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**PART – A**

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 center. Information like the name of the employee, job title, phone number, address, email, fax and the website address is to be displayed. Insert a horizontal line between the job title and the phone number.**

**XML Code - activity\_visiting\_card.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:background="@color/black"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<ImageView

android:id="@+id/imageView"

android:layout\_width="130dp"

android:layout\_height="147dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="20dp"

android:layout\_marginBottom="550dp"

app:srcCompat="@android:drawable/btn\_star\_big\_on" />

<TextView

android:id="@+id/textCompany"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="158dp"

android:layout\_marginBottom="541dp"

android:text="RR Enterprises"

android:textColor="@color/white"

android:textSize="34sp" />

<TextView

android:id="@+id/textName"

android:layout\_width="234dp"

android:layout\_height="47dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="149dp"

android:layout\_marginBottom="470dp"

android:text="Name:Abhishek U S"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textRole"

android:layout\_width="251dp"

android:layout\_height="65dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="131dp"

android:layout\_marginBottom="400dp"

android:text="Role:Software Engineer"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textLine"

android:layout\_width="294dp"

android:layout\_height="0dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="92dp"

android:layout\_marginBottom="429dp"

android:background="@color/black"

android:gravity="center\_horizontal"

android:textColor="@color/white" />

<TextView

android:id="@+id/textMobile"

android:layout\_width="257dp"

android:layout\_height="45dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="122dp"

android:layout\_marginBottom="366dp"

android:text="9353241492"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textView"

android:layout\_width="370dp"

android:layout\_height="wrap\_content"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="9dp"

android:layout\_marginBottom="306dp"

android:text="Address:Udaya Nagara Upper Pet Koppa 577126"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textEmail"

android:layout\_width="378dp"

android:layout\_height="46dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="-2dp"

android:layout\_marginBottom="235dp"

android:text="Email-id:abhishekus073@gmail.com"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textFax"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignParentBottom="true"

android:layout\_marginLeft="50sp"

android:layout\_marginTop="535sp"

android:layout\_marginBottom="126dp"

android:text="Fax:0880-8759455845"

android:textColor="@color/white"

android:textSize="20sp" />

<TextView

android:id="@+id/textView2"

android:layout\_width="308dp"

android:layout\_height="48dp"

android:layout\_alignParentEnd="true"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="67dp"

android:layout\_marginBottom="170dp"

android:text="Website:www.rr.com"

android:textColor="@color/white"

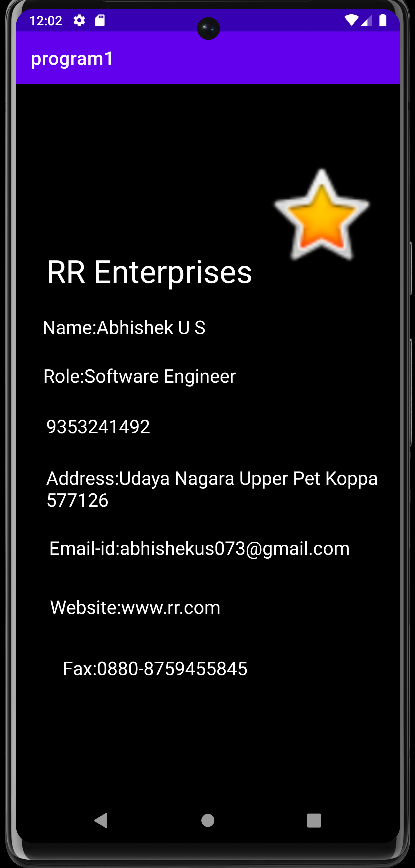
android:textSize="20sp" />

</RelativeLayout>

**Java Code – Visiting\_card.java**

package com.example.practice;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
public class visiting\_card extends AppCompatActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_visiting\_card*);  
 }  
}

**OUTPUT:**



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

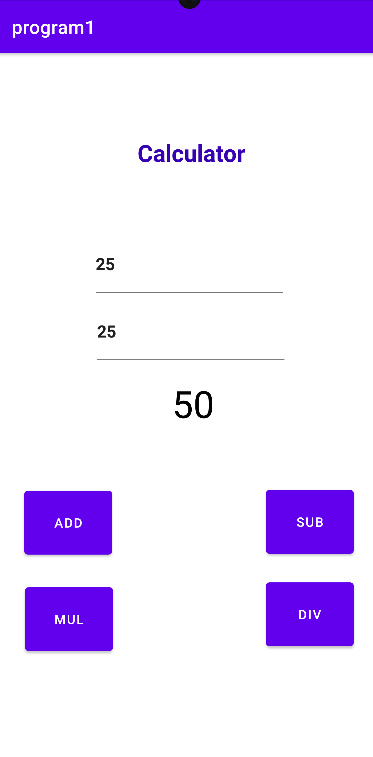
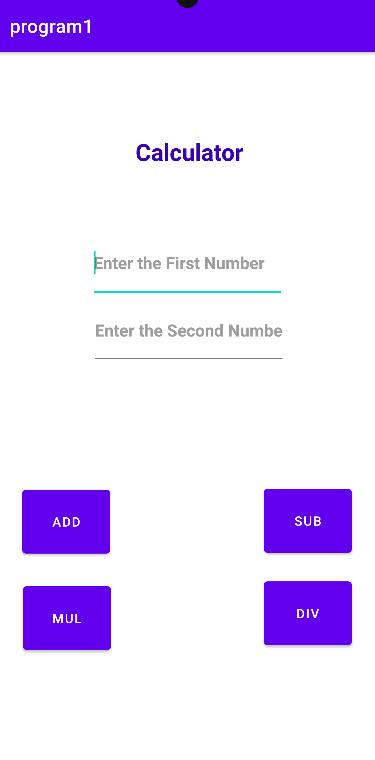
**XML Code – activity\_calculator.xml**

*<?*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=".calculator">  
  
 <TextView  
 android:id="@+id/textView7"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="164dp"  
 android:fontFamily="cursive"  
 android:text="CALCULATOR"  
 android:textAlignment="center"  
 android:textColor="#673AB7"  
 android:textSize="24sp"  
 android:textStyle="bold"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <EditText  
 android:id="@+id/et1"  
 android:layout\_width="214dp"  
 android:layout\_height="44dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text=""  
 android:hint="Enter the First Number"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.338" />  
  
 <EditText  
 android:id="@+id/et2"  
 android:layout\_width="225dp"  
 android:layout\_height="43dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text=""  
 android:hint="Enter the Second Number"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.441" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="52dp"  
 android:layout\_marginBottom="260dp"  
 android:text="+"  
 android:onClick="doAdd"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginEnd="52dp"  
 android:layout\_marginBottom="260dp"  
 android:text="-"  
 android:onClick="doSub"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="52dp"  
 android:layout\_marginBottom="160dp"  
 android:text="\*"  
 android:onClick="doMul"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent" />  
  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginEnd="52dp"  
 android:layout\_marginBottom="160dp"  
 android:text="/"  
 android:onClick="doDiv"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent" />  
  
 <TextView  
 android:id="@+id/tv2"  
 android:layout\_width="250sp"  
 android:layout\_height="wrap\_content"  
 android:text="0"  
 android:textAlignment="center"  
 android:textSize="24sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.422"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.519" />  
  
 <TextView  
 android:id="@+id/textView9"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Answer:"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.047"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.515" />  
  
 <Button  
 android:id="@+id/button5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="clear"  
 android:onClick="doClear"  
 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="0.903" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – Calculator.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.TextView;  
public class calculator extends AppCompatActivity {  
 EditText e1,e2;  
 TextView t2;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_calculator*);  
 e1=(EditText)findViewById(R.id.*et1*);  
 e2=(EditText)findViewById(R.id.*et2*);  
 t2=(TextView)findViewById(R.id.*tv2*);  
 }  
 public void doAdd(View V)  
 {  
 int a1=Integer.*parseInt*(e1.getText().toString());  
 int a2=Integer.*parseInt*(e2.getText().toString());  
 int result=a1+a2;  
 t2.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;  
 t2.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;  
 t2.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;  
 t2.setText(""+result);  
 }  
 public void doClear(View V)  
 {  
 e1.setText(null);  
 e2.setText(null);  
 t2.setText("");  
  
 }  
}

**OUTPUT:**



1. **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.**

**XML Code – activity\_signup.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=".Signup">  
  
 <TextView  
 android:id="@+id/textView8"  
 android:layout\_width="81dp"  
 android:layout\_height="28dp"  
 android:shadowColor="@color/purple\_500"  
 android:shadowDx="0"  
 android:shadowDy="0"  
 android:shadowRadius="5"  
 android:text="SignUp"  
 android:textAlignment="center"  
 android:textColor="#9C27B0"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.484"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.224" />  
  
 <EditText  
 android:id="@+id/email"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter Email"  
 android:inputType="textEmailAddress"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView8"  
 app:layout\_constraintVertical\_bias="0.126" />  
  
 <EditText  
 android:id="@+id/pass"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter Password"  
 android:inputType="textPassword"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/email"  
 app:layout\_constraintVertical\_bias="0.086" />  
  
 <Button  
 android:id="@+id/signupb"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="SIGNUP"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/pass"  
 app:layout\_constraintVertical\_bias="0.161" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**activity\_signin.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=".Signin">  
  
 <TextView  
 android:id="@+id/textView8"  
 android:layout\_width="81dp"  
 android:layout\_height="28dp"  
 android:shadowColor="@color/purple\_500"  
 android:shadowDx="0"  
 android:shadowDy="0"  
 android:shadowRadius="5"  
 android:text="Signin"  
 android:textAlignment="center"  
 android:textColor="#9C27B0"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.484"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.224" />  
  
 <EditText  
 android:id="@+id/email"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter Email"  
 android:inputType="textEmailAddress"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView8"  
 app:layout\_constraintVertical\_bias="0.126" />  
  
 <EditText  
 android:id="@+id/pass"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter Password"  
 android:inputType="textPassword"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/email"  
 app:layout\_constraintVertical\_bias="0.086" />  
  
 <Button  
 android:id="@+id/signinb"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="SIGNIN"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/pass"  
 app:layout\_constraintVertical\_bias="0.161" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**activity\_signinsuccess.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=".signinsuccess">  
  
 <TextView  
 android:id="@+id/textView10"  
 android:layout\_width="342dp"  
 android:layout\_height="45dp"  
 android:text="Login Successful"  
 android:textAlignment="center"  
 android:textSize="34sp"  
 android:textStyle="bold"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.492"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.594" />  
  
 <TextView  
 android:id="@+id/textView11"  
 android:layout\_width="260dp"  
 android:layout\_height="58dp"  
 android:text="WELCOME"  
 android:textAlignment="center"  
 android:textColor="#009688"  
 android:textSize="34sp"  
 android:textStyle="bold|italic"  
 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="0.313" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – Sign\_up.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
import java.util.regex.Pattern;  
public class Signup extends AppCompatActivity {  
 EditText email,pass;  
 Button signupb;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_signup*);  
 email=(EditText) findViewById(R.id.*email*);  
 pass=(EditText) findViewById(R.id.*pass*);  
 signupb =(Button) findViewById(R.id.*signupb*);  
 signupb.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 String emailid=email.getText().toString();  
 String password=pass.getText().toString();  
 if(!isValidPassword(password)){  
 Toast.*makeText*(Signup.this, "Password Does Not Match", Toast.*LENGTH\_LONG*).show();  
 return;  
 }  
 Intent intent = new Intent(Signup.this,Signin.class);  
 intent.putExtra("emailid",emailid);  
 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){  
 if(password.length()<8){  
 return false;  
 }  
 if(!lowercase.matcher(password).matches()){  
 return false;  
 }  
 if(!uppercase.matcher(password).matches()){  
 return false;  
 }  
 if(!number.matcher(password).matches()){  
 return false;  
 }  
 if(!specialCharacter.matcher(password).matches()){  
 return false;  
 }  
 return true;  
 }  
}

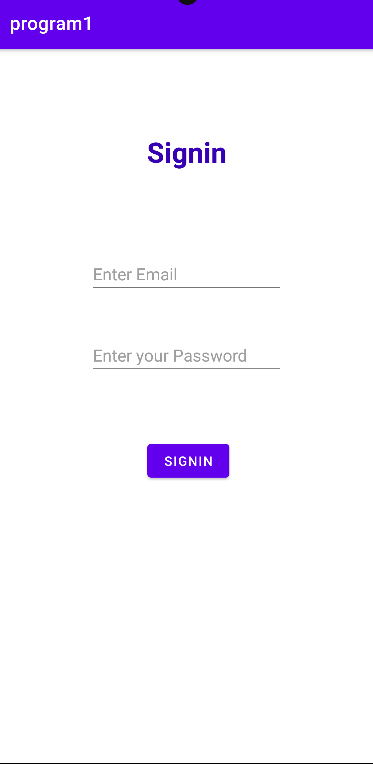
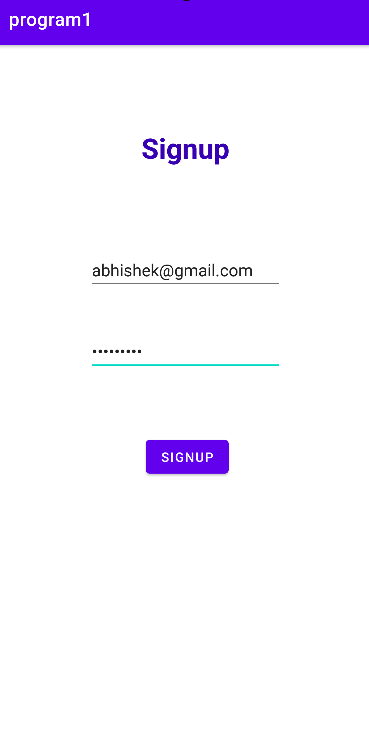
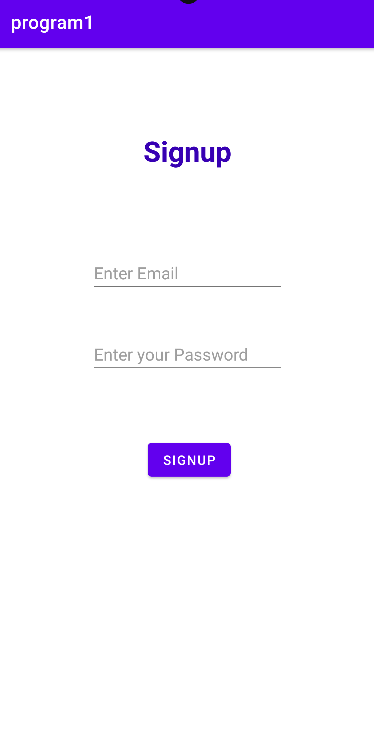
**Signin.java**

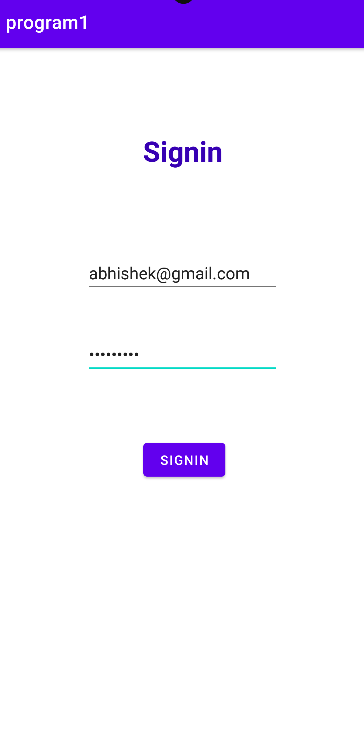
package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
public class Signin extends AppCompatActivity {  
 EditText email,pass;  
 Button signinb;  
 int counter = 2;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_signin*);  
 email=(EditText) findViewById(R.id.*email*);  
 pass=(EditText) findViewById(R.id.*pass*);  
 signinb=(Button) findViewById(R.id.*signinb*);  
 String registeredEmail = getIntent().getStringExtra("emailid");  
 String registeredPassword = getIntent().getStringExtra("password");  
 signinb.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 String emailid = email.getText().toString();  
 String password = pass.getText().toString();  
  
 if(registeredEmail.equals(emailid) && registeredPassword.equals(password)){  
 Intent intent = new Intent(Signin.this,signinsuccess.class);  
 startActivity(intent);  
 }  
 else{  
 Toast.*makeText*(Signin.this, "Invalid Credentials", Toast.*LENGTH\_LONG*).show();  
 }  
 counter--;  
 if (counter==0){  
 Toast.*makeText*(getBaseContext(), "FAILED LOGIN ATTEMPTS", Toast.*LENGTH\_LONG*).show();  
 signinb.setEnabled(false);  
 }  
 }  
 });  
 }}

**signinsuccess.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
public class signinsuccess extends AppCompatActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_signinsuccess*);  
 }  
}

**OUTPUT:**





1. **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.**

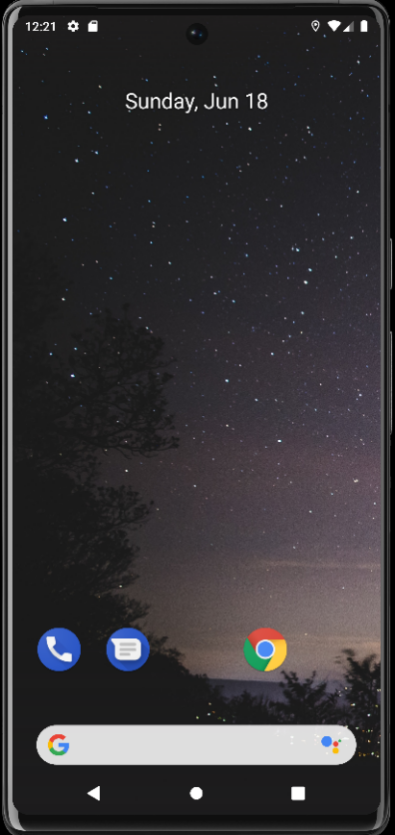
**XML Code – activity\_wallpaper.xml**

*<?*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=".wallpaper">  
  
 <Button  
 android:id="@+id/button6"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="CLICK HERE TO CHANGE WALLPAPER"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <TextView  
 android:id="@+id/textView12"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Wallpaper changer"  
 android:textColor="#050505"  
 android:textSize="34sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.289" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – wallpaper.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.app.WallpaperManager;  
import android.graphics.Bitmap;  
import android.graphics.drawable.BitmapDrawable;  
import android.graphics.drawable.Drawable;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import java.io.IOException;  
import java.util.BitSet;  
import java.util.Timer;  
import java.util.TimerTask;  
public class wallpaper 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\_wallpaper*);  
 mytimer = new Timer();  
 wpm = WallpaperManager.*getInstance*(this);  
 changewallpaper = findViewById(R.id.*button6*);  
 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.*c*);prev=2;  
 }else if(prev==2){  
 drawable=getResources().getDrawable(R.drawable.*cpp*);prev=3;  
 }  
 else if(prev==3){  
 drawable=getResources().getDrawable(R.drawable.*python*);prev=4;  
  
 }  
 else if(prev==4){  
 drawable=getResources().getDrawable(R.drawable.*java*);prev=5;  
  
 }  
 else if(prev==5){  
 drawable=getResources().getDrawable(R.drawable.*html*);prev=1;  
  
 }  
 Bitmap wallpaper = ((BitmapDrawable)drawable).getBitmap();  
 try{  
 wpm.setBitmap(wallpaper);  
 }catch(IOException e){  
 e.printStackTrace();  
 }  
 }  
 },0,3000);  
 }  
}

**OUTPUT:** 





1. **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.**

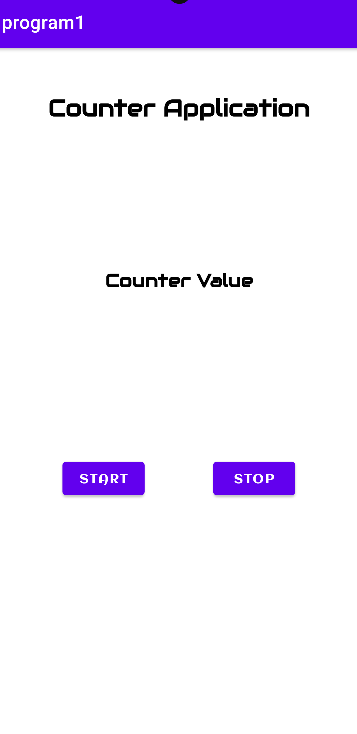
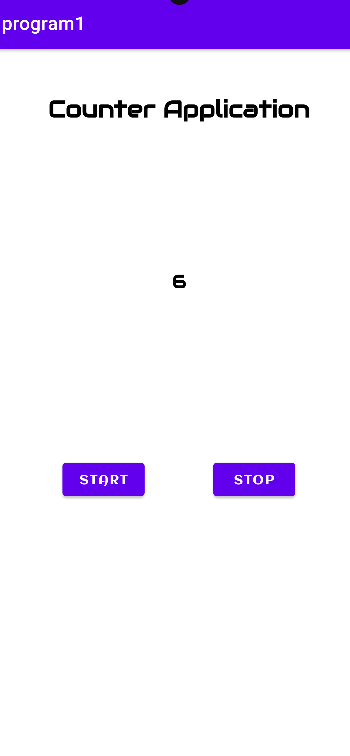
**XML Code – activity\_counter.xml**

*<?*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=".counter">  
  
 <TextView  
 android:id="@+id/textView13"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="112dp"  
 android:layout\_marginBottom="606dp"  
 android:text="Counter Application"  
 android:textAlignment="center"  
 android:textColor="#102695"  
 android:textSize="24sp"  
 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="0.181" />  
  
 <TextView  
 android:id="@+id/txtcounter"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="154dp"  
 android:layout\_marginBottom="477dp"  
 android:text="Counter Value"  
 android:textColor="#121010"  
 android:textSize="20sp"  
 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="0.397" />  
  
 <Button  
 android:id="@+id/btnstart"  
 android:layout\_width="140dp"  
 android:layout\_height="63dp"  
 android:layout\_alignParentStart="true"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginStart="108dp"  
 android:layout\_marginEnd="145dp"  
 android:layout\_marginBottom="367dp"  
 android:text="Start"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.167"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.619" />  
  
 <Button  
 android:id="@+id/btnstop"  
 android:layout\_width="170dp"  
 android:layout\_height="68dp"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="124dp"  
 android:layout\_marginBottom="273dp"  
 android:text="Stop"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.845"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.619" />  
</RelativeLayout>

**Java Code – Counter.java**

package com.example.visiting;  
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 counter 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\_counter*);  
 btnstart=findViewById(R.id.*btnstart*);  
 btnstop=findViewById(R.id.*btnstop*);  
 txtcounter=findViewById(R.id.*txtcounter*);  
 txtcounter.setText("0");  
 btnstart.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 customHandler.postDelayed(updateTimerThread,0);  
 }  
 });  
 btnstop.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 customHandler.removeCallbacks(updateTimerThread);  
 }  
 });  
 }  
 private final Runnable updateTimerThread=new Runnable(){  
 @Override  
 public void run(){  
 txtcounter.setText(""+i);  
 customHandler.postDelayed(this,1000);  
 i++;  
 }  
 };  
}

**OUTPUT:**



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

**XML Code – activity\_text\_to\_speech.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"  
 android:background="#EADDB7"  
 tools:context=".text\_to\_speech">  
  
 <TextView  
 android:id="@+id/textView14"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:background="#EFEDEB"  
 android:text="Text to Speech"  
 android:textAppearance="@style/TextAppearance.AppCompat.Body1"  
 android:textSize="20sp"  
 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="0.147" />  
  
 <EditText  
 android:id="@+id/textforspeech"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter the text here"  
 android:inputType="textPersonName"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.31" />  
  
 <Button  
 android:id="@+id/convert"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Covert and Speak"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.553"  
 android:onClick="convert"/>  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – text\_to\_speech.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.speech.tts.TextToSpeech;  
import android.text.Editable;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.Toast;  
import org.w3c.dom.Text;  
import java.util.Locale;  
public class text\_to\_speech extends AppCompatActivity {  
 TextToSpeech t1;  
 EditText e1;  
 Editable voiceOut;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_text\_to\_speech*);  
 e1=findViewById(R.id.*textforspeech*);  
 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){  
 voiceOut = e1.getText();  
 String tospeak = e1.getText().toString();  
 Toast.*makeText*(text\_to\_speech.this, voiceOut, Toast.*LENGTH\_LONG*).show();  
 t1.speak(String.*valueOf*(voiceOut),TextToSpeech.*QUEUE\_FLUSH*,null);  
 }  
}

**OUTPUT:**



1. **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.**

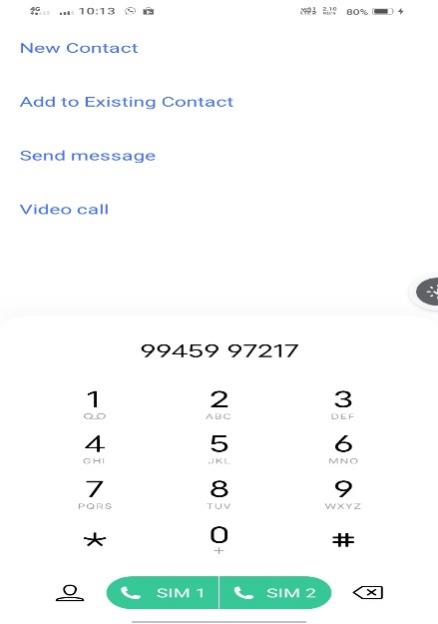
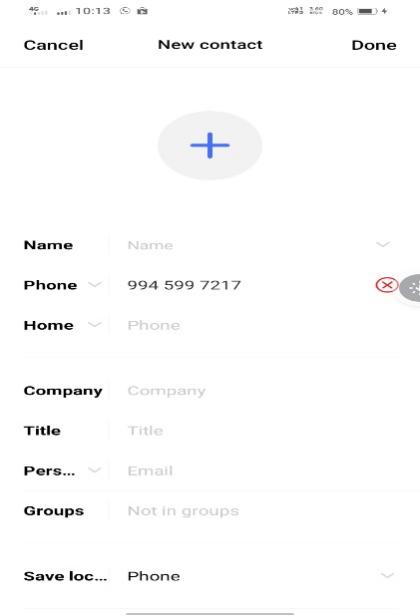
**XML Code – activity\_call.xml**

*<?*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:orientation="vertical"  
 tools:context=".call">  
  
 <TextView  
 android:layout\_width="405dp"  
 android:layout\_height="50dp"  
 android:layout\_alignParentTop="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginTop="90dp"  
 android:layout\_marginBottom="711dp"  
 android:text="Call Application"  
 android:textAlignment="center"  
 android:textSize="24sp" />  
  
 <EditText  
 android:id="@+id/phoneNumberEditText"  
 android:layout\_width="276dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginTop="196dp"  
 android:layout\_marginEnd="106dp"  
 android:layout\_marginBottom="541dp"  
 android:ems="10"  
 android:inputType="phone" />  
  
 <Button  
 android:id="@+id/clearBtn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="10dp"  
 android:layout\_marginBottom="542dp"  
 android:text="Clear" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="279dp"  
 android:layout\_marginBottom="437dp"  
 android:onClick="inputNumber"  
 android:text="1"  
 android:textAlignment="center"  
 android:textSize="20sp" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="169dp"  
 android:layout\_marginBottom="437dp"  
 android:onClick="inputNumber"  
 android:text="2" />  
  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="48dp"  
 android:layout\_marginBottom="435dp"  
 android:onClick="inputNumber"  
 android:text="3" />  
  
 <Button  
 android:id="@+id/button5"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="281dp"  
 android:layout\_marginBottom="370dp"  
 android:onClick="inputNumber"  
 android:text="4" />  
  
 <Button  
 android:id="@+id/button6"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="167dp"  
 android:layout\_marginBottom="378dp"  
 android:onClick="inputNumber"  
 android:text="5" />  
  
 <Button  
 android:id="@+id/button7"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="45dp"  
 android:layout\_marginBottom="380dp"  
 android:onClick="inputNumber"  
 android:text="6" />  
  
 <Button  
 android:id="@+id/button8"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="278dp"  
 android:layout\_marginBottom="299dp"  
 android:onClick="inputNumber"  
 android:text="7" />  
  
 <Button  
 android:id="@+id/button9"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginTop="512dp"  
 android:layout\_marginEnd="162dp"  
 android:layout\_marginBottom="303dp"  
 android:onClick="inputNumber"  
 android:text="8" />  
  
 <Button  
 android:id="@+id/button10"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="44dp"  
 android:layout\_marginBottom="305dp"  
 android:onClick="inputNumber"  
 android:text="9" />  
  
 <Button  
 android:id="@+id/button11"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="279dp"  
 android:layout\_marginBottom="224dp"  
 android:onClick="inputNumber"  
 android:text="#" />  
  
 <Button  
 android:id="@+id/button12"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="163dp"  
 android:layout\_marginBottom="222dp"  
 android:onClick="inputNumber"  
 android:text="0" />  
  
 <Button  
 android:id="@+id/button13"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="33dp"  
 android:layout\_marginBottom="224dp"  
 android:onClick="inputNumber"  
 android:text="\*" />  
  
 <Button  
 android:id="@+id/callBtn"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="80dp"  
 android:layout\_marginBottom="113dp"  
 android:text="Call" />  
  
 <Button  
 android:id="@+id/saveBtn"  
 android:layout\_width="76dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentBottom="true"  
 android:layout\_marginEnd="238dp"  
 android:layout\_marginBottom="117dp"  
 android:text="Save" />  
</RelativeLayout>

**Java Code – call.java**

package com.example.visiting;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.net.Uri;  
import android.provider.ContactsContract;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.os.Bundle;  
public class call extends AppCompatActivity {  
 EditText phoneNumberEditText; Button  
 clearBtn,callBtn,saveBtn;  
 @Override protected void onCreate(Bundle savedInstanceState)  
 {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_call*);  
 phoneNumberEditText=findViewById(R.id.*phoneNumberEditText*);  
 callBtn=findViewById(R.id.*callBtn*);  
 saveBtn=findViewById(R.id.*saveBtn*);  
 clearBtn=findViewById(R.id.*clearBtn*);  
 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);  
 } }

**OUTPUT:**





**PART – B**

1. **Write a program to enter Medicine Name, Date and Time of the Day as input from the user and store it in the SQLite database. Input for Time of the Day should be either Morning or Afternoon or Evening or Night.**

**XML Code – activity\_medicine\_simple.xml**

*<?*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=".medicine\_simple">  
  
 <TextView  
 android:id="@+id/textView29"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Medicine DB"  
 android:gravity="center"/>  
  
 <EditText  
 android:id="@+id/editTextText"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="text"  
 android:hint="Medicine Name" />  
  
 <EditText  
 android:id="@+id/editTextDate"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="date"  
 android:hint="Date" />  
 <EditText  
 android:id="@+id/editTextTime"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Time" />  
  
  
 <Button  
 android:id="@+id/button19"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="save"  
 android:onClick="save\_m"/>  
 <Button  
 android:id="@+id/button20"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="show"  
 android:onClick="show\_m"/>  
  
 <TextView  
 android:id="@+id/textView30"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 />  
</LinearLayout>

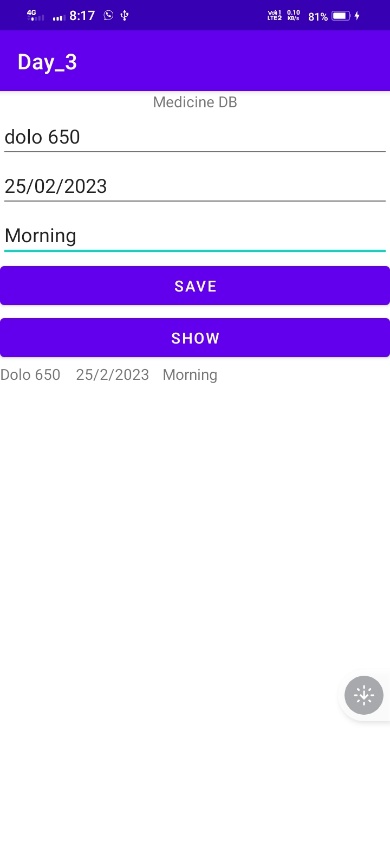
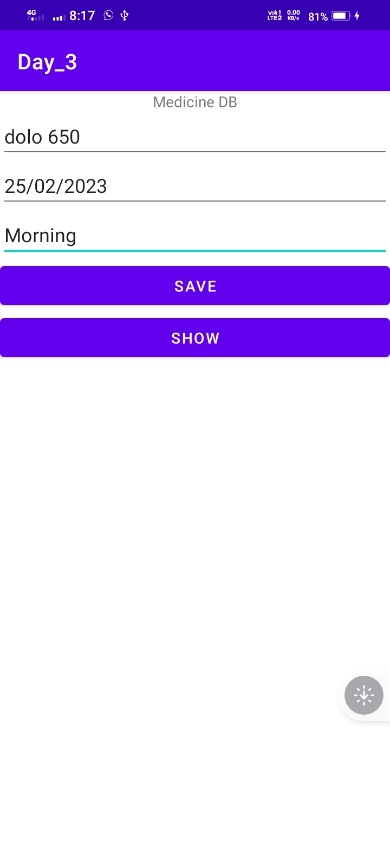
**Java Code – medicine\_simple.java**

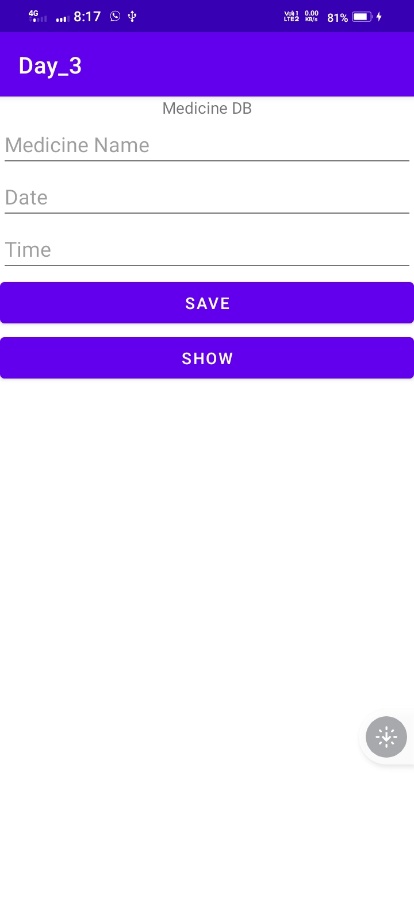
package com.example.day\_3;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
  
public class medicine\_simple extends AppCompatActivity {  
  
 EditText name,date,time;  
 Button save,show;  
 TextView tv;  
 med\_data md;  
 String mname,mdate,mtime;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_medicine\_simple*);  
 name=findViewById(R.id.*editTextText*);  
 date=findViewById(R.id.*editTextDate*);  
 time=findViewById(R.id.*editTextTime*);  
 save=findViewById(R.id.*button19*);  
 show=findViewById(R.id.*button20*);  
 tv=findViewById(R.id.*textView30*);  
 md=new med\_data(medicine\_simple.this);  
 }  
  
 public void save\_m(View view) {  
 mname=name.getText().toString();  
 mdate=date.getText().toString();  
 mtime=time.getText().toString();  
 md.save(mname,mdate,mtime);  
 }  
  
 public void show\_m(View view) {  
 String s2 = md.show();  
 tv.setText(s2);  
 }  
}

**Java DB Code – med\_data.java**

package com.example.day\_3;  
import android.content.ContentValues;  
import android.content.Context;  
import android.database.Cursor;  
import android.database.sqlite.SQLiteDatabase;  
import android.database.sqlite.SQLiteOpenHelper;  
import androidx.annotation.Nullable;  
  
public class med\_data extends SQLiteOpenHelper {  
 SQLiteDatabase sq;  
  
 public med\_data(@Nullable Context context) {  
 super(context, "med.db", null, 1);  
 sq = getReadableDatabase();  
 }  
  
 @Override  
 public void onCreate(SQLiteDatabase db) {  
 db.execSQL("create table medicine (Name text, MDate text, Time text)");  
 }  
 @Override  
 public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {  
  
 }  
  
 public void save(String mname, String mdate, String mtime) {  
 ContentValues cv = new ContentValues();  
 cv.put("Name", mname);  
 cv.put("MDate", mdate);  
 cv.put("Time", mtime);  
 sq.insert("medicine", null, cv);  
 }  
  
 public String show() {  
 Cursor c;  
 c = sq.query("medicine",new String[]{"Name","MDate","Time"}, null, null, null, null, null);  
 c.moveToFirst();  
 if (c.getCount() < 1) {  
 return "No Details";  
 }  
 String name = c.getString(c.getColumnIndex("Name"));  
 String date = c.getString(c.getColumnIndex("MDate")); *// Corrected column name* String time = c.getString(c.getColumnIndex("Time"));  
 String data1 = name + "\t\t" + date + "\t\t" + time + "\n";  
 c.close(); *// Close the Cursor after use* return data1;  
 }  
}

**OUTPUT:**

****

****

1. **Develop a content provider application with an activity called “Meeting Schedule” which takes Date, Time and Meeting Agenda as input from the user and store this information into the SQLite database. Create another application with an activity called “Meeting Info” having Date Picker control, which on the selection of a date should display the Meeting Agenda information for that particular date, else it should display a toast message saying “No Meeting on this Date”.**

**XML Code – activity\_meeting\_schedule.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=".meeting\_schedule">  
  
 <TextView  
 android:id="@+id/textView23"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Schedule Meeting"  
 android:textColor="#050505"  
 android:textSize="24sp" />  
  
 <EditText  
 android:id="@+id/schedule\_date"  
 android:layout\_width="272dp"  
 android:layout\_height="53dp"  
 android:ems="10"  
 android:inputType="date" />  
  
 <TextView  
 android:id="@+id/textView24"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Date"  
 android:textColor="#0E0C0C"  
 android:textSize="20sp" />  
  
 <TextView  
 android:id="@+id/textView25"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Time"  
 android:textColor="#100C0C"  
 android:textSize="20dp" />  
  
 <EditText  
 android:id="@+id/schedule\_time"  
 android:layout\_width="281dp"  
 android:layout\_height="53dp"  
 android:ems="10"  
 android:inputType="time"/>  
  
 <TextView  
 android:id="@+id/textView26"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Agenda"  
 android:textColor="#0E0B0B"  
 android:textSize="20dp"/>  
  
 <EditText  
 android:id="@+id/schedule\_ag"  
 android:layout\_width="294dp"  
 android:layout\_height="49dp"  
 android:ems="10"/>  
  
  
 <Button  
 android:id="@+id/schedule\_save"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Save"  
 android:textSize="16sp" />  
  
 <Button  
 android:id="@+id/schedule\_view"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="View"  
 android:textSize="16sp"  
 app:layout\_constraintEnd\_toEndOf="parent"/>  
  
 <CalendarView  
 android:id="@+id/calendarViewschedule"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**XML Code – activity\_meeting\_info.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=".Meeting\_info">  
  
 <TextView  
 android:id="@+id/zx"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Meeting Info"  
 android:textSize="24sp"/>  
  
  
 <TextView  
 android:id="@+id/abcd"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Date"  
 android:textColor="#0E0C0C"  
 android:textSize="34sp" />  
  
 <EditText  
 android:id="@+id/info\_date"  
 android:layout\_width="272dp"  
 android:layout\_height="53dp"  
 android:ems="10"  
 android:inputType="date" />  
  
 <Button  
 android:id="@+id/info\_show"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="cursive"  
 android:text="Search for Meeting Details"  
 android:textSize="16sp"/>  
  
 <CalendarView  
 android:id="@+id/calendarViewinfo"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – meeting\_schedule.java**

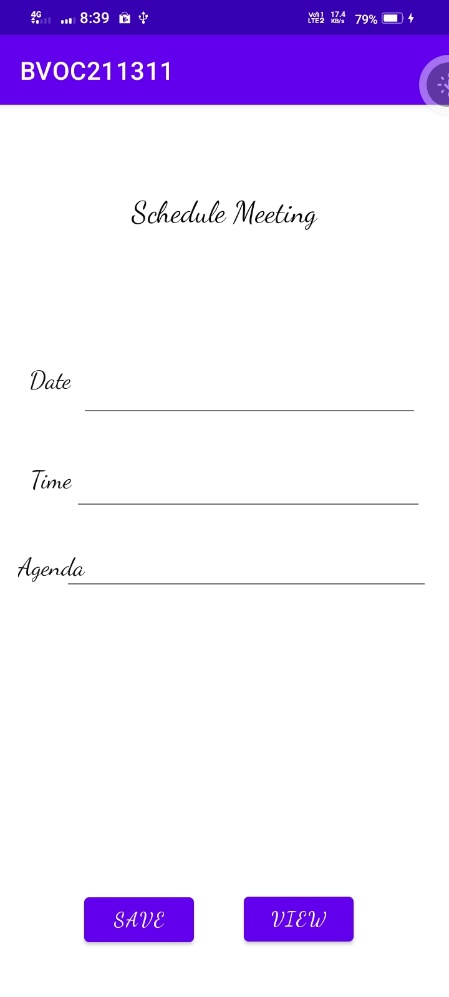
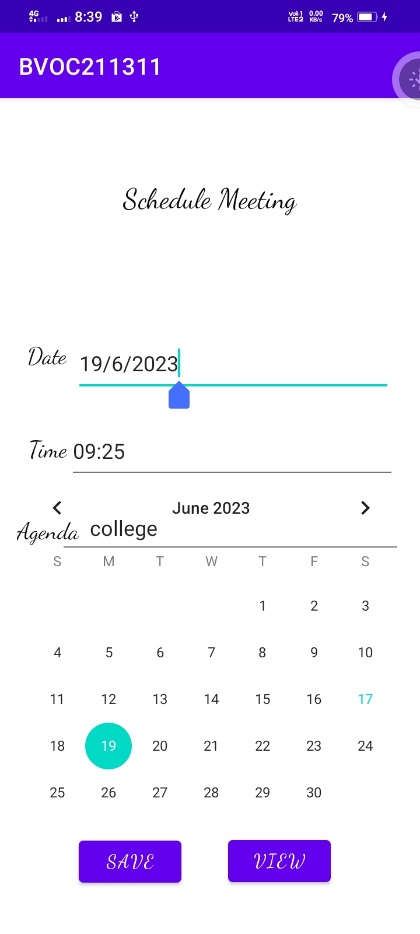
package com.example.visiting;  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Context;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.view.inputmethod.InputMethodManager;  
import android.widget.Button;  
import android.widget.CalendarView;  
import android.widget.EditText;  
import android.widget.Toast;  
public class meeting\_schedule extends AppCompatActivity {  
 EditText date,time,agenda;  
 Database1 dbc;  
 CalendarView c\_view;  
 Button save,a\_view;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_meeting\_schedule*);  
 date=(EditText) findViewById(R.id.*schedule\_date*);  
 time=(EditText) findViewById(R.id.*schedule\_time*);  
 agenda=(EditText) findViewById(R.id.*schedule\_ag*);  
 save=(Button) findViewById(R.id.*schedule\_save*);  
 a\_view=(Button) findViewById(R.id.*schedule\_view*);  
 c\_view=findViewById(R.id.*calendarViewschedule*);  
 dbc=new Database1(getApplicationContext());  
 c\_view.setVisibility(View.*INVISIBLE*);  
 date.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 closeKeyBoard();  
 c\_view.setVisibility(View.*VISIBLE*);  
 c\_view.setOnDateChangeListener(new CalendarView.OnDateChangeListener() {  
 @Override  
 public void onSelectedDayChange(@NonNull CalendarView view, int year, int month, int dayOfMonth) {  
 String d=dayOfMonth+"/"+(month+1)+"/"+year;  
 date.setText(d);  
 c\_view.setVisibility(View.*INVISIBLE*);  
 }  
 });  
 }});  
  
 save.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String mdate,mtime,magenda;  
 mdate=date.getText().toString();  
 mtime=time.getText().toString();  
 magenda=agenda.getText().toString();  
 Boolean insert=dbc.insertvalues(mdate,mtime,magenda);  
 if(insert==true){  
 Toast.*makeText*(getApplicationContext(), "Data Inserted", Toast.*LENGTH\_LONG*).show();  
 }  
 else{  
 Toast.*makeText*(getApplicationContext(), "Data Not Inserted", Toast.*LENGTH\_LONG*).show();  
 }  
 }  
 });  
 a\_view.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Intent intent = new Intent(meeting\_schedule.this,Meeting\_info.class);  
 startActivity(intent);  
 }  
 });  
 }  
 private void closeKeyBoard(){  
 View view = this.getCurrentFocus();  
 if(view!=null){  
 InputMethodManager imm=(InputMethodManager) this.getSystemService(Context.*INPUT\_METHOD\_SERVICE*);  
 imm.hideSoftInputFromWindow(view.getWindowToken(),0)

}  
 }  
 }

**Java Code – meeting\_info.java**

package com.example.visiting;  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import android.annotation.SuppressLint;  
import android.database.Cursor;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.CalendarView;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
public class Meeting\_info extends AppCompatActivity {  
 EditText date;  
 CalendarView c\_view;  
 Button s\_date;  
 Database1 dbc;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_meeting\_info*);  
 date=(EditText) findViewById(R.id.*info\_date*);  
 c\_view=findViewById(R.id.*calendarViewinfo*);  
 s\_date=(Button) findViewById(R.id.*info\_show*);  
 dbc=new Database1(getApplicationContext());  
 c\_view.setOnDateChangeListener(new CalendarView.OnDateChangeListener() {  
 @Override  
 public void onSelectedDayChange(@NonNull CalendarView view, int year, int month, int dayOfMonth) {  
 String d=dayOfMonth+"/"+(month+1)+"/"+year;  
 date.setText(d);  
 }  
 });  
 s\_date.setOnClickListener(new View.OnClickListener() {  
 @SuppressLint("Range")  
 @Override  
 public void onClick(View v) {  
 String d1=date.getText().toString();  
 StringBuffer res=new StringBuffer();  
 Cursor c=dbc.fetch(d1);  
 int count=c.getCount();  
 c.moveToNext();  
 if(count>0) {  
 do {  
 res.append(c.getString(c.getColumnIndex("agenda")) + "\t" + "at" + "\t" + c.getString(c.getColumnIndex("time")));  
 res.append("\n");  
 } while (c.moveToNext());  
 Toast.*makeText*(getApplicationContext(), res, Toast.*LENGTH\_LONG*).show();  
 }  
 else{  
 Toast.*makeText*(getApplicationContext(), "NO meeting on this day....", Toast.*LENGTH\_LONG*).show();  
 }  
 }  
 });  
 }  
}

**OUTPUT:**





1. **Create an application to receive an incoming SMS, which is notified to the user. On clicking this SMS notification, the message content and the number should be displayed on the screen. Use appropriate emulator control to send the SMS message to your application.**

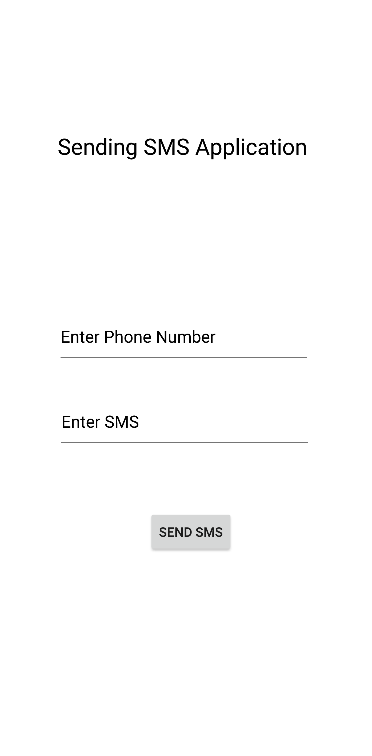
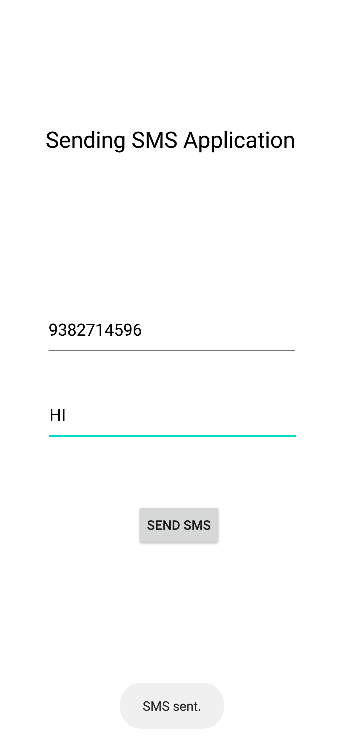
**XML Code – activity\_sms.xml**

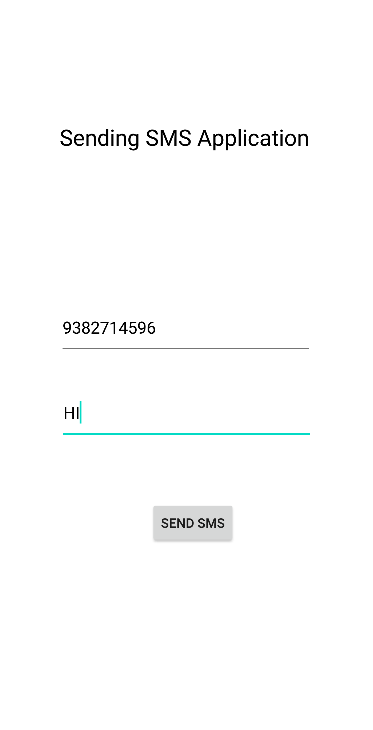
*<?*xml version="1.0" encoding="utf-8"*?>*<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="@drawable/muddu"  
 tools:context=".SMS">  
  
 <TextView  
 android:id="@+id/textView20"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="8dp"  
 android:text="SMS Sender"  
 android:textColor="#9C27B0"  
 android:textSize="20sp"/>  
  
 <EditText  
 android:id="@+id/phone"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="122dp"  
 android:ems="10"  
 android:hint="Enter Phone No. Here"  
 android:inputType="phone" />  
  
 <TextView  
 android:id="@+id/textView21"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Phone No:"  
 android:textSize="20sp"/>  
  
 <EditText  
 android:id="@+id/message"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Enter Your Message Here"  
 android:inputType="textPersonName"/>  
  
 <TextView  
 android:id="@+id/textView22"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Message:"  
 android:textSize="20sp" />  
  
 <Button  
 android:id="@+id/button14"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Send SMS"/>  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – SMS.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.telephony.SmsManager;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
public class SMS extends AppCompatActivity {  
 EditText phone,message;  
 Button send;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_sms*);  
 phone=findViewById(R.id.*phone*);  
 message=findViewById(R.id.*message*);  
 send=findViewById(R.id.*button14*);  
 send.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String ph = phone.getText().toString();  
 String mes = message.getText().toString();  
 SmsManager sms = SmsManager.*getDefault*();  
 sms.sendTextMessage(ph,null,mes,null,null);  
 Toast.*makeText*(SMS.this, "Sent Successfully!", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 }  
}

**OUTPUT:**

****

****

1. **Write a program to create an activity having a Text box, and also Save, Open and Create buttons. The user has to write some text in the Text box. On pressing the Create button the text should be saved as a text file in SDcard. On subsequent changes to the text, the Save button should be pressed to store the latest content to the same file. On pressing the Open button, it should display the contents from the previously stored files in the Text box. If the user tries to save the contents in the Textbox to a file without creating it, then a toast message has to be displayed saying “First Create a File”.**

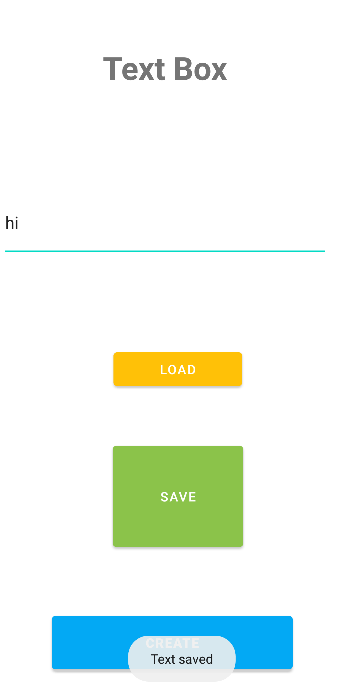
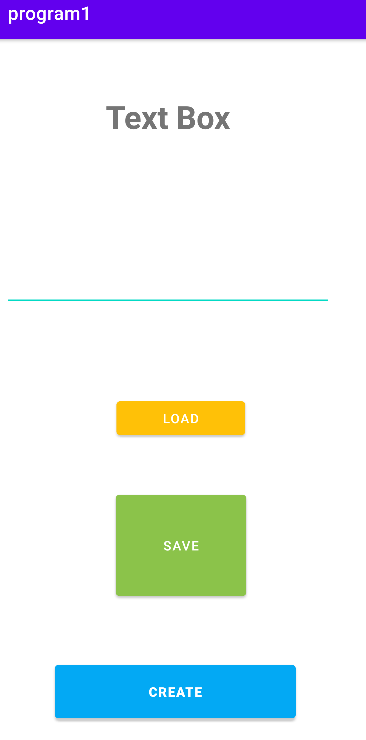
**XML Code – activity\_text\_save.xml**

*<?*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=".text\_save">  
  
 <TextView  
 android:id="@+id/textView27"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Text Box"  
 android:textSize="36dp"  
 android:textStyle="bold"/>  
  
 <Button  
 android:id="@+id/create\_txt"  
 android:layout\_width="250dp"  
 android:layout\_height="75dp"  
 android:text="CREATE"  
 android:textSize="36dp"/>  
  
 <EditText  
 android:id="@+id/text\_field"  
 android:layout\_width="250dp"  
 android:layout\_height="90dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text=""/>  
  
 <Button  
 android:id="@+id/save\_txt"  
 android:layout\_width="150dp"  
 android:layout\_height="81dp"  
 android:text="SAVE"  
 android:textSize="36dp"/>  
  
 <Button  
 android:id="@+id/open\_txt"  
 android:layout\_width="150dp"  
 android:layout\_height="81dp"  
 android:text="OPEN"  
 android:textSize="36dp" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – text\_save.java**

package com.example.visiting;  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
public class text\_save extends AppCompatActivity implements View.OnClickListener {  
  
 EditText text\_field;  
 Button create,open,save;  
 SharedPreferences spref;  
 final String SAVED\_TEXT = "saved text";  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_text\_save*);  
 text\_field=(EditText) findViewById(R.id.*text\_field*);  
 create=(Button) findViewById(R.id.*create\_txt*);  
 save=(Button) findViewById(R.id.*save\_txt*);  
 open=(Button) findViewById(R.id.*open\_txt*);  
 create.setOnClickListener(this);  
 save.setOnClickListener(this);  
 open.setOnClickListener(this);  
 loadtext();  
 }  
  
  
 @Override  
 public void onClick(View v) {  
 switch (v.getId()){  
 case R.id.*save\_txt*:  
 savetext();  
 break;  
 case R.id.*create\_txt*:  
 createtext();  
 break;  
 case R.id.*open\_txt*:  
 loadtext();  
 break;  
 }  
 }  
  
 void createtext(){  
 spref=getPreferences(*MODE\_PRIVATE*);  
 SharedPreferences.Editor ed =spref.edit();  
 ed.putString(SAVED\_TEXT, text\_field.getText().toString());  
 ed.commit();  
 Toast.*makeText*(this, "Text Created", Toast.*LENGTH\_SHORT*).show();  
 }  
  
 void savetext(){  
 if(text\_field!=null){  
 spref=getPreferences(*MODE\_PRIVATE*);  
 SharedPreferences.Editor ed =spref.edit();  
 ed.putString(SAVED\_TEXT, text\_field.getText().toString());  
 ed.commit();  
 Toast.*makeText*(this, "Text Created", Toast.*LENGTH\_SHORT*).show();  
 }  
 else{  
 Toast.*makeText*(this, "no file exist! create the file", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 void loadtext() {  
 spref = getPreferences(*MODE\_PRIVATE*);  
 String savedText = spref.getString(SAVED\_TEXT, "");  
 text\_field.setText(savedText);  
 Toast.*makeText*(this, "Text Opened", Toast.*LENGTH\_SHORT*).show();  
 }  
 @Override  
 protected void onDestroy() {  
 super.onDestroy();  
 savetext();  
 }  
}

**OUTPUT:**



1. **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.**

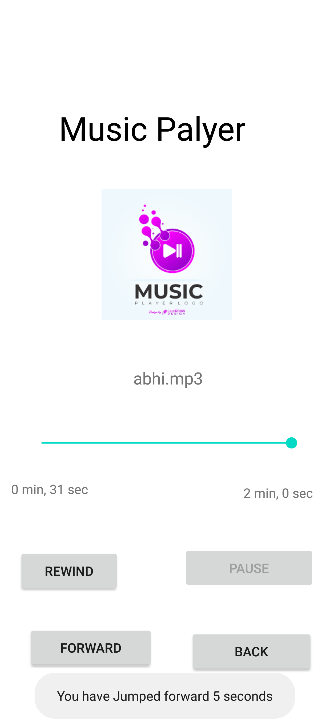
**XML Code – activity\_music\_player.xml**

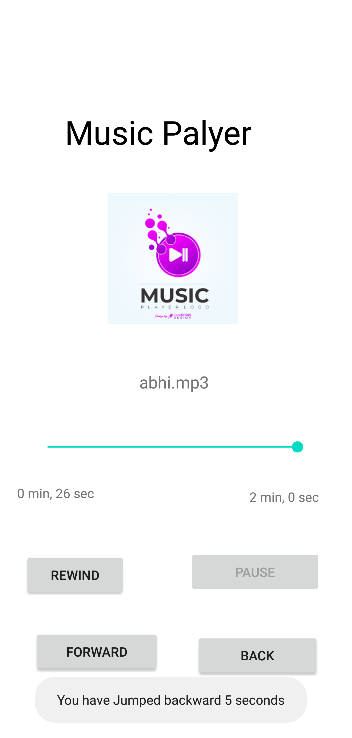
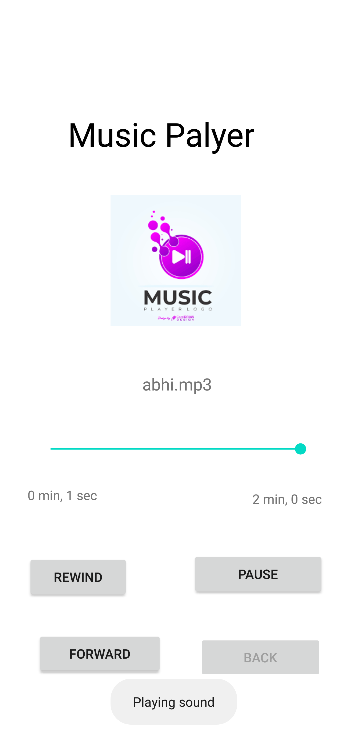
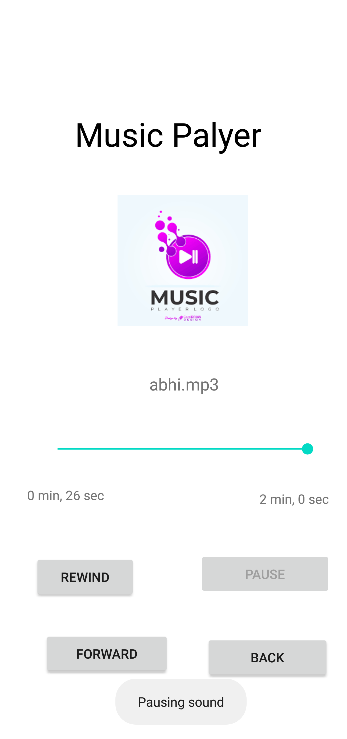
*<?*xml version="1.0" encoding="utf-8"*?>*<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".music\_player">  
  
 <TextView  
 android:id="@+id/textview"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Music Palyer"  
 android:textColor="@color/black"  
 android:textSize="35dp" />  
  
 <ImageView  
 android:id="@+id/imageView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="140dp"  
 android:src="@drawable/muddu" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="136dp"  
 android:layout\_height="wrap\_content"  
 android:text="forward" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="143dp"  
 android:layout\_height="wrap\_content"  
 android:text="pause" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="back" />  
  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="110dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentStart="true"  
 android:text="rewind" />  
  
 <SeekBar  
 android:id="@+id/seekBar"  
 android:layout\_width="300dp"  
 android:layout\_height="33dp"/>  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"

android:text="Small Text"  
 android:textAppearance="?android:attr/textAppearanceSmall" />  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_above="@+id/seekBar"  
 android:text="Small Text"  
 android:textAppearance="?android:attr/textAppearanceSmall" />  
  
 <TextView  
 android:id="@+id/textView4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Medium Text"  
 android:textAppearance="?android:attr/textAppearanceMedium" />  
</RelativeLayout>

**Java Code – music\_player.java**

package com.example.visiting;  
import android.app.Activity;  
import android.media.MediaPlayer;  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.View;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.SeekBar;  
import android.widget.TextView;  
import android.widget.Toast;  
import java.util.concurrent.TimeUnit;  
public class music\_player extends Activity {  
 private Button b1,b2,b3,b4;  
 private ImageView iv;  
 private MediaPlayer mediaPlayer;  
 private double startTime = 0;  
 private double finalTime = 0;  
 private Handler myHandler = new Handler();;  
 private int forwardTime = 5000;  
 private int backwardTime = 5000;  
 private SeekBar seekbar;  
 private TextView tx1,tx2,tx3;  
 public static int *oneTimeOnly* = 0;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_music\_player*);  
 b1 = (Button) findViewById(R.id.*button*);  
 b2 = (Button) findViewById(R.id.*button2*);  
 b3 = (Button)findViewById(R.id.*button3*);  
 b4 = (Button)findViewById(R.id.*button4*);  
 iv = (ImageView)findViewById(R.id.*imageView*);  
 tx1 = (TextView)findViewById(R.id.*textView2*);  
 tx2 = (TextView)findViewById(R.id.*textView3*);  
 tx3 = (TextView)findViewById(R.id.*textView4*);  
 tx3.setText("jai.mp3");  
 mediaPlayer = MediaPlayer.*create*(this, R.raw.*jai*);  
 seekbar = (SeekBar)findViewById(R.id.*seekBar*);  
 seekbar.setClickable(false);  
 b2.setEnabled(false);  
 b3.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(getApplicationContext(), "Playing sound",Toast.*LENGTH\_SHORT*).show();  
 mediaPlayer.start();  
 finalTime = mediaPlayer.getDuration();  
 startTime = mediaPlayer.getCurrentPosition();  
 if (*oneTimeOnly* == 0) {  
 seekbar.setMax((int) finalTime);  
 *oneTimeOnly* = 1;  
 }  
 tx2.setText(String.*format*("%d min, %d sec",  
 TimeUnit.*MILLISECONDS*.toMinutes((long) finalTime),  
 TimeUnit.*MILLISECONDS*.toSeconds((long) finalTime) -  
 TimeUnit.*MINUTES*.toSeconds(TimeUnit.*MILLISECONDS*.toMinutes((long)  
 finalTime)))  
 );  
 tx1.setText(String.*format*("%d min, %d sec",  
 TimeUnit.*MILLISECONDS*.toMinutes((long) startTime),  
 TimeUnit.*MILLISECONDS*.toSeconds((long) startTime) -  
 TimeUnit.*MINUTES*.toSeconds(TimeUnit.*MILLISECONDS*.toMinutes((long)  
 startTime)))  
 );  
 seekbar.setProgress((int)startTime);  
 myHandler.postDelayed(UpdateSongTime,100);  
 b2.setEnabled(true);  
 b3.setEnabled(false);  
 }  
 });  
 b2.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(getApplicationContext(), "Pausing sound",Toast.*LENGTH\_SHORT*).show();  
 mediaPlayer.pause();  
 b2.setEnabled(false);  
 b3.setEnabled(true);  
 }  
 });  
 b1.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 int temp = (int)startTime;  
 if((temp+forwardTime)<=finalTime){  
 startTime = startTime + forwardTime;  
 mediaPlayer.seekTo((int) startTime);  
 Toast.*makeText*(getApplicationContext(),"You have Jumped forward 5 seconds",Toast.*LENGTH\_SHORT*).show();  
 }else{  
 Toast.*makeText*(getApplicationContext(),"Cannot jump forward 5 seconds",Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 b4.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 int temp = (int)startTime;  
 if((temp-backwardTime)>0){  
 startTime = startTime - backwardTime;  
 mediaPlayer.seekTo((int) startTime);  
 Toast.*makeText*(getApplicationContext(),"You have Jumped backward 5 seconds",Toast.*LENGTH\_SHORT*).show();  
 }else{  
 Toast.*makeText*(getApplicationContext(),"Cannot jump backward 5 seconds",Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 }  
 private Runnable UpdateSongTime = new Runnable() {  
 public void run() {  
 startTime = mediaPlayer.getCurrentPosition();  
 tx1.setText(String.*format*("%d min, %d sec",  
 TimeUnit.*MILLISECONDS*.toMinutes((long) startTime),  
 TimeUnit.*MILLISECONDS*.toSeconds((long) startTime) -  
 TimeUnit.*MINUTES*.toSeconds(TimeUnit.*MILLISECONDS*.  
 toMinutes((long) startTime)))  
 );  
 seekbar.setProgress((int)startTime);  
 myHandler.postDelayed(this, 100);  
 }  
 };  
}

**OUTPUT:  
**

****

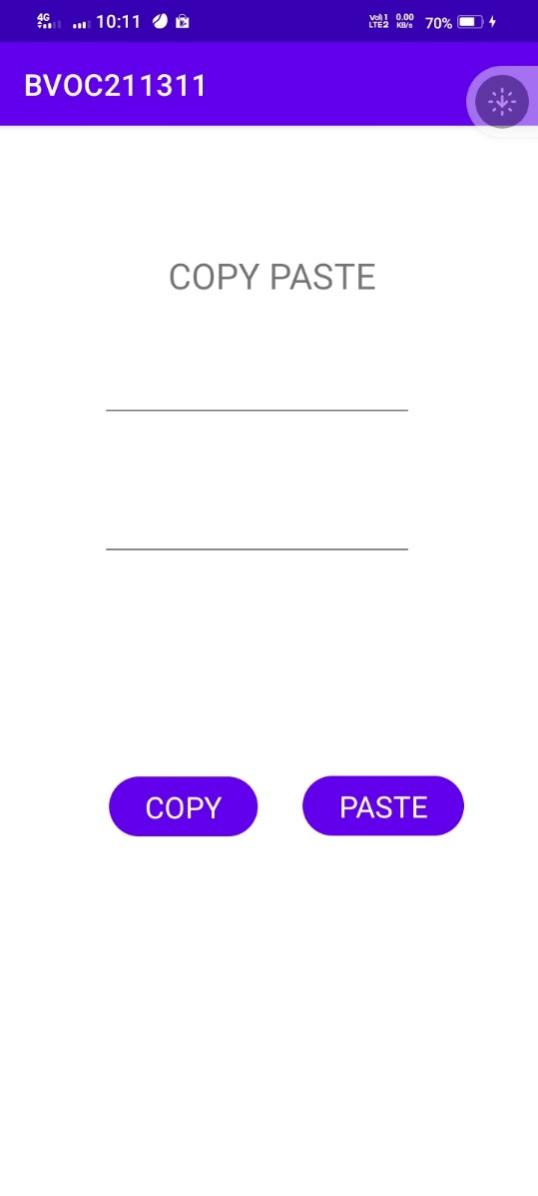
1. **Develop an application that makes use of the clipboard framework for copying and pasting of the text. The activity consists of two EditText controls and two Buttons to trigger the copy and paste functionality.**

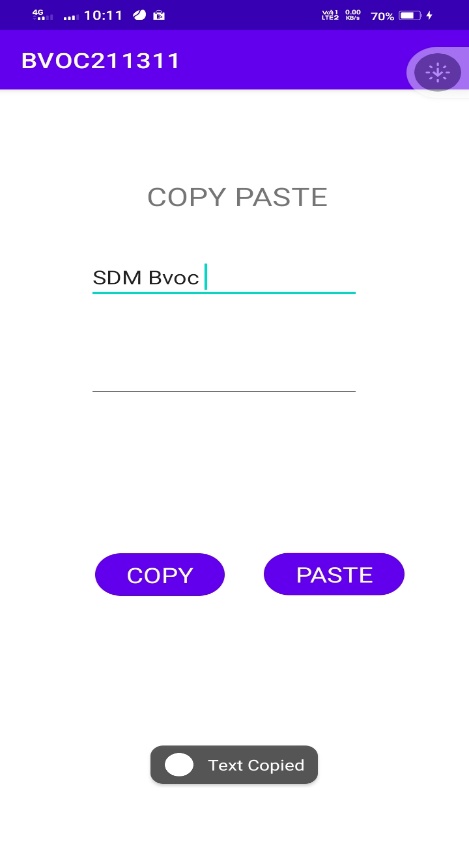
**XML Code – activity\_copy\_paste.xml**

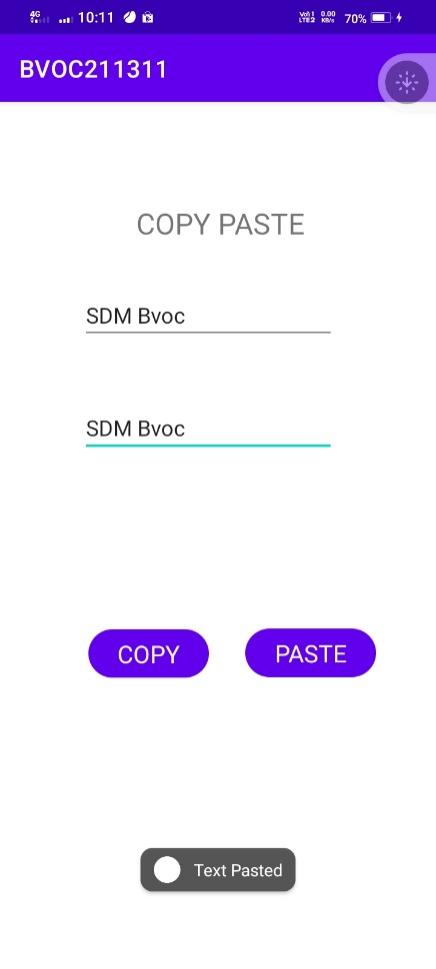
*<?*xml version="1.0" encoding="utf-8"*?>*<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".Copy\_Paste">  
  
 <EditText  
 android:id="@+id/copy"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"/>  
  
 <EditText  
 android:id="@+id/paste"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName"/>  
  
 <Button  
 android:id="@+id/copybtn"  
 style="@style/Widget.Material3.Button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="COPY"  
 android:textSize="20sp"/>  
  
 <Button  
 android:id="@+id/pastebtn"  
 style="@style/Widget.Material3.Button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="PASTE"  
 android:textSize="20sp"/>  
</androidx.constraintlayout.widget.ConstraintLayout>

**Java Code – Copy\_paste.java**

package com.example.visiting;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.ClipData;  
import android.content.ClipboardManager;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
public class Copy\_Paste extends AppCompatActivity {  
  
 EditText copy,paste;  
 Button copybtn,pastebtn;  
 private ClipboardManager myClipboard;  
 private ClipData myClip;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_copy\_paste*);  
 copy=(EditText) findViewById(R.id.*copy*);  
 paste=(EditText) findViewById(R.id.*paste*);  
 copybtn=(Button) findViewById(R.id.*copybtn*);  
 pastebtn=(Button) findViewById(R.id.*pastebtn*);  
 myClipboard=(ClipboardManager) getSystemService(*CLIPBOARD\_SERVICE*);  
 copybtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String text;  
 text=copy.getText().toString();  
 myClip=ClipData.*newPlainText*("text",text);  
 myClipboard.setPrimaryClip(myClip);  
 Toast.*makeText*(getApplicationContext(), "Text Copied", Toast.*LENGTH\_LONG*).show();  
 }  
 });  
 pastebtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 ClipData abc=myClipboard.getPrimaryClip();  
 ClipData.Item item=abc.getItemAt(0);  
 String text=item.getText().toString();  
 paste.setText(text);  
 Toast.*makeText*(getApplicationContext(), "Text Pasted", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 }  
}

**OUTPUT:**





1. **Create an AIDL service that calculates Car Loan EMI. The formula to calculate EMI is E = P \* (r(1+r)n )/((1+r)n -1) where E = The EMI payable on the car loan amount P = The Car loan Principal Amount r = The interest rate value computed on a monthly basis n = The loan tenure in the form of months The down payment amount has to be deducted from the principal amount paid towards buying the Car. Develop an application that makes use of this AIDL service to calculate the EMI. This application should have four EditText to read the Principal Amount, Down Payment, Interest Rate, Loan Term (in months) and a button named as “Calculate Monthly EMI”. On click of this button, the result should be shown in a TextView. Also, calculate the EMI by varying the Loan Term and Interest Rate values.**

**XML Code – activity\_emi\_calculator.xml**

*<?*xml version="1.0" encoding="utf-8"*?>*<RelativeLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 xmlns:tools="http://schemas.android.com/tools"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 tools:context=".EmiCalculator"  
 android:layout\_height="match\_parent">  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 app:layout\_behavior="@string/appbar\_scrolling\_view\_behavior">  
 <LinearLayout  
 android:layout\_width="fill\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_marginTop="?attr/actionBarSize"  
 android:orientation="vertical"  
 android:paddingLeft="20dp"  
 android:paddingRight="20dp"  
 android:paddingTop="10dp">  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:id="@+id/input\_layout\_principal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
 <EditText  
 android:id="@+id/principal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:singleLine="true"  
 android:inputType="number"  
 android:digits="0123456789."  
 android:hint="principal" />  
 </androidx.appcompat.widget.LinearLayoutCompat>  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:id="@+id/input\_layout\_interest"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
 <EditText  
 android:id="@+id/interest"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:singleLine="true"  
 android:inputType="number"  
 android:digits="0123456789."  
 android:hint="interest" />  
 </androidx.appcompat.widget.LinearLayoutCompat>  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:id="@+id/input\_layout\_tenure"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
 <EditText  
 android:id="@+id/years"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:inputType="number"  
 android:digits="0123456789."  
 android:hint="years" />  
 </androidx.appcompat.widget.LinearLayoutCompat>  
 <Button android:id="@+id/btn\_calculate2"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Calculate"  
 android:layout\_marginTop="40dp"  
 android:textColor="@android:color/white"/>  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:id="@+id/input\_layout\_emi"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="40dp">  
 <EditText  
 android:id="@+id/emi"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:maxEms="0"  
 android:inputType="number"  
 android:hint="emi" />  
 </androidx.appcompat.widget.LinearLayoutCompat>  
 <androidx.appcompat.widget.LinearLayoutCompat  
 android:id="@+id/input\_layout\_total\_Interest"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp">  
 <EditText  
 android:id="@+id/interest\_total"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:inputType="number"  
 android:hint="interest\_total" />  
 </androidx.appcompat.widget.LinearLayoutCompat>  
 </LinearLayout>  
 </androidx.appcompat.widget.LinearLayoutCompat>  
</RelativeLayout>

**Java Code – EmiCalculator.java**

package com.example.visiting;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.text.TextUtils;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.os.Bundle;  
public class EmiCalculator extends AppCompatActivity {  
 Button emiCalcBtn;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_emi\_calculator*);  
 final EditText P = (EditText) findViewById(R.id.*principal*);  
 final EditText I = (EditText) findViewById(R.id.*interest*);  
 final EditText Y = (EditText) findViewById(R.id.*years*);  
 final EditText TI = (EditText) findViewById(R.id.*interest\_total*);  
 final EditText result = (EditText) findViewById(R.id.*emi*);  
 emiCalcBtn = (Button) findViewById(R.id.*btn\_calculate2*);  
 emiCalcBtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String st1 = P.getText().toString();  
 String st2 = I.getText().toString();  
 String st3 = Y.getText().toString();  
 if (TextUtils.*isEmpty*(st1)) {  
 P.setError("Enter Prncipal Amount");  
 P.requestFocus();  
 return;  
 }  
 if (TextUtils.*isEmpty*(st2)) {  
 I.setError("Enter Interest Rate");  
 I.requestFocus();  
 return;  
 }  
 if (TextUtils.*isEmpty*(st3)) {  
 Y.setError("Enter Years");  
 Y.requestFocus();  
 return;  
 }  
 float p = Float.*parseFloat*(st1);  
 float i = Float.*parseFloat*(st2);  
 float y = Float.*parseFloat*(st3);  
 float Principal = calPric(p);  
 float Rate = calInt(i);  
 float Months = calMonth(y);  
 float Dvdnt = calDvdnt(Rate, Months);  
 float FD = calFinalDvdnt(Principal, Rate, Dvdnt);  
 float D = calDivider(Dvdnt);  
 float emi = calEmi(FD, D);  
 float TA = calTa(emi, Months);  
 float ti = calTotalInt(TA, Principal);  
 result.setText(String.*valueOf*(emi));  
 TI.setText(String.*valueOf*(ti));  
 }  
 });  
 }  
 public float calPric(float p) {  
 return (float)(p);  
 }  
 public float calInt(float i) {  
 return (float)(i / 12 / 100);  
 }  
 public float calMonth(float y) {  
 return (float)(y \* 12);  
 }  
 public float calDvdnt(float Rate, float Months) {  
 return (float)(Math.*pow*(1 + Rate, Months));  
 }  
 public float calFinalDvdnt(float Principal, float Rate, float Dvdnt) {  
 return (float)(Principal \* Rate \* Dvdnt);  
 }  
 public float calDivider(float Dvdnt) {  
 return (float)(Dvdnt - 1);  
 }  
 public float calEmi(float FD, Float D) {  
 return (float)(FD / D);  
 }  
 public float calTa(float emi, Float Months) {  
 return (float)(emi \* Months);  
 }  
 public float calTotalInt(float TA, float Principal) {  
 return (float)(TA - Principal);  
 }  
}

**OUTPUT:**

