

Program-1: Create an application to design a Visiting Card. The Visiting card should have a company logo at the top right corner. The company nameshould be displayed in Capital letters, aligned to the center. Information likethe 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.

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/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="17dp"
        android:layout_marginLeft="17dp"
        android:layout_marginTop="17dp"
        android:layout_marginEnd="244dp"
        android:layout_marginRight="244dp"
        android:layout_marginBottom="486dp"
        android:text="VVCE" android:textSize="38dp" />

    <ImageView android:id="@+id/imageView"
        android:layout_width="231dp"
        android:layout_height="174dp"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="-14dp"
        android:layout_marginRight="-14dp"
        android:layout_marginBottom="481dp"
        app:srcCompat="@drawable/logo" />

    <View
        android:id="@+id/view" android:layout_width="wrap_content"
        android:layout_height="4dp"
        android:layout_alignParentBottom="true"
        android:background="#4444"
        android:layout_marginBottom="466dp" />
```

```
<TextView android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="117dp"
    android:layout_marginRight="117dp"
    android:layout_marginBottom="394dp"
    android:text="Nithin Kumar"
    android:textSize="30dp" android:textStyle="bold" />
```

```
<TextView android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="64dp"
    android:layout_marginRight="64dp"
    android:layout_marginBottom="343dp"
    android:text="Assistant Professor-CSE"
    android:textSize="25dp" />
```

```
<TextView
```

```
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="127dp"
    android:layout_marginRight="127dp"
    android:layout_marginBottom="294dp"
    android:text="Ph No: 8050462225"
    android:textSize="20dp" />
```

```
<TextView android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true" android:layout_alignParentBottom="true"
    android:layout_marginEnd="10dp" android:layout_marginRight="10dp"
    android:layout_marginBottom="229dp"
    android:text="Kannada Sahitya Parishath Road Gokulam 3rd StageMysuru-02"
    android:textSize="20dp" />

<TextView android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="44dp"
    android:layout_marginRight="44dp"
    android:layout_marginBottom="189dp" android:text="Email:
    nithingowda021@vvce.ac.in" android:textSize="20dp" />

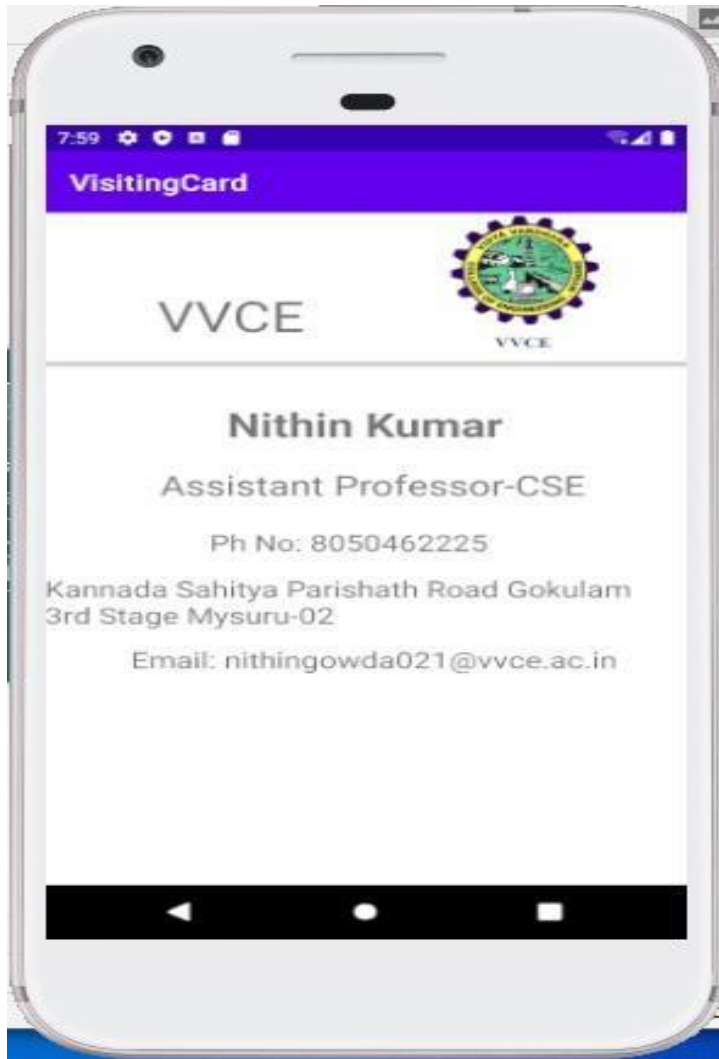
</RelativeLayout>
```

JAVA-CODE(No Change Required)

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

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {protected void
    onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

OUTPUT:

Program-2: Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, Multiplication, and Division.

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="98dp"
        android:layout_marginBottom="653dp"
        android:text="SIMPLE CALCI"
        android:textSize="38dp"
        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintLeft_toLeftOf="parent" app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.042" />
    <EditText android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="115dp"
        android:layout_marginBottom="547dp"
        android:ems="10"
        android:hint="Enter the First Number"
        android:inputType="textPersonName"
        android:text="" />

    <EditText

        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="111dp"
        android:layout_marginBottom="455dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter the Second Number"
        android:text="" />
```

```
<TextView android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="203dp"
    android:layout_marginBottom="350dp"
    android:text="0" android:textSize="40dp" />

<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="274dp"
    android:layout_marginBottom="237dp"
    android:onClick="doAdd" android:text="ADD" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="68dp"
    android:layout_marginBottom="233dp"
    android:onClick="doSub"
    android:text="SUB" />

<Button
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="277dp"
    android:layout_marginBottom="115dp"
    android:onClick="doMul" android:text="MUL" />

<Button
    android:id="@+id/button4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="63dp"
    android:layout_marginBottom="104dp"
    android:onClick="doDiv" android:text="DIV" />

</RelativeLayout>
```

JAVA-CODE:

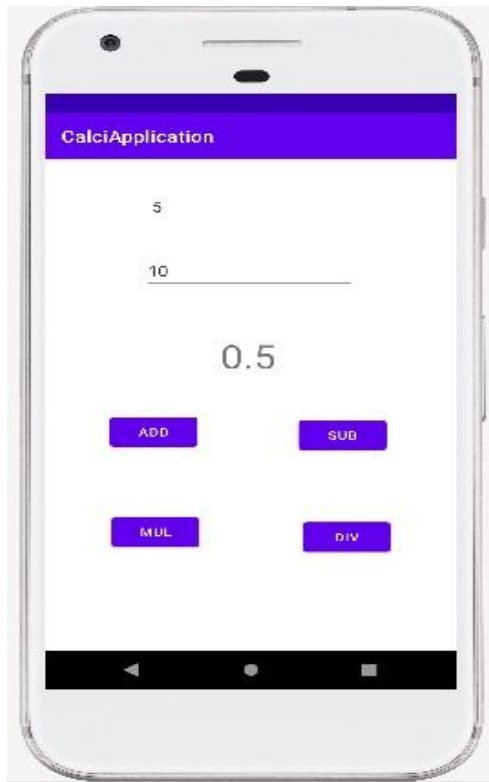
```
import androidx.appcompat.app.AppCompatActivity;import
android.os.Bundle;
import android.view.View; import
android.widget.EditText; import
android.widget.TextView;
public class MainActivity extends AppCompatActivity { EditText e1,e2;
    TextView tv1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 = (EditText)findViewById(R.id.editText1); e2 =
        (EditText)findViewById(R.id.editText2); tv1 =
        (TextView)findViewById(R.id.textView1);
    }

    public void doAdd(View V){
        int a1 = Integer.parseInt(e1.getText().toString()); int a2 =
        Integer.parseInt(e2.getText().toString());int result= a1+a2;
        tv1.setText(""+result);
    }

    public void doSub(View V){
        int a1 = Integer.parseInt(e1.getText().toString()); int a2 =
        Integer.parseInt(e2.getText().toString());int result= a1-a2;
        tv1.setText(""+result);
    }

    public void doMul(View V){
        int a1 = Integer.parseInt(e1.getText().toString()); int a2 =
        Integer.parseInt(e2.getText().toString());int result= a1*a2;
        tv1.setText(""+result);
    }

    public void doDiv(View V){
        int a1 = Integer.parseInt(e1.getText().toString()); int a2 =
        Integer.parseInt(e2.getText().toString());float result= a1/a2;
        tv1.setText(""+result);
    }
}
```

OUTPUT:

Program 3: 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.

activity_signup.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout android="http://schemas.android.com/apk/res/android"
app="http://schemas.android.com/apk/res-auto" tools="http://schemas.android.com/tools"
layout_width="match_parent"
layout_height="match_parent"orientation="vertical"
context=".SignUpActivity">
<TextView layout_width="match_parent"
layout_height="wrap_content"
textSize="48sp" textAlignment="center"
text="Sign Up" />
<EditText id="@+id/emailEditText"
layout_width="match_parent"
layout_height="wrap_content"
xmlns:layout_margin="4dp"
textSize="24sp"
hint="Email ID"
/>
```

```
<EditText id="@+id/passwordEditText"
layout_width="match_parent"
layout_height="wrap_content"
layout_margin="4dp"
layout_marginTop="32dp" textSize="24sp"
inputType="textPassword"
hint="Password"
/>
<Button id="@+id/signUpBtn"
layout_width="match_parent"
layout_height="wrap_content"
layout_margin="4dp" text="Sign Up"
/>
</LinearLayout>
SignUpActivity.java
import .AppCompatActivity;
import .Intent;
import .Bundle;
import .View; import
.Button; import
.EditText;import
.Toast; import
.Pattern;
public class SignUpActivity extends AppCompatActivity {EditText
emailEditText, passwordEditText;
Button signUpBtn;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_signup); emailEditText =
findViewById(R.id.emailEditText);
passwordEditText = findViewById(R.id.passwordEditText); signUpBtn =
findViewById(R.id.signUpBtn); signUpBtn.setOnClickListener(new
View.OnClickListener() { @Override
```

```
public void onClick(View v) {
    String email = emailEditText.getText().toString();
    String password = passwordEditText.getText().toString();if
    (!isValidPassword(password)) {
        Toast.makeText(SignUpActivity.this, "Password doesn't match rules"
        , Toast.LENGTH_SHORT).show();return;

    }
    Intent intent = new Intent(SignUpActivity.this, LoginActivity.class);
    intent.putExtra("email", email);
    intent.putExtra("password", password);
    startActivity(intent);
}
});
}

Pattern lowerCase = Pattern.compile("^[a-z].*$"); Pattern
upperCase = Pattern.compile("^[A-Z].*$");Pattern number =
Pattern.compile("^[0-9].*$");
Pattern specialCharacter = Pattern.compile("^[^a-zA-Z0-9].*$");private Boolean
isValidPassword(String password) {
    // Checks if password length is less than 8if
    (password.length() < 8) {
        return false;
    }
    // Returns false if password doesn't contain a lower case characterif
    (!lowerCase.matcher(password).matches()) {
        return false;
    }
    // Returns false if password doesn't contain an upper case characterif
    (!upperCase.matcher(password).matches()) {
        return false;
    }
    // Returns false if password doesn't contain a numberif
    (!number.matcher(password).matches()) {
        return false;
    }
    // Returns false if password doesn't contain a special characterif
```

```
(!specialCharacter.matcher(password).matches()) {  
    return false;  
}  
return true;  
}  
}
```

activity_login.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout android="http://schemas.android.com/apk/res/android"  
    app="http://schemas.android.com/apk/res-auto" tools="http://schemas.android.com/tools"  
    layout_width="match_parent"  
    android:layout_height="match_parent"  
    orientation="vertical" context=".SignUpActivity">  
    <TextView layout_width="match_parent"  
        layout_height="wrap_content"  
        textSize="48sp" textAlignment="center"  
        text="Login" />  
    <EditText id="@+id/emailEditText"  
        layout_width="match_parent"  
        layout_height="wrap_content"  
        layout_margin="4dp" textSize="24sp"  
        hint="Email ID"  
    />  
    <EditText id="@+id/passwordEditText"  
        layout_width="match_parent"  
        layout_height="wrap_content"  
        layout_margin="4dp"  
        layout_marginTop="32dp" textSize="24sp"  
        inputType="textPassword"  
        hint="Password"  
    />  
    <Button  
        id="@+id/loginBtn"  
        layout_width="match_parent"  
        layout_height="wrap_content"  
        layout_margin="4dp" text="Login"  
    />  
</LinearLayout>
```

LoginActivity.java

```
import .AppCompatActivity;
import .Intent;
import .Bundle;
import .View;
import .Button;
import .EditText;
import .Toast;

public class LoginActivity extends AppCompatActivity {EditText
emailEditText, passwordEditText;
Button loginBtn;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_login); emailEditText =
findViewById(R.id.emailEditText);
passwordEditText = findViewById(R.id.passwordEditText);loginBtn =
findViewById(R.id.loginBtn);
String registeredEmail = getIntent().getStringExtra("email");
String registeredPassword = getIntent().getStringExtra("password");
loginBtn.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
String email = emailEditText.getText().toString();
String password = passwordEditText.getText().toString();
if (registeredEmail.equals(email) && registeredPassword.equals(password)) {
Intent intent = new Intent(LoginActivity.this, LoginSuccessActivity.class);
startActivity(intent);
} else {

Toast.makeText(LoginActivity.this, "Invalid Credentials", Toast.LE
NGTH_SHORT).show();
}
}
});
}
}

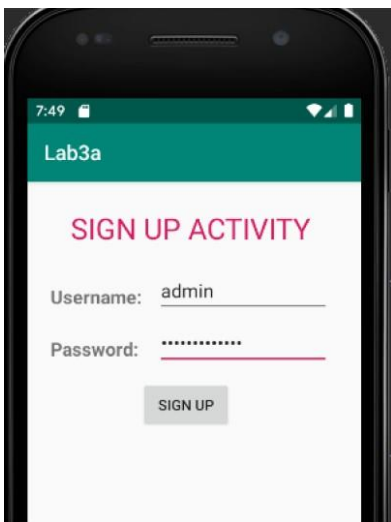
activity_login_success.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout android="http://schemas.android.com/apk/res/android"
app="http://schemas.android.com/apk/res-auto" tools="http://schemas.android.com/tools"
layout_width="match_parent"
layout_height="match_parent" orientation="vertical"
context=".LoginSuccessActivity">
<TextView layout_width="match_parent"
layout_height="wrap_content" text="Login
Successful" textAlignment="center"
textSize="36sp"/>
</LinearLayout>

LoginSuccessActivity.java import
.AppCompatActivity;import
.Bundle;

public class LoginSuccessActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_login_success);
}
}
```

OUT PUT



Program 4: Develop an application to set an image as wallpaper. On click of a button, the wallpaper image should start to change randomly every 30seconds.

First, create the android application as discussed in “Create your First Android Application”. Copy the images and save the images in the draw able folder. Following is the content of the modified res/layout/activity_main.xml.

activity_main.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:layout_width="wrap_content"
android:layout_height="wrap_content"

android:text="CHANGING WALLPAPER APPLICATION"
android:textColor="@color/colorAccent"

android:textStyle="bold" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.496"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.063" />
<Button android:id="@+id/button"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginStart="72dp"

android:layout_marginTop="53dp"

android:layout_marginEnd="35dp"

android:layout_marginBottom="590dp"

android:text="CLICK HERE TO CHANGE WALLPAPER"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.820"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.0" />
```

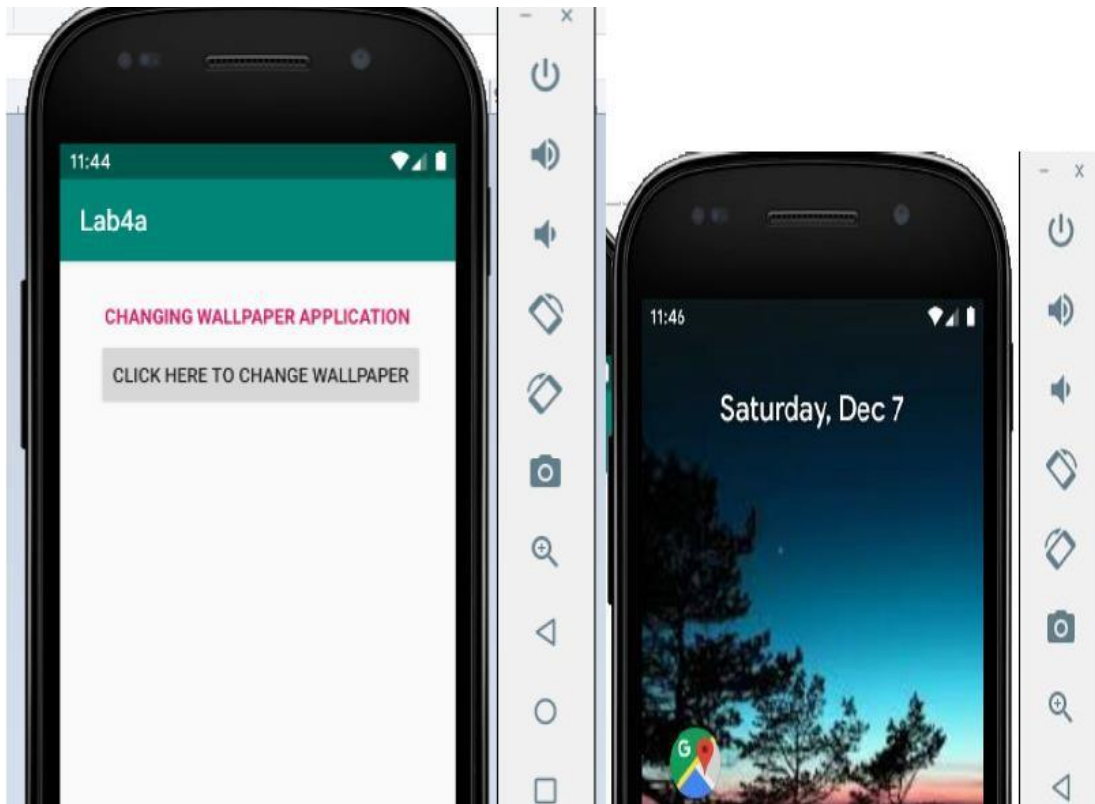
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

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

```
MainActivity.java package com.example.lab4a; import
androidx.appcompat.app.AppCompatActivity;import
android.app.WallpaperManager;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.graphics.drawable.AnimationDrawable;import
android.graphics.drawable.BitmapDrawable; import
android.graphics.drawable.Drawable;
import android.os.Bundle; import
android.view.View; import
android.widget.Button;import
android.widget.Toast; import
java.io.IOException; import
java.util.Timer;
import java.util.TimerTask;
public class MainActivity extends AppCompatActivity { Button
changewallpaper;
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.button);
changewallpaper.setOnClickListener(new View.OnClickListener() {
@Override public void onClick(View view) {
```



```
setWallpaper();
}
});
}
private void setWallpaper() {
mytimer.schedule(new TimerTask() {
@Override
public void run() {
if(prev==1) {
drawable = getResources().getDrawable(R.drawable.one);prev = 2;
}
else if(prev==2) {
drawable = getResources().getDrawable(R.drawable.two);prev=3;
}
else if(prev==3) {
drawable = getResources().getDrawable(R.drawable.three);
prev=4;
}
else if(prev==4) {
drawable = getResources().getDrawable(R.drawable.four);prev=5;
}
else if(prev==5) {
drawable = getResources().getDrawable(R.drawable.five);prev=1;
}
Bitmap wallpaper = ((BitmapDrawable)drawable).getBitmap();try {
wpm.setImageBitmap(wallpaper);
} catch (IOException e) {
e.printStackTrace();
}
},0,30000); } }
```

OUT PUT:

Program 5: 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 Text View control.

activity_main.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:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="COUNTER APPLICATION"
android:textColor="@color/design_default_color_primary_dark" android:textSize="18sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent" app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintLeft_toLeftOf="parent" app:layout_constraintRight_toRightOf="parent"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.071" />

<TextView
Value" app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.071" />

<Button
android:id="@+id/btn_start" android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="152dp"
android:layout_marginTop="129dp"
android:layout_marginEnd="171dp"
android:layout_marginBottom="542dp" android:text="START"
```

```

app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.071"/>
<Button android:id="@+id/btn_stop"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="152dp"
android:layout_marginTop="191dp"
android:layout_marginEnd="171dp"
android:layout_marginBottom="542dp" android:text="STOP"
app:layout_constraintHorizontal_bias="0.498"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.071"/>
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java package

```

com.example.a5a;
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);
txtcounter = findViewById(R.id.textView1);btnstart =
findViewById(R.id.btn_start); btnstop =
findViewById(R.id.btn_stop);
btnstart.setOnClickListener(new View.OnClickListener() {

```

```
@Override
public void onClick(View view) { customHandler.postDelayed(updateTimerThread,0);
}

});

btnstop.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View view) { customHandler.removeCallbacks(updateTimerThread);
}

});

}

private final Runnable updateTimerThread = new Runnable() { @Override
public void run() {
txtcounter.setText(""+i);
customHandler.postDelayed(this,1000);i++;
}

};

}
```

Program 6: Develop an application to demonstrate the use of Asynchronous tasks in android. The asynchronous task should implement the functionality of a simple moving banner. On pressing the Start Task button, the banner message should scroll from right to left. On pressing the Stop Task button, the banner message should stop. Let the banner message be “Demonstration of Asynchronous Task”.

JAVA CODE:

```
import android.os.Bundle;
import android.util.Log; import
android.util.Xml; import
android.view.View; import
android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import org.json.JSONArray; import
org.json.JSONException; 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
org.xml.sax.SAXException;
import org.xmlpull.v1.XmlPullParser;
import org.xmlpull.v1.XmlPullParserException;
import java.io.IOException;
import java.io.InputStream;
import java.nio.charset.StandardCharsets; import
javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory; import
javax.xml.parsers.ParserConfigurationException;
public class MainActivity extends AppCompatActivity
{
    Button parseXmlBtn, parseJsonBtn;
    TextView displayTextView;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
```

```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
parseJsonBtn = findViewById(R.id.parseJsonBtn);
parseXmlBtn = findViewById(R.id.parseXmlBtn);
displayTextView = findViewById(R.id.displayTextView);
parseXmlBtn.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    { try
    {
        InputStream is = getAssets().open("city.xml");
        DocumentBuilderFactory documentBuilderFactory =
        DocumentBuilderFactory.newInstance();
        DocumentBuilder documentBuilder = documentBuilderFactory.newDocumentBuilder();
        Document document = documentBuilder.parse(is);
        StringBuilder stringBuilder = new StringBuilder();
stringBuilder.append("XML Data"); stringBuilder.append("\n    ");
        NodeList nodeList = document.getElementsByTagName("place");for (int i = 0; i <
        nodeList.getLength(); i++)
        {
            Node node = nodeList.item(i);
            if (node.getNodeType() == Node.ELEMENT_NODE)
            {
                Element element = (Element) node;
                stringBuilder.append("\nName: ").append(getValue("name", element));
                stringBuilder.append("\nLatitude: ").append(getValue("lat", element));
                stringBuilder.append("\nLongitude: ").append(getValue("long", element));
                stringBuilder.append("\nTemperature: ").append(getValue("temperature", element));
                stringBuilder.append("\nHumidity: ").append(getValue("humidity", element));
                stringBuilder.append("\n-----");
            }
        }
    }
```

```
        displayTextView.setText(stringBuilder.toString());

    } catch (Exception e) {
        e.printStackTrace();
        Toast.makeText(MainActivity.this, "Error Parsing XML",
Toast.LENGTH_SHORT).show();
    }
}

});

parseJsonBtn.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    { String json;
        StringBuilder stringBuilder = new StringBuilder();try
        {
            InputStream is = getAssets().open("city.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);
            stringBuilder.append("JSON Data");
            stringBuilder.append("\n----- ");
            for (int i = 0; i < jsonArray.length(); i++) {
                JSONObject jsonObject = jsonArray.getJSONObject(i);
                stringBuilder.append("\nName: ").append(jsonObject.getString("name"));
                stringBuilder.append("\nLatitude: ").append(jsonObject.getString("lat"));
                stringBuilder.append("\nLongitude: ").append(jsonObject.getString("long"));
                stringBuilder.append("\nTemperature:").append(jsonObject.getString("temperature
                "));
                stringBuilder.append("\nHumidity: ").append(jsonObject.getString("humidity"));
                stringBuilder.append("\n----- ");
            }
            displayTextView.setText(stringBuilder.toString());
            is.close();
        } catch (IOException | JSONException e) {
```



```

        e.printStackTrace();
        Toast.makeText(MainActivity.this, "Error in parsing JSON data from!",
Toast.LENGTH_SHORT).show();
    }
}
});
}
private String getValue(String tag, Element element) {
    return
element.getElementsByTagName(tag).item(0).getChildNodes().item(0).getNodeValue();
}
}

```

XML-CODE:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="16dp"
        android:text="Parsing XML and JSON Data"
        android:textAlignment="center"
        android:textSize="32sp" />

    <Button android:id="@+id/parseXmlBtn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="16dp"
        android:text="Parse XML" />

    <Button android:id="@+id/parseJsonBtn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="16dp"
        android:text="Parse JSON" />

```

```
<TextView
    android:id="@+id/displayTextView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="16dp"
    android:text=""
    android:textAlignment="center" />

</LinearLayout>
```

Program-7: Develop a simple application with one Edit Text 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.

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/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="59dp"
        android:layout_marginRight="59dp"
        android:layout_marginBottom="649dp"
        android:text="Text2SpeechApp"
        android:textSize="40dp" />

    <EditText android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="101dp"
        android:layout_marginRight="101dp"
        android:layout_marginBottom="514dp"
        android:ems="10"
        android:hint="Enter the text to be converted"
        android:inputType="textPersonName" android:text="" />
```

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="162dp"
    android:onClick="convert"
    android:layout_marginRight="162dp"
    android:layout_marginBottom="329dp"
    android:text="Convert" />
</RelativeLayout>
```

JAVA-CODE:

```
import androidx.appcompat.app.AppCompatActivity;import
android.os.Bundle;

import android.speech.tts.TextToSpeech;import
android.view.View;

import android.widget.EditText;import
android.widget.Toast;

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 = (EditText)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();  
    Toast.makeText(getApplicationContext(),tospeak,Toast.LENGTH_LONG).show();  
    t1.speak(tospeak,TextToSpeech.QUEUE_FLUSH,null);  
}  
}
```

OUTPUT:

Program 8: Create an activity like a phone dialer 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.

JAVA-CODE:

```
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 {
    EditText phoneNumberEditText;
    Button clearBtn, callBtn, saveBtn;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        phoneNumberEditText = findViewById(R.id.phoneNumberEditText);
        clearBtn = findViewById(R.id.clearBtn);
        callBtn = findViewById(R.id.callBtn);
        saveBtn = findViewById(R.id.saveBtn);
        clearBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                phoneNumberEditText.setText("");
            }
        });

        callBtn.setOnClickListener(new View.OnClickListener()
        { @Override
        public void onClick(View v) {
            String phoneNumber = phoneNumberEditText.getText().toString();

            Intent intent = new Intent(Intent.ACTION_DIAL);
            intent.setData(Uri.parse("tel:" + phoneNumber));
            startActivity(intent);
```

```

}

});

saveBtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String phoneNumber = phoneNumberEditText.getText().toString();
        Intent intent = new Intent(Intent.ACTION_INSERT);
        intent.setType(ContactsContract.Contacts.CONTENT_TYPE);
        intent.putExtra(ContactsContract.Intents.Insert.PHONE, phoneNumber);startActivity(intent);}
});
}
public void inputNumber(View v) {
    Button btn = (Button)v;
    String digit = btn.getText().toString();
    String phoneNumber = phoneNumberEditText.getText().toString();
    phoneNumberEditText.setText(phoneNumber + digit);
}
}

```

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"
tools:context=".MainActivity">

<EditText
    android:id="@+id/phoneNumberEditText"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_margin="16dp"
    android:layout_marginTop="24dp"
    android:inputType="phone"

```

```
        android:textSize="24sp"
        app:layout_constraintEnd_toStartOf="@+id/clearBtn"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
<Button
    android:id="@+id/clearBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="16dp"
    android:text="Clear"
    app:layout_constraintBottom_toBottomOf="@+id/phoneNumberEditText"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toEndOf="@+id/phoneNumberEditText"
    app:layout_constraintTop_toTopOf="@+id/phoneNumberEditText" />
<TableLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/phoneNumberEditText">
    <TableRow android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_horizontal">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="8dp"
            android:onClick="inputNumber"
            android:text="7" />
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="8dp"
            android:onClick="inputNumber"
```



```
        android:text="8" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"

        android:text="9" />
</TableRow>
<TableRow android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_horizontal">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="4" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="5" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="6" />
</TableRow>
<TableRow android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_horizontal">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
```

```
        android:onClick="inputNumber"
        android:text="1" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="2" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="3" />
</TableRow>
<TableRow android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_horizontal">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="*" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="0" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:onClick="inputNumber"
        android:text="#" />
</TableRow>
```

```
<TableRow android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_horizontal">
    <Button
        android:id="@+id/callBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:text="Call" />
    <Button
        android:id="@+id/saveBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="8dp"
        android:text="Save" />
</TableRow>
</TableLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Program 9. (PART-B): 5. Create an application to demonstrate a basic media player that allows the user to Forward Backward, Play and Pause an audio. Also, make use of the indicator in the seek bar to move the audio forward or backward as required.

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">
    <SeekBar android:id="@+id/seekBar"
        android:layout_width="255dp"
        android:layout_height="28dp"
        android:layout_alignParentEnd="true" android:layout_alignParentBottom="true"
        android:layout_marginEnd="66dp" android:layout_marginBottom="311dp" />
    <ImageButton android:id="@+id/rewind"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true" android:layout_marginEnd="256dp"
        android:layout_marginBottom="219dp"
        app:srcCompat="@android:drawable/ic_media_rew" />
    <ImageButton android:id="@+id/playButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="168dp"
        android:layout_marginBottom="223dp"
        app:srcCompat="@android:drawable/ic_lock_
        power_off" />
    <ImageButton android:id="@+id/forward"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
```

```
        android:layout_alignParentBottom="true" android:layout_marginEnd="79dp"
        android:layout_marginBottom="220dp"
        app:srcCompat="@android:drawable/ic_media_ff" />
</RelativeLayout>
```

JAVA CODE:

```
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;import
import android.media.MediaPlayer; import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.ImageButton;
import android.widget.SeekBar; import
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
private ImageButton playButton,forward,rewind;privateSeekBar seekbar;
private MediaPlayer mediaPlayer;
private Handler handler = new Handler();
@SuppressLint("ClickableViewAccessibility")
@Override
protected void onCreate(Bundle savedInstanceState)
{
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main); playButton =
    findViewById(R.id.playButton); forward =
    findViewById(R.id.forward);
    rewind = findViewById(R.id.rewind);
    seekbar = findViewById(R.id.seekBar);
    prepareMediaPlayer(); seekbar.setMax(100);
    playButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if(mediaPlayer.isPlaying()){
                handler.removeCallbacks(updater);
                mediaPlayer.pause();
            }else {
                mediaPlayer.start();
```

```
        updateSeekBar();
    }
}
});
forward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { if(mediaPlayer.getDuration()>mediaPlayer.getCurrentPosition() +
10000){
        mediaPlayer.seekTo(mediaPlayer.getCurrentPosition() + 10000);
        updateSeekBar();
    }
}
});
rewind.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { if(mediaPlayer.getCurrentPosition()>10000){
        mediaPlayer.seekTo(mediaPlayer.getCurrentPosition() - 10000); updateSeekBar();
    }
}
});
seekbar.setOnTouchListener((v, event) -> {
    SeekBar s = (SeekBar) v;
    int position = (mediaPlayer.getDuration()/100)*s.getProgress();
    mediaPlayer.seekTo(position);
    return false;
});
mediaPlayer.setOnCompletionListener(new
MediaPlayer.OnCompletionListener() {
    @Override
    public void onCompletion(MediaPlayer mp) {
        seekbar.setProgress(0); mediaPlayer.reset();
        prepareMediaPlayer();
    }
});
private void prepareMediaPlayer () {try {
    mediaPlayer =MediaPlayer.create(this,R.raw.poc);
} catch (Exception e){
    Toast.makeText(this, e.getMessage(), Toast.LENGTH_LONG).show();
}
```

```
    }  
    private Runnable updater = new Runnable() {  
        @Override  
        public void run() {  
            updateSeekBar();  
        }  
    };  
    private void updateSeekBar(){  
        if(mediaPlayer.isPlaying()){  
  
seekbar.setProgress((int)((float)mediaPlayer.getCurrentPosition()/mediaPlayer. getDuration()*100));  
            handler.postDelayed(updater,1000);  
        }  
    }  
}
```

Program 10: (PART-B): 6. Develop an application to demonstrate the use of Asynchronous tasks in android. The asynchronous task should implement the functionality of a simple moving banner. On pressing the Start Task button, the banner message should scroll from right to left. On pressing the Stop Task button, the banner message should stop. Let the banner message be “Demonstration of AsynchronousTask”.

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="123dp"
        android:layout_marginBottom="630dp"
        android:text="Async Task"
        android:textSize="36sp"
        app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent" app:layout_constraintTop_toTopOf="parent" />
    <Button
        android:id="@+id/buttonstart"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="167dp"
        android:layout_marginBottom="441dp"
        android:text="Start" />
    <Button
        android:id="@+id/buttonstop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
```



```
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="169dp"
        android:layout_marginBottom="328dp"
        android:text="Stop" />
<TextView android:id="@+id/marqueeText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="50dp"
    android:layout_marginTop="250dp"
    android:layout_marginEnd="117dp"
    android:layout_marginBottom="207dp"
    android:ellipsize="marquee"
    android:marqueeRepeatLimit="marquee_forever"
    android:scrollHorizontally="true" android:singleLine="true"
    android:text="Demonstration of Asynchronous Task !!!!"
    android:textSize="20sp"
    android:textStyle="bold"
    android:visibility="invisible" />
</RelativeLayout>
```

JAVA-CODE:

```
import androidx.appcompat.app.AppCompatActivity;import
android.os.AsyncTask;
import android.os.Bundle; import
android.view.View; import
android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    TextView marqtxt;
    Button btnstart, btnstop;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        marqtxt = (TextView) findViewById(R.id.marqueeText); btnstart =
```

```
(Button) findViewById(R.id.buttonstart); btnstop = (Button)
findViewById(R.id.buttonstop); btnstart.setOnClickListener(new
View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ExampleAsyncTask task = new ExampleAsyncTask();
        task.execute();
    }
});
btnstop.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        marqtxt.setSelected(false);
        marqtxt.setVisibility(View.INVISIBLE);
    }
});
}

private class ExampleAsyncTask extends AsyncTask<String, String,String>{ @Override
    protected void onPreExecute() {
        super.onPreExecute();
        Toast.makeText(getApplicationContext(),"Async Task
Started!!!!!!!!!!",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected String doInBackground(String... strings) {try {
        Thread.sleep(250);
    }
    catch (InterruptedException e){
        e.printStackTrace();
    }
    return null;
}
    @Override
    protected void onPostExecute(String s) {
        super.onPostExecute(s);
        marqtxt.setVisibility(View.VISIBLE);
        marqtxt.setSelected(true);
    }
}
```

```
}  
}  
}
```

OUTPUT:

Program 11: (PART-B): 7. Develop an application that makes use of the clipboard framework for copying and pasting of the text. The activity consists of two EditText controls and two Buttons to trigger the copy and paste functionality.

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/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="152dp"
        android:layout_marginBottom="564dp"
        android:text="ClipBoard"
        android:textSize="36sp" />
    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="127dp"
        android:layout_marginBottom="496dp"
        android:ems="10"
        android:hint="Enter the text here"
        android:inputType="textPersonName"
        android:text="" />
    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignParentEnd="true" android:layout_alignParentBottom="true"
        android:layout_marginEnd="122dp"
```

```

        android:layout_marginBottom="411dp"
        android:ems="10" android:hint="Copied
        Text" android:inputType="textPersonName"
        android:text="" />
<Button
    android:id="@+id/copy"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="279dp"
    android:onClick="copy"
    android:layout_marginBottom="312dp"
    android:text="Copy" />
<Button
    android:id="@+id/paste"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="92dp"
    android:onClick="paste"
    android:layout_marginBottom="313dp"
    android:text="Paste" />
</RelativeLayout>

```

JAVA-CODE:

```

import androidx.appcompat.app.AppCompatActivity;import android.content.ClipData;
import android.content.ClipboardManager;import
android.os.Bundle;
import android.view.View; import
android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    ClipboardManager cbm;
    ClipData cd;
    EditText
    e1,e2;
    @Override

```

```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
    e1 = (EditText)findViewById(R.id.editText1);e2 =  
    (EditText)findViewById(R.id.editText2);  
    cbm =(ClipboardManager)getSystemService(CLIPBOARD_SERVICE);  
}  
public void copy(View V){  
    String text = e1.getText().toString();  
    cd = ClipData.newPlainText("text",text);  
    cbm.setPrimaryClip(cd);  
}  
public void paste(View V){  
    ClipData cd2 = cbm.getPrimaryClip();  
    ClipData.Item item = cd2.getItemAt(0); String  
    copied = item.getText().toString();  
    e2.setText(copied);  
}  
}
```

OUTPUT:

MOBILE APPLICATION DEVELOPMENT

COURSE CODE:18CSMP68

Sample Viva Questions

1. What is an Android?
2. Illustrate the Android lifecycle Activity.
3. What Is an Android SDK?
4. What is Android "compatibility"?
5. What are the key components Android Architecture?
6. Describe the Android Framework.
7. What are the data types supported by AIDL?
8. What is Gradle Framework ?
9. Why do we need AVD?
10. How do you add gradle dependencies ?
11. What is the difference between Mobile Application Testing and Mobile Testing?
12. What are the different data storage options available on the Android platform?
13. The list of data storage options on the Android platform.
14. Describe Activities.
15. What are Intents? What are the types of Intents?
16. What is Application class?
17. What is a View?
18. What is a view Group?
19. What are these UI components that we can use in our application?
20. Define Constraint Layout.
21. Why did we need Constraint Layout?