PART-A

Experiment No:1

VISITING CARD

Create an application to design a Visiting Card. The Visiting card should have a company logo at the top right corner. The company name should be displayed in Capital letters, aligned to the center. Information like the name of the employee, job title, phone number, address, email, fax and the website address is to be displayed. Insert a horizontal line between the job title and the phone number.

Components Used:

   • Text View: To display texts

   • Image View: To display image (Logo)

View: To display horizontal line

Procedure:

1) Firstly Create an Application by Name "VisitingCardApp"

2) Goto xml code of design change the layout to "RelativeLayout"

3) Add TextView component change the following properties:

•   Size: 38dp

•   Text: CANARA ENGINEERING COLLEGE

•   Align: left top

4) Download the logo & copy the logo.jpg (or .png) in res->drawable folder and refractor it.

- Add ImageView to design, set the position

- In xml code of ImageView change srcCompat="@drawable/logo"

- Align right top

5) Add View component (devider)& change the following properties:

- Width: match_parent

- Height: 4dp

- Background: "# 4444" (black color)

6) Add TextView component change the following properties:

- Size: 20dp

- Text: Uday G Marathi

- Style: Bol

    - Align: center

7) Add TextView component change the following properties:

- Size: 20dp

- Text: 4CB20CS121

- Align: center

8) Add TextView component change the following properties:

- Size: 20dp

- Text: 7892210041

- Align: center

9) Add TextView component change the following properties:

- Size: 20dp

- Text: udaygmarathi13@gmail.com

- Align: center

XML code:

```
<?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"

    android:textAlignment="center"

    tools:context=".MainActivity">


    <TextView

        android:layout_width="wrap_content"

        android:layout_height="162dp"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="174dp"

        android:layout_marginBottom="544dp"

        android:text="CANARA ENGINEERING COLLEGE"

        android:textAlignment="center"

        android:textColor="#0026FA"
```

```
    android:textSize="34sp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent" />


<ImageView

    android:id="@+id/imageView"

    android:layout_width="150dp"

    android:layout_height="112dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="12dp"

    android:layout_marginBottom="575dp"

    app:srcCompat="@drawable/logo" />


<View

    android:id="@+id/view"

    android:layout_width="match_parent"

    android:layout_height="4dp"

    android:layout_alignParentBottom="true"

    android:layout_marginBottom="515dp"

    android:background="#070707" />
```

```xml
<TextView

    android:id="@+id/textView2"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="162dp"

    android:layout_marginBottom="426dp"

    android:text="Name : Uday"

    android:textAlignment="center"

    android:textColor="#E91E63"

    android:textSize="24sp" />

<TextView

    android:id="@+id/textView3"

    android:layout_width="219dp"

    android:layout_height="39dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="114dp"

    android:layout_marginBottom="340dp"

    android:text="USN : 4CB20CS121"

    android:textColor="#E40853"

    android:textSize="24sp" />
```

```xml
<TextView

    android:id="@+id/textView4"

    android:layout_width="330dp"

    android:layout_height="32dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="54dp"

    android:layout_marginBottom="277dp"

    android:text="Phone No. : 9019883415 "

    android:textAlignment="center"

    android:textColor="#E80753"

    android:textSize="24sp" />

<TextView

    android:id="@+id/textView5"

    android:layout_width="388dp"

    android:layout_height="43dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="4dp"

    android:layout_marginBottom="189dp"

    android:text="Email : udaymarathi13@gmail.com"

    android:textAlignment="center"

    android:textColor="#E60652"
```

android:textSize="24sp" />

</RelativeLayout>

JAVA code:

package com.gtappdevekopers.visitingcardapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

  @Override

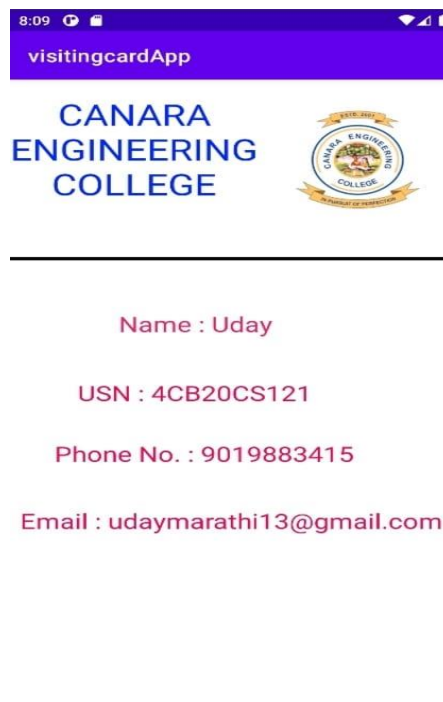 protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);
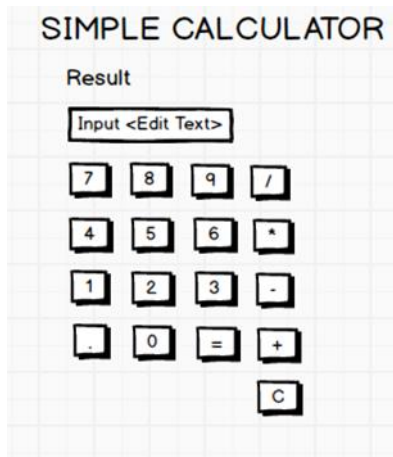
    setContentView(R.layout.activity_main);

  }

}   **Output :**

Experiment No:2

SIMPLE CALCULATOR

Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, Multiplication, and Division.

Components Used:

• Button: To display numbers, operations

• Edit Text: To display Result

• Table Layout: To organize buttons uniformly

• View: To display horizontal line

Procedure:

1) Create aNew Android Project with Empty Activity.

2) Design the UI by using the following widgets:

TextView - this item is used to display text. Users are not expected to interact with this item. The result of computations are displayed using a TextView.

EditText - this is a kind of TextView that users can edit, and change the text. However, since the calculator allows only a fixed set of inputs, we set the edit text to be non- editable. When the user clicks on numbers, we display the numbers in the EditText.

Button - this item allows interaction by the user, and ideally, should respond to clicks by the user. We use buttons for the numbers, and operators in the calculator.

3) Navigate to the app > res > layout> activity_main.xml.

4) In the activity_main.xml, create the reference of Buttons and EditText override the method onCreate() which is the method of Activity class

5) Open MainActivty.java file. Override onCreate() method and bring activity_main.xml file on screen using setContentView() and bring the view references using findViewById() method.

6) Add Listeners to Button Click Event

7) Create a class which implements OnClickListener interface.

8) Override onClick() method of OnClickListener Interface.

9) Register the button for click event by calling setOnClickListener() method of View class and pass the object of the class that implemented OnClickListener Interface.

10) Create a logic to Add/Subtract/Multiply/Divide to perform arithmetic operation on 2

operands. Eg: 5/2

11) If more than 2 operands or wrong input, display invalid input messages. Eg: 3*2+4

12) Use clear button for clearing contents of result.

XML code:

```xml
<?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:text="Simple Calculator"

        android:textColor="#DD2424"

        android:textSize="34sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.413"

        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.051" />

  <EditText

        android:id="@+id/res"

        android:layout_width="wrap_content"

        android:layout_height="50dp"

        android:ems="10"

        android:inputType="text"

        android:text="enter"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.316"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.236" />


  <TextView

        android:id="@+id/textView2"

        android:layout_width="204dp"

        android:layout_height="45dp"

        android:text="Result"

        android:textSize="34sp"

        app:layout_constraintBottom_toBottomOf="parent"
```

```
app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.309"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.14" />


<Button

    android:id="@+id/button7"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="7"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.072"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.4" />


<Button

    android:id="@+id/button8"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="8"
```

```
app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.354"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.4" />


<Button

    android:id="@+id/button9"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="9"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.623"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.4" />

<Button

    android:id="@+id/buttonplus"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="+"
```

```
app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.889"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.4" />


<Button

    android:id="@+id/button4"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="4"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.072"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.541" />


<Button

    android:id="@+id/button5"

    android:layout_width="81dp"

    android:layout_height="64dp"
```

```
        android:text="5"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.354"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.541" />

    <Button

        android:id="@+id/button6"

        android:layout_width="81dp"

        android:layout_height="64dp"

        android:text="6"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.623"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.541" />


    <Button

        android:id="@+id/buttonminus"

        android:layout_width="81dp"

        android:layout_height="64dp"
```

```
android:text="-"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.889"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.541" />


<Button

    android:id="@+id/button1"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="1"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.072"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.688" />

<Button

    android:id="@+id/button2"

    android:layout_width="81dp"

    android:layout_height="64dp"
```

```
android:text="2"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.354"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.687" />


<Button

    android:id="@+id/button3"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="3"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.623"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.687" />


<Button

    android:id="@+id/buttonmult"

    android:layout_width="81dp"
```

```
android:layout_height="64dp"

android:text="*"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.889"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.687" />
<Button

android:id="@+id/buttondot"

android:layout_width="81dp"

android:layout_height="64dp"

android:text="."

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.072"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.816" />


<Button

android:id="@+id/buttonequals"

android:layout_width="81dp"
```

```
android:layout_height="64dp"

android:text="="

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.354"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.816" />


<Button

    android:id="@+id/button0"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="0"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.623"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.816" />

<Button

    android:id="@+id/buttondivide"

    android:layout_width="81dp"
```

```xml
android:layout_height="64dp"

android:text="/"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.889"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.816" />


<Button

    android:id="@+id/buttonclear"

    android:layout_width="81dp"

    android:layout_height="64dp"

    android:text="C"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.889"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.948" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

JAVA code:

```
package com.gtappdevekopers.calculator;

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    Button b0, b1, b2, b3, b4, b5, b6, b7, b8, b9;

    Button bAdd, bSub, bMul, bDiv;

    Button bClear, bEqual, bDot;

    EditText tres;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b1 = (Button) findViewById(R.id.button1);

        b1.setOnClickListener(this);

        b2 = (Button) findViewById(R.id.button2);

        b2.setOnClickListener(this);

        b3 = (Button) findViewById(R.id.button3);

        b3.setOnClickListener(this);

        b4 = (Button) findViewById(R.id.button4);
```

```
b4.setOnClickListener(this);

b5 = (Button) findViewById(R.id.button5);

b5.setOnClickListener(this);

b6 = (Button) findViewById(R.id.button6);

b6.setOnClickListener(this);

b7 = (Button) findViewById(R.id.button7);

b7.setOnClickListener(this);

b8 = (Button) findViewById(R.id.button8);

b8.setOnClickListener(this);

b9 = (Button) findViewById(R.id.button9);

b9.setOnClickListener(this);

b0 = (Button) findViewById(R.id.button0);

b0.setOnClickListener(this);

bAdd = (Button) findViewById(R.id.buttonplus);

bAdd.setOnClickListener(this);

bSub = (Button) findViewById(R.id.buttonminus);

bSub.setOnClickListener(this);

bMul = (Button) findViewById(R.id.buttonmult);

bMul.setOnClickListener(this);

bDiv = (Button) findViewById(R.id.buttondivide);

bDiv.setOnClickListener(this);

bClear = (Button) findViewById(R.id.buttonclear);

bClear.setOnClickListener(this);
```

```
bEqual = (Button) findViewById(R.id.buttonequals);

bEqual.setOnClickListener(this);

bDot = (Button) findViewById(R.id.buttondot);

bDot.setOnClickListener(this);

tres = (EditText) findViewById(R.id.res);

tres.setText("");

}
@Override
public void onClick(View v) {

    if (v.equals(b0)) tres.append("0");

    if (v.equals(b1)) tres.append("1");

    if (v.equals(b2)) tres.append("2");

    if (v.equals(b3)) tres.append("3");

    if (v.equals(b4)) tres.append("4");

    if (v.equals(b5)) tres.append("5");

    if (v.equals(b6)) tres.append("6");

    if (v.equals(b7)) tres.append("7");

    if (v.equals(b8)) tres.append("8");

    if (v.equals(b9)) tres.append("9");

    if (v.equals(bDot))

        tres.append(".");

    if (v.equals(bAdd))

        tres.append("+");
```

```java
if (v.equals(bSub))

    tres.append("-");

if (v.equals(bMul))

    tres.append("*");

if (v.equals(bDiv))

    tres.append("/");

if (v.equals(bClear))

    tres.setText("");

if (v.equals(bEqual)) {

    try {

        String data = tres.getText().toString();

        if (data.contains("/")) {

            Division(data);

        } else if (data.contains("*")) {

            Multiplication(data);

        } else if (data.contains("+")) {

            Addition(data);

        } else if (data.contains("-")) {

            Subtration(data);

        }

    } catch (Exception e) {

        Toast.makeText(getBaseContext(), "Invalid Input",
Toast.LENGTH_LONG).show();
```
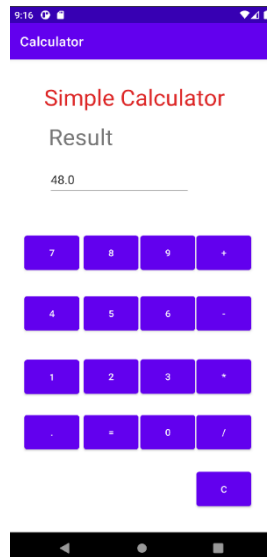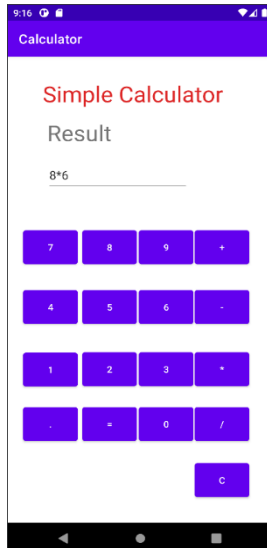
```
        }

    }

}

private void Multiplication(String data) {

    String[] operands = data.split("\\*");

    if (operands.length == 2) {

        double operand1 = Double.parseDouble(operands[0]);

        double operand2 = Double.parseDouble(operands[1]);

        double result = operand1 * operand2;

        tres.setText(String.valueOf(result));

    } else {

        Toast.makeText(getBaseContext(), "Invalid Input", Toast.LENGTH_LONG).show();

    }

}

private void Addition(String data) {

    String[] operands = data.split("\\+");

    if (operands.length == 2) {

        double operand1 = Double.parseDouble(operands[0]);

        double operand2 = Double.parseDouble(operands[1]);

        double result = operand1 + operand2;

        tres.setText(String.valueOf(result));

    } else {

        Toast.makeText(getBaseContext(), "Invalid Input", Toast.LENGTH_LONG).show();
```

```
        }

    }

    private void Subtration(String data) {

        String[] operands = data.split("\\-");

        if (operands.length == 2) {

            double operand1 = Double.parseDouble(operands[0]);

            double operand2 = Double.parseDouble(operands[1]);

            double result = operand1 - operand2;

            tres.setText(String.valueOf(result));

        } else {

            Toast.makeText(getBaseContext(), "Invalid Input", Toast.LENGTH_LONG).show();

        }

    }

    private void Division(String data) {

        String[] operands = data.split("/");

        if (operands.length == 2) {

            double operand1 = Double.parseDouble(operands[0]);

            double operand2 = Double.parseDouble(operands[1]);

            double result = operand1 / operand2;

            tres.setText(String.valueOf(result));

        } else {

            Toast.makeText(getBaseContext(), "Invalid Input", Toast.LENGTH_LONG).show();

        }
```

```
    }

}
```

Output:

Experiment No:3

SIGN UP AND SIGN IN

Create a SIGN Up activity with Username and Password. Validation of password should happen based on the following rules:

• Password should contain uppercase and lowercase letters.

• Password should contain letters and numbers.

• Password should contain special characters.

• Minimum length of the password (the default value is 8).

On successful SIGN UP proceed to the next Login activity. Here the user should SIGN IN using the Username and Password created during signup activity. If the Username and Password are matched then navigate to the next activity which displays a message saying "Successful Login" or else display a toast message saying "Login Failed". The user is given only two attempts and after that display a toast message saying "Failed Login Attempts" and disable the SIGN IN button. Use Bundle to transfer information from one activity to another.

Procedure:

1) Firstly Create an Application by Name "signup"

2) Go to xml code of design change the layout to "RelativeLayout"

3) Add TextView component & change the following properties:

• Size: 38dp

• Text: "Sign Up"

• Center-Align

4) Add Email (EditText) component & change the following properties in XML Code:

• Hint: "UserName"

• id: "@+id/ txtusername_su"

5) Add Password (EditText) component & change the following properties in XML Code:

• Hint: "Password"

• id: "@+id/txtpassword_su"

6) Add Button component & change the following properties in XML

• Id: "@+id/btnsignup"

• Text: "Sign Up"

Write JAVA-CODE for Signup

1) Right click on Java folder-> new-> activity-> empty activity-> name it as "signin"

2) Go to xml code of design change the layout to "RelativeLayout"

3) Add TextView component & change the following properties:

• Size: 38dp

• Text: "Login Activity"

• Center-Align

4) Add Email (EditText) component & change the following properties in XML Code:

 • Hint: "UserName"

• id: "@+id/txtusername_si"

5) Add Password (EditText) component & change the following properties in XML Code:

• Hint: "Password"

• id: "@+id/txtpassword_si"

6) Add Button component & change the following properties in XML

• Id: "@+id/btnsignin"

• Text: "Sign In"

Write JAVA-CODE for signin

SIGN UP XML code:

```
<?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:id="@+id/txtpassword_su"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">


    <TextView
```

```
android:layout_width="276dp"

android:layout_height="66dp"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="71dp"

android:layout_marginBottom="595dp"

android:text="Signup Activity"

android:textAlignment="center"

android:textColor="#EC0554"

android:textSize="38dp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />


<EditText

android:id="@+id/txtusername_su"

android:layout_width="293dp"

android:layout_height="77dp"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="51dp"

android:layout_marginBottom="434dp"
```

```
    android:ems="10"

    android:hint="username"

    android:inputType="textEmailAddress" />

<Button

    android:id="@+id/btnsignup"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="166dp"

    android:layout_marginBottom="215dp"

    android:text="Signup" />


<EditText

    android:id="@+id/txtpassword"

    android:layout_width="291dp"

    android:layout_height="66dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="51dp"

    android:layout_marginBottom="318dp"

    android:ems="10"

    android:hint="password"
```

android:inputType="textPassword" />

</RelativeLayout>

SIGN UP Java code:

package com.gtappdevekopers.signup;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import java.util.regex.Matcher;

import java.util.regex.Pattern;

public class MainActivity extends AppCompatActivity {

    EditText username,password;

    Button signUpBtn;

    String regularExpr="^(?=.*[A-Z])(?=.*[a-z])(?=.*\\d)(?=.*[@$!])[A-Za-z\\d @$!]{8,}$";

    @SuppressLint("MissingInflatedId")

    @Override

    protected void onCreate(Bundle savedInstanceState)

    { super.onCreate(savedInstanceState);

```java
setContentView(R.layout.activity_main);

username = findViewById(R.id.txtusername_su);

password = findViewById(R.id.txtpassword);

signUpBtn = findViewById(R.id.btnsignup);

signUpBtn.setOnClickListener(new View.OnClickListener(){

 @Override

public void onClick(View v){

 String uname = username.getText().toString();

   String pwd = password.getText().toString();

   if(validatePassword(pwd)){

    Bundle bundle = new Bundle();

      bundle.putString("username_B",uname);

      bundle.putString("password_B",pwd);

      Intent intent = new Intent(MainActivity.this,signin.class);

      intent.putExtras(bundle); startActivity(intent);

    } else{ Toast.makeText(MainActivity.this, "Invalid Password",
Toast.LENGTH_SHORT).show();

    }

  }

  });

 } public boolean validatePassword(String pwd){ Pattern pattern =
Pattern.compile(regularExpr);

   Matcher matcher = pattern.matcher(pwd); return matcher.matches();
```

```
    }

}
```

SIGN IN XML code:

```
<?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:id="@+id/txtpassword_su"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".signin">


    <TextView

        android:layout_width="276dp"

        android:layout_height="66dp"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="71dp"

        android:layout_marginBottom="595dp"

        android:text="Login Activity"

        android:textAlignment="center"

        android:textColor="#EC0554"
```

```
android:textSize="38dp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />


<EditText

android:id="@+id/txtusername_si"

android:layout_width="293dp"

android:layout_height="77dp"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="51dp"

android:layout_marginBottom="434dp"

android:ems="10"

android:hint="username"

android:inputType="textEmailAddress" />


<Button

android:id="@+id/btnsignin"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_alignParentEnd="true"
```

```
android:layout_alignParentBottom="true"

android:layout_marginEnd="166dp"

android:layout_marginBottom="215dp"

android:text="Signin" />


    <EditText

    android:id="@+id/txtpassword_si"

    android:layout_width="291dp"

    android:layout_height="66dp"

    android:layout_alignParentEnd="true"

    android:layout_alignParentBottom="true"

    android:layout_marginEnd="51dp"

    android:layout_marginBottom="318dp"

    android:ems="10"

    android:hint="password"

    android:inputType="textPassword" />


</RelativeLayout>
```

SIGN IN Java code:

```
package com.gtappdevekopers.signup;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
```

```java
import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class signin extends AppCompatActivity {

    EditText username,password;

    Button signInBtn;

    int count=0;

    @Override

    protected void onCreate(Bundle savedInstanceState)

    {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_signin);

        username = findViewById(R.id.txtusername_si);

        password = findViewById(R.id.txtpassword_si);

        signInBtn = findViewById(R.id.btnsignin);

        Bundle bundle = getIntent().getExtras();

        String uname = bundle.getString("username_B");

        String pwd = bundle.getString("password_B");

        signInBtn.setOnClickListener(new View.OnClickListener(){

         @Override

        public void onClick(View v){

            String user = username.getText().toString();
```

```
String pass = password.getText().toString();

if(user.equals(uname) && pass.equals(pwd)){

    Toast.makeText(signin.this, "Success", Toast.LENGTH_SHORT).show();

} else

{ count++;

    if (count >= 3)

    { signInBtn.setEnabled(false); }

    else {

        Toast.makeText(signin.this, "Failed", Toast.LENGTH_SHORT).show();

    }

}

});

}

}
```
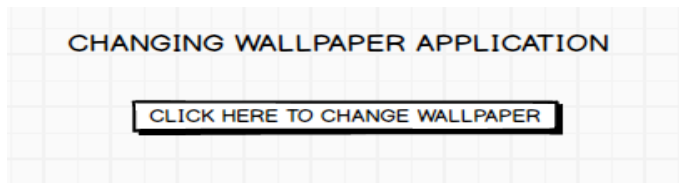
Output:

Experiment No:4

WALLPAPER CHANGER

Develop an application to set an image as wallpaper. On click of a button, the wallpaper image should start to change randomly every 30 seconds.

CHANGING WALLPAPER APPLICATION

CLICK HERE TO CHANGE WALLPAPER

Procedure:

1)Firstly create an Application by name "WallpaperChange"

2)Go to xml code of design change the layout "RelativeLayout"

3)Add TextView component & change the following properties:

- Size:38dp
- Text: Wallpaper Change Application
- Center-Align

4)Add Button component & change the following properties:

- Size:38dp
- Text: Click Here To Change Wallpaper

5)Save five images (jpg format) in the drawable folder. In this one.jpg, two.jpg, three.jpg, four.jpg, five.jpg images are saved in drawable folder.

XML code:

```
<?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"

android:textAlignment="center"

tools:context=".MainActivity">


<TextView

    android:id="@+id/textView"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Changing Wallpaper Application"

    android:textAlignment="center"

    android:textAllCaps="true"

    android:textColor="#4151AE"

    android:textSize="24sp"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.497"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent"

    app:layout_constraintVertical_bias="0.075" />

<Button

    android:id="@+id/btn_wall"
```

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Click Here"

android:textAlignment="center"

android:textAllCaps="false"

android:textColor="#E91E63"

android:textSize="20sp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="0.383" />

</androidx.constraintlayout.widget.ConstraintLayout>

JAVA code:

package com.gtappdevekopers.wallpaper;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.app.WallpaperManager;

import android.graphics.Bitmap;

import android.graphics.drawable.BitmapDrawable;

import android.graphics.drawable.Drawable;

```java
import android.os.Bundle;

import android.view.View;

import android.widget.Button

import java.io.IOException;

import java.util.Timer;

import java.util.TimerTask;

public class MainActivity extends AppCompatActivity

{

    Button changewallpaper;

    //boolean running

    Timer mytimer;

    Drawable drawable;

    WallpaperManager wpm;

    int prev=1;

    @Override

    protected void onCreate(Bundle savedInstanceState)

    { super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        mytimer = new Timer();

        wpm = WallpaperManager.getInstance(this);

        changewallpaper = findViewById(R.id.btn_wall);

        changewallpaper.setOnClickListener(new View.OnClickListener(){

            @Override
```

```java
    public void onClick(View view) {

        setWallpaper();

    }

  });

}

private void setWallpaper() {

  mytimer.schedule(new TimerTask() {

    @SuppressLint("UseCompatLoadingForDrawables")

    @Override

    public void run() {

      if(prev==1) {

        drawable = getResources().getDrawable(R.drawable.img1);

        prev = 2;

      }

      else if(prev==2) {

        drawable = getResources().getDrawable(R.drawable.img2);

        prev=3;

      }

      else if(prev==3) {

        drawable = getResources().getDrawable(R.drawable.img3);

        prev=4;

      }

      else if(prev==4) {
```

```
            drawable = getResources().getDrawable(R.drawable.img4); prev=5;

        }

        else if(prev==5) {

            drawable = getResources().getDrawable(R.drawable.img5);

            prev=1;

        }

        Bitmap wallpaper = ((BitmapDrawable)drawable).getBitmap();

        try {

            wpm.setBitmap(wallpaper);

        } catch (IOException e) { e.printStackTrace();

        }

    },0,30000);

}

}
```
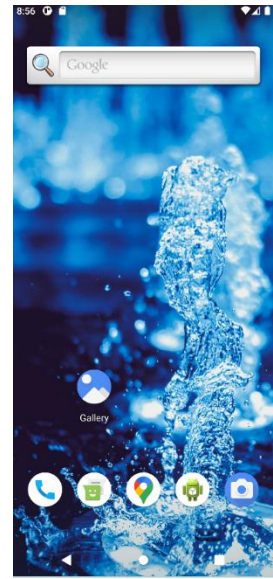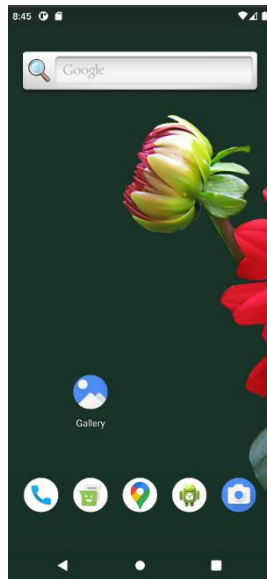
Output:

Experiment No:5

COUNTER APPLICATION

Write a program to create an activity with two buttons START and STOP. On pressing of the START button, the activity must start the counter by displaying the numbers from One and the counter must keep on counting until the STOP button is pressed. Display the counter value in a TextView control.

Procedure:

1)Firstly Create an Application by Name "counter"

2)Go to xml code of design change the layout to "Relative Layout"

3)Add TextView component & change the following properties:

•Size:38dp

•Text: "Counter Application"

•Center-Align

4)Add TextView component & change the following properties:

•Text: "Counter Value"

5)Add Button components & change the following properties:

•Size:38dp

•Text: Start

•id:"@+id/btn_start"

6)Add Button components & change the following properties:

•Size:38dp

•Text: Stop

XML code:

```
<?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/text1"

        android:layout_width="390dp"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"
```

```
android:layout_marginEnd="11dp"

android:layout_marginBottom="613dp"

android:text="Counter Application"

android:textAlignment="center"

android:textColor="#1263DD"

android:textSize="38dp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />


<TextView

android:id="@+id/text21"

android:layout_width="305dp"

android:layout_height="60dp"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="72dp"

android:layout_marginBottom="537dp"

android:text="Counter value"

android:textAlignment="center"

android:textSize="34sp" />
```

```xml
    <Button

        android:id="@+id/btn1start"

        android:layout_width="119dp"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="152dp"

        android:layout_marginBottom="314dp"

        android:text="Start" />


    <Button

        android:id="@+id/btn2stop"

        android:layout_width="126dp"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="146dp"

        android:layout_marginBottom="203dp"

        android:text="Stop" />


</RelativeLayout>
```

JAVA code:

```java
package com.gtappdevekopers.counterapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.os.Handler;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    Button btnstart, btnstop;

    TextView txtcounter; int i=1;

    Handler customHandler=new Handler(); @Override

    protected void onCreate(Bundle savedInstanceState){

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        btnstart=findViewById(R.id.btn1start);

        btnstop=findViewById(R.id.btn2stop);

        txtcounter=findViewById(R.id.text21);

        btnstart.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                customHandler.postDelayed(updateTimerThread,0);

            }

        });
```
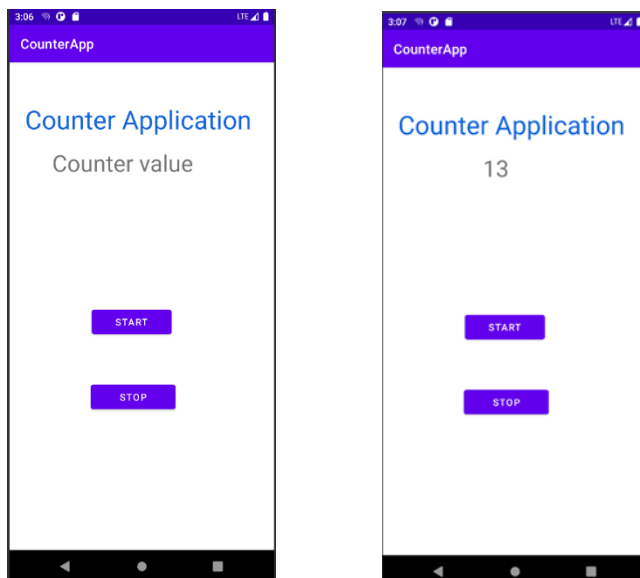
```
btnstop.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v){

    customHandler.removeCallbacks(updateTimerThread);

}

});

}

private final Runnable updateTimerThread=new Runnable() { @Override

public void run() {

    txtcounter.setText(""+i);

    customHandler.postDelayed(this,1000);

    i++;

}

};}
```
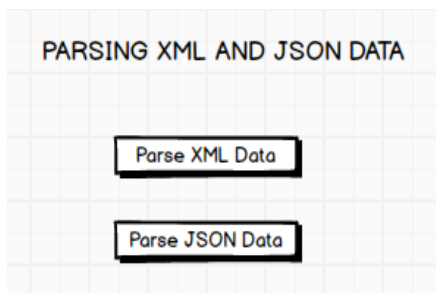
Output:

Experiment No:6

PARSING JSON AND XML

Create two files of XML and JSON type with values for City_Name, Latitude, Longitude, Temperature, and Humidity. Develop an application to create an activity with two buttons to parse the XML and JSON files which when clicked should display the data in their respective layouts side by side.

Procedure:

1) Firstly Create an Application by Name "JsonParser"

2) Go to xml code of design change the layout to "RelativeLayout"

3) Add TextView component & change the following properties:

• Id: textview

• Text: "PARSING XML AND JSON"

• Align: Center

• Center-Align

4) Add Two Buttons to Design & change the name "btn_xml" & "btn_json" with

following onclick functions:

• id: btnXml

• text="PARSING XML Data"

• id: btnJson

• text="Parse JSON Data"

• Center-Align

5) Add TextView component & change the following properties:

• Size: 38dp

• Id: txtXml and txtJson

Hint=" XML "

Hint=" JSON"

• Center-Align

6) Add Assets folder by following the given hierarchy:

App->new->folder->Assests folder

• Create a.xml file inside assets folder and paste the below Xml Data

• Create a.json file inside assets folder and paste the below Json Data

7) Inside the assets folder create new files of xml and json using the following

hierarchy:

new->file->a.xml

9) Add Listeners to Button Click Event:

• Create a class which implements OnClickListener interface.

• Override onClick() method of OnClickListener Interface.

• Register the button for click event by calling setOnClickListener() method of View class

and pass the object of the class that implemented OnClickListener Interface.

XML Code:

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

```xml
<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/txtJson"

        android:layout_width="134dp"

        android:layout_height="333dp"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="47dp"

        android:layout_marginBottom="37dp"

        android:hint="JSON"

        android:text="JSON"

        android:textAlignment="center" />


    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"
```

android:layout_alignParentBottom="true"

android:layout_marginEnd="82dp"

android:layout_marginBottom="561dp"

android:text="PARSING XML AND JSON"

android:textAlignment="center"

android:textSize="24sp"

app:layout_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />

<Button

android:id="@+id/btnXml"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="218dp"

android:layout_marginBottom="407dp"

android:text="Parsing XML Data"

android:textAlignment="center" />

<Button

```
android:id="@+id/btnJson"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="28dp"

android:layout_marginBottom="408dp"

android:text="Parse JSON Data"

android:textAlignment="center" />

<TextView

android:id="@+id/txtXml"

android:layout_width="134dp"

android:layout_height="333dp"

android:layout_alignParentEnd="true"

android:layout_alignParentBottom="true"

android:layout_marginEnd="254dp"

android:layout_marginBottom="36dp"

android:hint="XML"

android:text="XML"

android:textAlignment="center" />


</RelativeLayout>
```

JAVA Code:

```java
package com.gtappdevekopers.jsonparser;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

import android.widget.Toast;

import org.json.JSONArray;

import org.json.JSONObject;

import org.w3c.dom.Document;

import org.w3c.dom.Element;

import org.w3c.dom.Node;

import org.w3c.dom.NodeList;

import java.io.InputStream;

import java.nio.charset.StandardCharsets;

import javax.xml.parsers.DocumentBuilder;

import javax.xml.parsers.DocumentBuilderFactory;

public class MainActivity extends AppCompatActivity {

    Button b_xml,b_json;

    TextView displayX,displayJ;

    @SuppressLint("MissingInflatedId")
```

```java
@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    b_xml=findViewById(R.id.btnXml);

    b_json=findViewById(R.id.btnJson);

    displayX=findViewById(R.id.txtXml);

    displayJ=findViewById(R.id.txtJson);

    b_xml.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View view) {

            try{

                InputStream is = getAssets().open("a.xml");

                DocumentBuilderFactory dbf=DocumentBuilderFactory.newInstance();

                DocumentBuilder db = dbf.newDocumentBuilder();

                Document d =db.parse(is);

                StringBuilder s = new StringBuilder();

                s.append("XML Data");

                s.append("\n-------------");

                NodeList nodelist=d.getElementsByTagName("location");

                for(int i=0;i< nodelist.getLength();i++){

                    Node node= nodelist.item(i);

                    if(node.getNodeType()==Node.ELEMENT_NODE)
```

```java
            {

                Element element=(Element) node;

                s.append("\nPlace:").append(getValue("place",element));

                s.append("\nLatitude:").append(getValue("latitude",element));

                s.append("\nLongitude:").append(getValue("longitude",element));

                s.append("\nTemperature:").append(getValue("temperature",element));

                s.append("\nHumidity:").append(getValue("humidity",element));

                s.append("\n------------");

            }

        }

        displayX.setText(s.toString());

    }catch(Exception e){

        e.printStackTrace();

        Toast.makeText(MainActivity.this,"Error Parsing XML",Toast.LENGTH_SHORT).show();

    }

}

});

b_json.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View view) {

        String json;

        StringBuilder jsontxt = new StringBuilder();
```

```
        String str=null;

        try{

            InputStream is = getAssets().open("a.json");

            int size = is.available();

            byte[] buffer = new byte[size];

            is.read(buffer);

            json = new String(buffer, StandardCharsets.UTF_8);

            JSONArray jsonArray = new JSONArray(json);

            jsontxt.append("JSON DATA");

            jsontxt.append("\n-------------");

            for(int i=0;i< jsonArray.length();i++){

                JSONObject jsonObject = jsonArray.getJSONObject(i);

                jsontxt.append("\nPlace:").append(jsonObject.getString("place"));

                jsontxt.append("\nLatitude:").append(jsonObject.getString("latitude"));

                jsontxt.append("\nLongitude:").append(jsonObject.getString("longitude"));


jsontxt.append("\nTemperature:").append(jsonObject.getString("temperature"));

                jsontxt.append("\nHumidity:").append(jsonObject.getString("humidity"));

                jsontxt.append("\n---------------");

            }

            displayJ.setText(jsontxt.toString());

        is.close();

        }
```

```
        catch(Exception e){

            e.printStackTrace();

            Toast.makeText(MainActivity.this, "Error in reading",
Toast.LENGTH_LONG).show();

            }

        }

    });

  }

  private String getValue(String tag,Element element){

    return
element.getElementsByTagName(tag).item(0).getChildNodes().item(0).getNodeValue();

  }

}
```

a.xml:

```
<records>

  <location>

    <place>Mangalore</place>

    <longitude>30</longitude>

    <latitude>25</latitude>

    <temperature>26</temperature>

    <humidity>15</humidity>

  </location>
```

```xml
    <location>

        <place>Bangalore</place>

        <longitude>40</longitude>

        <latitude>35</latitude>

        <temperature>36</temperature>

        <humidity>25</humidity>

    </location>

</records>
```

a.json:

```json
[

{

    "place": "Mangalore",

    "longitude": 30,

    "latitude": 25,

    "temperature": 26,

    "humidity": 15

},

{

    "place": "Bangalore",

    "longitude": 40,

    "latitude": 35,

    "temperature": 36,

    "humidity": 25
```
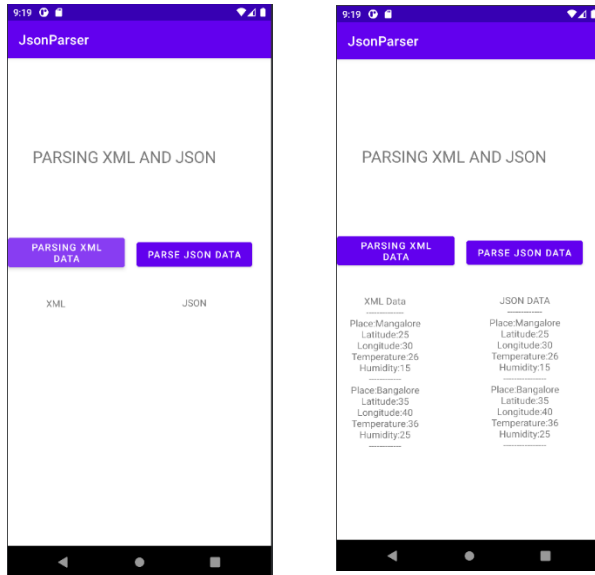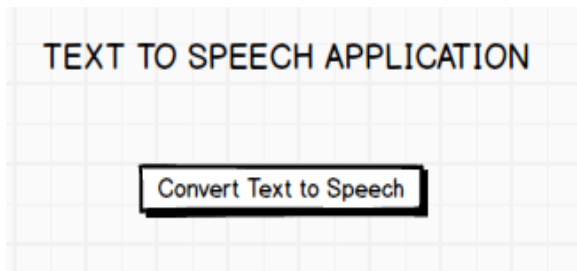
```
  }

]
```

Output:

Experiment No:7

TEXT TO SPEECH

Develop a simple application with one EditText so that the user can write some text in it. Create a button called "Convert Text to Speech" that converts the user input text into voice.

Procedure:

1) Firstly Create an Application by Name "TextToSpeech"

2) Go to xml code of design change the layout to "RelativeLayout"

3) Add TextView component & change the following properties:

Size: 38dp

Text: Text2Speech App

Center-Align

4) Add PlainText (EditText) component & change the following properties in XML

Code:

• Text: """

• Hint: "Enter the text to be converted"

• id: "editText"

5) Add Button component & change the following properties in XML Code:

• Name: Convert Text to Speech

• Id: button

XML code:

```
<?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:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="76dp"

        android:layout_marginBottom="597dp"

        android:text="Text2Speech App"

        android:textAlignment="center"

        android:textColor="#ED0252"

        android:textSize="34sp"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"
```

```xml
        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />


    <EditText

        android:id="@+id/editText"

        android:layout_width="228dp"

        android:layout_height="68dp"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="83dp"

        android:layout_marginBottom="458dp"

        android:ems="10"

        android:hint="Enter the text to be converted"

        android:inputType="textPersonName" />


    <Button

        android:id="@+id/button"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignParentEnd="true"

        android:layout_alignParentBottom="true"

        android:layout_marginEnd="161dp"

        android:layout_marginBottom="269dp"
```

android:onClick="convert"

android:text="Covert " />

</RelativeLayout>

JAVA Code:

```java
package com.gtappdevekopers.texttospeech;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.speech.tts.TextToSpeech;

import android.view.View;

import android.widget.EditText;

import java.util.Locale;

public class MainActivity extends AppCompatActivity {

    TextToSpeech t1;

    EditText e1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        e1=findViewById(R.id.editText);

        t1=new TextToSpeech(getApplicationContext(),new TextToSpeech.OnInitListener(){

            @Override
```
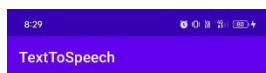
```
    public void onInit(int status){

        if(status!=TextToSpeech.ERROR){

            t1.setLanguage(Locale.UK);

        }

      }

    });

  }

  public void convert(View view){

    String tospeak=e1.getText().toString();

    t1.speak(tospeak,TextToSpeech.QUEUE_FLUSH,null);

  }

}
```
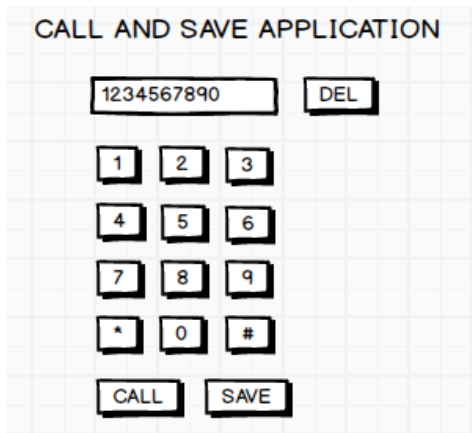
Output:

Experiment No:8

CALL AND SAVE

Create an activity like a phone dialler with CALL and SAVE buttons. On pressing the CALL button, it must call the phone number and on pressing the SAVE button it must save the number to the phone contacts.

Procedure:

1) Firstly Create an Application by Name "callnsaveapp"

2) Constraint layout

3) Add PlainText (EditText) component & change the following properties in XML

Code:

• Text: " "

• Hint: "Copied Text"

• id: "txtResult"

4) Add three buttons to the design & change the text of the Buttons to "Clear", "Call",

"Save" and change the id as follows:

• id: "btnClear"

• id: "btnCall"

• id: "btnSave"

5) Add twelve buttons to the design & change the text of the Buttons as

1,2,3,4,5,6,7,8,9,0,*,#

6) Add Listeners to Button Click Event:

• Create a class which implements OnClickListener interface.

• Override onClick() method of OnClickListener Interface.

• Register the button for click event by calling setOnClickListener() method of View class

and pass the object of the class that implemented OnClickListener Interface.

7) Declare uses permission android.permission.CALL_PHONE in the manifest file.

8) Use ACTION_CALL intent name and pass the "tel:<phone-number> as URI in intent data

and start the call activity.

9) Use ACTION_DIAL intent name and Opens dialer or phone application

10) Use intent name and pass the "Telephone Number" and "unknown" as name as intent

data call Contacts Save Activity.

11) ACTION_INSERT :To insert a new contact, specify Contracts.CONTENT_TYPE as the

type and include any known contact information in extras specified by constants in

ContactsContract.Intents.Insert

XML Code:

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

```xml
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">


<Button

    android:id="@+id/btnCall"

    android:layout_width="95dp"

    android:layout_height="54dp"

    android:layout_marginStart="44dp"

    android:text="Call"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/btnStar"

    app:layout_constraintVertical_bias="0.215" />


<Button

    android:id="@+id/btnRemove"

    android:layout_width="85dp"

    android:layout_height="53dp"

    android:layout_marginEnd="28dp"

    android:text="X"
```

```
        app:layout_constraintBottom_toBottomOf="@+id/btnSave"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.333"

        app:layout_constraintStart_toEndOf="@+id/btnSave"

        app:layout_constraintTop_toTopOf="@+id/btnSave"

        app:layout_constraintVertical_bias="0.0" />


    <Button

        android:id="@+id/btnSave"

        android:layout_width="92dp"

        android:layout_height="55dp"

        android:layout_marginStart="4dp"

        android:text="Save"

        app:layout_constraintBottom_toBottomOf="@+id/btnCall"

        app:layout_constraintStart_toEndOf="@+id/btnCall"

        app:layout_constraintTop_toTopOf="@+id/btnCall"

        app:layout_constraintVertical_bias="1.0" />


    <EditText

        android:id="@+id/txtResult"

        android:layout_width="278dp"

        android:layout_height="61dp"

        android:layout_marginTop="48dp"
```

```
    android:ems="10"

    android:hint="Copied Text"

    android:inputType="textPersonName"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent" />


<Button

    android:id="@+id/btnOne"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="40dp"

    android:layout_marginTop="128dp"

    android:text="1"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/txtResult" />


<Button

    android:id="@+id/btnTwo"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="12dp"

    android:text="2"
```

```
app:layout_constraintBottom_toBottomOf="@+id/btnOne"

app:layout_constraintStart_toEndOf="@+id/btnOne"

app:layout_constraintTop_toTopOf="@+id/btnOne"

app:layout_constraintVertical_bias="0.0" />


<Button

    android:id="@+id/btnThree"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="28dp"

    android:text="3"

    app:layout_constraintBottom_toBottomOf="@+id/btnTwo"

    app:layout_constraintStart_toEndOf="@+id/btnTwo"

    app:layout_constraintTop_toTopOf="@+id/btnTwo"

    app:layout_constraintVertical_bias="0.0" />


<Button

    android:id="@+id/btnFour"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="40dp"

    android:layout_marginTop="32dp"

    android:text="4"
```

```
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/btnOne" />


<Button

    android:id="@+id/btnFive"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="16dp"

    android:text="5"

    app:layout_constraintBottom_toBottomOf="@+id/btnFour"

    app:layout_constraintStart_toEndOf="@+id/btnFour"

    app:layout_constraintTop_toTopOf="@+id/btnFour"

    app:layout_constraintVertical_bias="0.0" />


<Button

    android:id="@+id/btnSix"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="24dp"

    android:text="6"

    app:layout_constraintBottom_toBottomOf="@+id/btnFive"

    app:layout_constraintStart_toEndOf="@+id/btnFive"

    app:layout_constraintTop_toTopOf="@+id/btnFive"
```

app:layout_constraintVertical_bias="0.0" />

```xml
<Button

    android:id="@+id/btnSeven"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="40dp"

    android:layout_marginTop="24dp"

    android:text="7"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/btnFour" />


<Button

    android:id="@+id/btnEight"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="12dp"

    android:text="8"

    app:layout_constraintBottom_toBottomOf="@+id/btnSeven"

    app:layout_constraintStart_toEndOf="@+id/btnSeven"

    app:layout_constraintTop_toTopOf="@+id/btnSeven"

    app:layout_constraintVertical_bias="0.0" />
```

```xml
<Button

    android:id="@+id/btnNine"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="28dp"

    android:text="9"

    app:layout_constraintBottom_toBottomOf="@+id/btnEight"

    app:layout_constraintStart_toEndOf="@+id/btnEight"

    app:layout_constraintTop_toTopOf="@+id/btnEight"

    app:layout_constraintVertical_bias="0.0" />


<Button

    android:id="@+id/btnZero"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginStart="12dp"

    android:text="0"

    app:layout_constraintBottom_toBottomOf="@+id/btnStar"

    app:layout_constraintStart_toEndOf="@+id/btnStar"

    app:layout_constraintTop_toTopOf="@+id/btnStar"

    app:layout_constraintVertical_bias="0.0" />


<Button
```

```
        android:id="@+id/btnHash"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="28dp"

        android:text="#"

        app:layout_constraintBottom_toBottomOf="@+id/btnZero"

        app:layout_constraintStart_toEndOf="@+id/btnZero"

        app:layout_constraintTop_toTopOf="@+id/btnZero"

        app:layout_constraintVertical_bias="0.0" />

    <Button

        android:id="@+id/btnStar"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_marginStart="40dp"

        android:layout_marginTop="16dp"

        android:text="*"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/btnSeven" />


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

JAVA Code:

package com.gtappdevekopers.callnsaveapp;

```java
import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.content.Intent;

import android.net.Uri;

import android.os.Bundle;

import android.provider.ContactsContract;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    EditText tres;

    Button b1,b2, b3,b4, b5,b6, b7,b8, b9,b0;

    Button btnCall,btnSave,btnStar,btnHash,btnRemove;

    @SuppressLint("MissingInflatedId")

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        b0 = findViewById(R.id.btnZero);

        b0.setOnClickListener(this);

        b1 = findViewById(R.id.btnOne);

        b1.setOnClickListener(this);

        b2 = findViewById(R.id.btnTwo);
```

```
b2.setOnClickListener(this);

b3 = findViewById(R.id.btnThree);

b3.setOnClickListener(this);

b4 = findViewById(R.id.btnFour);

b4.setOnClickListener(this);

b5 = findViewById(R.id.btnFive);

b5.setOnClickListener(this);

b6 = findViewById(R.id.btnSix);

b6.setOnClickListener(this);

b7 = findViewById(R.id.btnSeven);

b7.setOnClickListener(this);

b8 = findViewById(R.id.btnEight);

b8.setOnClickListener(this);

b9 = findViewById(R.id.btnNine);

b9.setOnClickListener(this);

btnCall = findViewById(R.id.btnCall);

btnCall.setOnClickListener(this);

btnSave = findViewById(R.id.btnSave);

btnSave.setOnClickListener(this);

btnRemove = findViewById(R.id.btnRemove);

btnRemove.setOnClickListener(this);

btnStar = findViewById(R.id.btnStar);

btnStar.setOnClickListener(this);
```

```
btnHash = findViewById(R.id.btnHash);

btnHash.setOnClickListener(this);

tres = findViewById(R.id.txtResult);

tres.setOnClickListener(this);

}

@Override

public void onClick(View v) {

    String data = tres.getText().toString();

    if(v.equals(b0)) tres.append("0");

    if(v.equals(b1)) tres.append("1");

    if(v.equals(b2)) tres.append("2");

    if(v.equals(b3)) tres.append("3");

    if(v.equals(b4)) tres.append("4");

    if(v.equals(b5)) tres.append("5");

    if(v.equals(b6)) tres.append("6");

    if(v.equals(b7)) tres.append("7");

    if(v.equals(b8)) tres.append("8");

    if(v.equals(b9)) tres.append("9");

    if(v.equals(btnStar)) tres.append("*");

    if(v.equals(btnHash)) tres.append("#");

    if(v.equals(btnSave)){save(data);}

    if(v.equals(btnCall)){ call(data);}

    if(v.equals(btnRemove)){remove(data);}
```

```java
    }

    private void save(String data) {

        Intent intent = new

            Intent(ContactsContract.Intents.Insert.ACTION);

        intent.setType(ContactsContract.RawContacts.CONTENT_TYPE);

        intent.putExtra(ContactsContract.Intents.Insert.NAME,"Unknown");

        intent.putExtra(ContactsContract.Intents.Insert.PHONE,data);

        startActivity(intent);

    }

    private void remove(String data) {

        if (data.length() > 0) {

            String val = data.substring(0, data.length() - 1);

            tres.setText(val);

        } else {

            tres.setText("");

        }

    }

    private void call(String data) {

        Intent intent = new Intent(Intent.ACTION_DIAL);

        intent.setData(Uri.parse("tel:"+data));

        startActivity(intent);

    }

}
```

Output: