Prog 1: 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 centre.

Information like the name of the employee, job title, phone number, address, email, fax and the website address are 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"
 android:background="#FFFFFF"
 tools:context=".MainActivity">
 <TextView
    android:id="@+id/textView4"
    android:layout width="371dp"
    android:layout_height="wrap_content"
    android:layout alignParentStart="true"
    android:layout alignParentLeft="true"
    android:layout_alignParentEnd="true"
    android:layout alignParentRight="true"
    android:layout alignParentBottom="true"
    android:layout_marginStart="22dp"
    android:layout marginLeft="22dp"
    android:layout marginEnd="18dp"
    android:layout_marginRight="18dp"
    android:layout marginBottom="294dp"
    android:text="Address: Amrita School of Computing, Bogadi 2nd Stage, Mysuru"
    android:textAlignment="center"
    android:textSize="24sp" />
 <TextView
    android:id="@+id/textView5"
    android:layout width="250dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentLeft="true"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout alignParentBottom="true"
    android:layout_marginStart="80dp"
    android:layout_marginLeft="80dp"
    android:layout marginEnd="80dp"
    android:layout_marginRight="80dp"
```

```
android:layout_marginBottom="215dp"
  android:text="Ph No: 9717620165"
  android:textAlignment="center"
  android:textSize="24sp" />
<TextView
  android:id="@+id/textView6"
  android:layout width="367dp"
  android:layout_height="wrap_content"
  android:layout_alignParentStart="true"
  android:layout_alignParentLeft="true"
  android:layout_alignParentEnd="true"
  android:layout_alignParentRight="true"
  android:layout_alignParentBottom="true"
  android:layout marginStart="22dp"
  android:layout_marginLeft="22dp"
  android:layout_marginEnd="22dp"
  android:layout_marginRight="22dp"
  android:layout_marginBottom="151dp"
  android:text="Email Id: thanjanm@gmail.com"
  android:textAlignment="center"
  android:textSize="24sp" />
<TextView
  android:id="@+id/textView3"
  android:layout_width="367dp"
  android:layout height="66dp"
  android:layout_alignParentStart="true"
  android:layout alignParentLeft="true"
  android:layout alignParentEnd="true"
  android:layout_alignParentRight="true"
  android:layout_alignParentBottom="true"
  android:layout marginStart="25dp"
  android:layout_marginLeft="25dp"
  android:layout_marginEnd="19dp"
  android:layout marginRight="19dp"
  android:layout_marginBottom="401dp"
  android:text="Student - Amrita"
  android:textAlignment="center"
  android:textSize="24sp" />
<ImageView
  android:id="@+id/imageView1"
  android:layout_width="140dp"
  android:layout height="44dp"
  android:layout_above="@+id/textView2"
  android:layout alignEnd="@+id/textView6"
  android:layout alignRight="@+id/textView6"
```

```
android:layout_marginEnd="-18dp"
    android:layout marginRight="-18dp"
    android:layout_marginBottom="41dp"
    app:srcCompat="@drawable/amrita1" />
 <View
    android:id="@+id/view"
    android:layout width="wrap content"
    android:layout_height="4dp"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="566dp"
    android:background="#4444" />
 <TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="47dp"
    android:layout_alignParentLeft="true"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginLeft="123dp"
    android:layout_marginEnd="124dp"
    android:layout_marginRight="124dp"
    android:layout_marginBottom="492dp"
    android:text="Michelle B Thanjan"
    android:textAlignment="center"
    android:textSize="24sp"
    android:textStyle="bold" />
 <TextView
    android:id="@+id/textView1"
    android:layout width="wrap content"
    android:layout_height="wrap_content"
    android:text="AMRITA" android:textColor="#E91E63"
    android:textSize="36sp"
    android:textStyle="bold"
    android:layout_alignBottom="@+id/view"
    android:layout_alignLeft="@+id/textView6"
    android:layout_alignStart="@+id/textView6" />
</RelativeLayout>
```

Prog2: 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="71dp"
    android:layout alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout alignParentBottom="true"
    android:layout marginEnd="64dp"
    android:layout_marginRight="64dp"
    android:layout marginBottom="535dp"
    android:text="Simple Calculator"
    android:textSize="36sp"
    app:layout constraintBottom toBottomOf="parent"
    app:layout constraintLeft toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout constraintTop toTopOf="parent" />
 <EditText
    android:id="@+id/et1"
    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="114dp"
    android:layout_marginRight="114dp"
    android:layout_marginBottom="438dp"
    android:ems="10"
    android:hint="Enter Number 1"
    android:inputType="textPersonName"
    android:text=""
    android:textColorHighlight="#FFFFF" />
 <EditText
    android:id="@+id/et2"
    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="115dp"
  android:layout_marginRight="115dp"
  android:layout_marginBottom="364dp"
  android:ems="10"
  android:hint="Enter Number 2"
  android:inputType="textPersonName"
  android:text=""
  android:textColorHighlight="#FFFFF"/>
<Button
  android:id="@+id/b1"
  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="260dp"
  android:layout_marginTop="260dp"
  android:layout_marginEnd="264dp"
  android:layout marginRight="264dp"
  android:layout_marginBottom="165dp"
  android:backgroundTint="#E8F381"
  android:onClick="add"
  android:text="ADD"
  android:textStyle="bold" />
<Button
  android:id="@+id/b2"
  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="105dp"
  android:layout marginRight="105dp"
  android:layout_marginBottom="165dp"
  android:backgroundTint="#ECA9A9"
  android:onClick="sub"
  android:text="SUB"
  android:textStyle="bold" />
<Button
  android:id="@+id/b3"
  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="263dp"
    android:layout_marginRight="263dp"
    android:layout_marginBottom="85dp"
    android:backgroundTint="#A1FAA4"
    android:onClick="mul"
    android:text="MUL"
    android:textStyle="bold" />
  <Button
    android:id="@+id/b4"
    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="105dp"
    android:layout_marginRight="105dp"
    android:layout_marginBottom="80dp"
    android:backgroundTint="#E6C28C"
    android:onClick="div"
    android:text="DIV"
    android:textStyle="bold" />
  <TextView
    android:id="@+id/tv1"
    android:layout width="wrap content"
    android:layout_height="71dp"
    android:layout_alignParentEnd="true"
    android:layout alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="202dp"
    android:layout_marginRight="202dp"
    android:layout_marginBottom="274dp"
    android:text="0"
    android:textSize="36sp"/>
</RelativeLayout>
JAVA Code
package com.example.simplecalculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
```

```
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
  EditText e1, e2;
  TextView tv;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    e1 = findViewById(R.id.et1);
    e2 = findViewById(R.id.et2);
    tv = findViewById(R.id.tv1);
  }
  public void add(View v){
    int a = Integer.parseInt(e1.getText().toString());
    int b = Integer.parseInt(e2.getText().toString());
    int res = a+b;
    tv.setText("" + res);
  }
  public void sub(View v){
    int a = Integer.parseInt(e1.getText().toString());
    int b = Integer.parseInt(e2.getText().toString());
    int res = a-b;
    tv.setText("" + res);
  }
  public void mul(View v){
    int a = Integer.parseInt(e1.getText().toString());
    int b = Integer.parseInt(e2.getText().toString());
    int res = a*b;
    tv.setText("" + res);
  }
  public void div(View v){
    int a = Integer.parseInt(e1.getText().toString());
    int b = Integer.parseInt(e2.getText().toString());
    int res = a/b;
    tv.setText("" + res);
  }
```

Prog3: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.

Prog4: Develop an Android app to count the total number of clicks of a button. On each click, a toast message "hurrah!" is displayed as well as the total number of clicks in the text view.

```
XML Code
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout</p>
  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/textView1"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:text="Hello World!"
    app:layout constraintBottom toBottomOf="parent"
    app:layout constraintEnd toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout constraintTop toTopOf="parent" />
  <Button
    android:id="@+id/button1"
    android:layout width="wrap content"
    android:layout_height="wrap_content"
    android:text="Click"
    app:layout constraintBottom toTopOf="@+id/textView1"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout constraintStart toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
JAVA Code
package com.example.toasts;
import androidx.appcompat.app.AppCompatActivity;
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 {
  int count = 0;
```

```
@Override
protected void onCreate(Bundle savedInstanceState) {
  super.onCreate(savedInstanceState);
  setContentView(R.layout.activity_main);
  Button b = (Button) findViewById(R.id.button1);
  TextView t = (TextView) findViewById(R.id.textView1);
  b.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
      Toast.makeText(MainActivity.this,
           "Hurrah!!",
           Toast.LENGTH_SHORT).show();
      count++;
      t.setText("Button is clicked " + count + " times.");
    }
  });
}
```

Prog5: Write a program to create an activity with two buttons START and STOP. On pressing START, 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 TextViewControl.

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
 xmlns:tools="http://schemas.android.com/tools"
 android:layout_width="match_parent"
 android:layout height="match parent"
 tools:context=".MainActivity">
 <TextView android:id="@+id/textView1"
    android:layout_width="332dp"
    android:layout_height="wrap_content"
    android:layout alignParentStart="true"
    android:layout alignParentLeft="true"
    android:layout_alignParentEnd="true"
    android:layout alignParentBottom="true"
    android:layout marginStart="41dp"
    android:layout_marginLeft="41dp"
    android:layout_marginRight="38dp"
    android:layout_marginBottom="516dp"
    android:text="Counter Application"
    android:textSize="36sp"
    android:textStyle="bold" />
 <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="41dp"
    android:layout_marginRight="38dp"
    android:layout_marginBottom="89dp"
    android:text="Start"
    android:textSize="30sp"
    app:backgroundTint="4CAF50"/>
 <Button
    android:id="@+id/button2"
    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="55dp"
    android:layout marginRight="55dp"
    android:layout_marginBottom="92dp"
    android:text="Stop"
    android:textSize="30sp"
    app:backgroundTint="EC5449"/>
  <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="165"
  android:layout_marginRight="165dp"
  android:layout marginBottom="434dp"
  android:text="counter value"
  android:textSize="18sp" android:textStyle="bold"/>
 </RelativeLayout>
Java Code:
package com.example.counterapplication;
import android.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{
TextView txtCounter;
Button btn=start, btn stop;
int count=0;
Handler customHandler= new Handler();
@Override
protected void onCreate(Bundle savedInstanceState){
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
txtCounter=(TextView) findViewById(R.id.textView2);
btn start=(Button) findViewById(R.id.button1);
btn_stop=(Button)findViewById(R.id.button2);
btn.start.setOnClickListener(new view.OnClickListener()){
@Override
public void onClick(View v){
customHandler.removeCallbacks(updateTimerThread);
});
```

```
btn_stop.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(""+count);
    customHandler.postDelayed(this,1000);
    count++;
});
```

Prog6: Develop a simple application with one EditText so that the user can write some text in it. Create a button called 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="335dp"
    android:layout_height="wrap_content"
    android:layout alignParentRight="true"
    android:layout alignParentBottom="true"
    android:layout_marginEnd="21dp"
    android:layout_marginBottom="486dp"
    android:text="text2speech"
    android:textSize="30sp"/>
  <EditText
    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout height="wrap content"
    android:layout alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout marginEnd="142dp"
    android:layout marginBottom="377dp"
    android:cms="10"
    android:hint="enter text here"
    android:inputType="textPersonName"/>
  <Button
    android:id="@+id/convert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="196dp"
    android:layout_marginBottom="236dp"
    android:onClick="convert"
    android:background="#6CEC71"
    android:text="convert"/>
```

```
</RelativeLayout>
JAVA CODE:
package com.example.text2speech;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.app.AppCompatActivity;
import android.speech.tts.TextToSpeech;
import android.view.View;
import android.os.Bundle;
import android.widget.EditText;
import java.util.Locale;
public class MainActivity extends AppCompatActivity {
  EditText e1;
  TextToSpeech t1;
  @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 V){
    String tospeak=e1.getText().toString();
    t1.speak(tospeak,TextToSpeech.QUEUE_FLUSH,null);
  }
```