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
<?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"
```

```xml
      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"
```

```xml
        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
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="#FFFFFF" />

    <EditText
        android:id="@+id/et2"
        android:layout_width="wrap_content"
```

```xml
    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="#FFFFFF"/>

<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"
```

```xml
        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;
```

```java
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
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">

    <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
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;
```

```java
    @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
<?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:

```java
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);
});
```

```java
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
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);
    }
}
```