android:id="@+id/editText_second_no"
        android:layout_width="150dp"
        android:layout_height="40dp"
        android:layout_marginLeft="200dp"
        android:layout_marginTop="90dp"
        android:inputType="number"
        tools:ignore="MissingConstraints" />
    <Button
        android:id="@+id/add_button"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginLeft="110dp"
        android:layout_marginTop="200dp"
        android:text="ADD" />
</RelativeLayout>
```

Java file:

```
package com.example.twonumbers;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
```

```
    EditText number1;
    EditText number2;
    Button Add_button;
    TextView result;
    int ans=0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        number1=(EditText) findViewById(R.id.editText_first_no);
        number2=(EditText) findViewById(R.id.editText_second_no);
        Add_button=(Button) findViewById(R.id.add_button);
        result = (TextView) findViewById(R.id.textView_answer);

        Add_button.setOnClickListener(new View.OnClickListener() {

            public void onClick(View v) {

                double num1 = Double.parseDouble(number1.getText().toString());
                double num2 = Double.parseDouble(number2.getText().toString());
                double sum = num1 + num2;
                result.setText(Double.toString(sum));
            }
        });
    }
}
```

b. Write XML files to generate the following Layouts using RelativeLayout and FrameLayout respectively

Relative layout xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="10dp"
    android:paddingRight="10dp">
    <EditText
    android:id="@+id/plain_text_input"
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:inputType="text" />
    <Button
```

```
    android:id="@+id/btn_cancel"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_toLeftOf="@id/btn_go"
    android:text="CANCEL" />
    <Button
    android:id="@+id/btn_go"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentRight="true"
    android:text="GO" />
</RelativeLayout>
```

Frame layout xml:

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
    android:id="@+id/txtvw1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="10dp"
    android:text="ISBN:" />
    <EditText
    android:id="@+id/plain_text_input"
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    android:inputType="text" />
    <Button
    android:id="@+id/btn_cancel"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="CANCEL" />
    <Button
    android:id="@+id/btn_ok"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="OK" />
</FrameLayout>
```