4. 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.

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

Xml pgm

```
<?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">

<Button

android:id="@+id/button1"

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="167dp"

android:layout_marginRight="167dp"

android:layout_marginBottom="409dp"

android:text="CLICK HERE" />

</RelativeLayout>
```

Java pgm

```java
package com.example.wallpaperchangeapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.graphics.drawable.BitmapDrawable;

import android.graphics.drawable.Drawable;

import android.os.Bundle;

import android.app.WallpaperManager;

import android.graphics.Bitmap;

import android.widget.Toast;

import java.util.Timer;

import android.view.View;

import java.io.IOException;

import java.util.TimerTask;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

Button wallpaperChange;

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);
```

```java
wallpaperChange=(Button)findViewById(R.id.button1);

wallpaperChange.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

setwallpaper();

}

});

}

private void setwallpaper() {

Toast.makeText(this,"setting Wallpaper please wait.",Toast.LENGTH_LONG).show();

mytimer.schedule(new TimerTask() {

@SuppressLint("UseCompatLoadingForDrawables")

@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;
```

```java
}
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.setBitmap(wallpaper);
}
catch (IOException e)
{ e.printStackTrace();
}
}
},0,30000);
}
}
```

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 TextView control.

Xml pgm

```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">

<Button

android:id="@+id/btn_start2"

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_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="1.0"
```

```
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="1.0" />

<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

android:id="@+id/textView1"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginStart="60dp"

android:layout_marginTop="90dp"

android:layout_marginEnd="79dp"
```

android:layout_marginBottom="596dp"

android:text="Counter 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_constraintBottom_toBottomOf="parent"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="1.0"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent"

app:layout_constraintVertical_bias="1.0" />

<Button

android:id="@+id/btn_stop"

android:layout_width="91dp"

android:layout_height="37dp"

android:text="STOP"

tools:layout_editor_absoluteX="152dp"

tools:layout_editor_absoluteY="215dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

Java pgm

```
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);
```

```java
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++;

}

};

}
```