

MainActivity.java

```
package com.example.ex1_final;
import androidx.appcompat.app.AppCompatActivity;
import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.TimePicker;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    EditText name,address,age,date,contactno,regtime;
    RadioButton male,female,other;
    RadioGroup rg;
    CheckBox alcohol,smoking;
    Button submit,reset;
    String gender,status;
    TextView print;
    int myear,mmonth,mday;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        date=findViewById(R.id.editdate);
        name=findViewById(R.id.editname);
        address=findViewById(R.id.editaddress);
        age=findViewById(R.id.editage);
        date=findViewById(R.id.editdate);
        contactno=findViewById(R.id.editcontact);
        regtime=findViewById(R.id.timepick);
        male=findViewById(R.id.maleButton);
        female=findViewById(R.id.femaleButton);
        other=findViewById(R.id.OtherButton);
        rg=findViewById(R.id.radiogroup);
        print=findViewById(R.id.printText);
        submit=findViewById(R.id.submitButton);
        reset=findViewById((R.id.resetButton));
        alcohol=findViewById(R.id.alcohol);
        smoking=findViewById(R.id.smoking);
        final Spinner spinner =(Spinner)findViewById(R.id.maritalspinner);
        //create an array adapter using string array and default spinner layout
        ArrayAdapter<CharSequence> adapter =
        ArrayAdapter.createFromResource(this,R.array.marital_array,android.R.layout.simple_spinner_item);
        //specify layout to use when list of choices appear
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        //apply adapter to spinner
        spinner.setAdapter(adapter);
        spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parent, View view, int position,
long id) {
                status = (String)parent.getItemAtPosition(position);
            }
        });
    }
}
```

```

    @Override
    public void onNothingSelected(AdapterView<?> parent) {
    }
});
date.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Calendar mCurrentDate = Calendar.getInstance();
        myear = mCurrentDate.get(Calendar.YEAR);
        mmonth = mCurrentDate.get(Calendar.MONTH);
        mday = mCurrentDate.get(Calendar.DAY_OF_MONTH);
        DatePickerDialog mDatePicker = new DatePickerDialog(MainActivity.this,
new DatePickerDialog.OnDateSetListener() {
    @Override
    public void onDateSet(DatePicker view, int year, int month, int
dayOfMonth) {
        month+=1;
        date.setText(dayOfMonth + "/" + month + "/" + year);
    }
},myear, mmonth, mday);
mDatePicker.setTitle("Double Click to select date");
mDatePicker.show();
}
});
regtime.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Calendar mCurrentTime = Calendar.getInstance();
        int hour = mCurrentTime.get(Calendar.HOUR_OF_DAY);
        int minute = mCurrentTime.get(Calendar.MINUTE);
        TimePickerDialog mTimePicker;
        mTimePicker = new TimePickerDialog(MainActivity.this, new
TimePickerDialog.OnTimeSetListener() {
            @Override
            public void onTimeSet(TimePicker timePicker, int selectedHour, int
selectedMinute) {
                regtime.setText(selectedHour + ":" + selectedMinute);
            }
        }, hour, minute, true); //Yes 24 hour time
        mTimePicker.setTitle("Select Time");
        mTimePicker.show();
    }
});
}
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView
    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">
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MainActivity">
        <TextView
            android:id="@+id/headingText"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"

```

```
        android:gravity="center"
        android:paddingTop="10dp"
        android:text="Hospital Form"
        android:textStyle="bold"
        android:textSize="30dp"
        android:textColor="@color/blue"/>
<TextView
    android:id="@+id/nameText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/headingText"
    android:paddingTop="20dp"
    android:textColor="@color/red"
    android:text="    Name:"
    android:textSize="23dp" />
<EditText
    android:id="@+id/editname"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/headingText"
    android:layout_toRightOf="@+id/nameText"
    android:textSize="23dp"
    android:hint="Enter Name"
    android:paddingTop="20dp" />
<TextView
    android:id="@+id/addressText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/nameText"
    android:textColor="@color/red"
    android:paddingTop="20dp"
    android:text="    Address:"
    android:textSize="23dp" />
<EditText
    android:id="@+id/editaddress"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editname"
    android:layout_toRightOf="@+id/addressText"
    android:paddingTop="20dp"
    android:hint="Edit Address" />
<TextView
    android:id="@+id/ageText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/addressText"
    android:textColor="@color/red"
    android:paddingTop="35dp"
    android:text="    Age:"
    android:textSize="23dp" />
<EditText
    android:id="@+id/editage"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editaddress"
    android:layout_toRightOf="@+id/ageText"
    android:textSize="23dp"
    android:hint="Edit Age"
    android:paddingTop="20dp" />
<TextView
    android:id="@+id/dateText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/ageText"
```

```
        android:textColor="@color/red"
        android:paddingTop="30dp"
        android:text=" Date:"
        android:textSize="23dp" />
<EditText
        android:id="@+id/editdate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editage"
        android:layout_toRightOf="@+id/dateText"
        android:textSize="23dp"
        android:hint="Double Click here!"
        android:paddingTop="20dp" />
<TextView
        android:id="@+id/genderText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/dateText"
        android:textColor="@color/red"
        android:paddingTop="30dp"
        android:text=" Gender: "
        android:textSize="23dp" />
<RadioGroup
        android:id="@+id/radiogroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editdate"
        android:layout_toRightOf="@+id/genderText"
        android:paddingTop="30dp"
        tools:layout_editor_absoluteX="144dp"
        tools:layout_editor_absoluteY="332dp">
<RadioButton
        android:id="@+id/femaleButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Female" />
<RadioButton
        android:id="@+id/maleButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Male"
        />
<RadioButton
        android:id="@+id/OtherButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Other" />
</RadioGroup>
<TextView
        android:id="@+id/maritalstatus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/genderText"
        android:textColor="@color/red"
        android:paddingTop="90dp"
        android:text=" Marital Status: "
        android:textSize="23dp" />
<Spinner
        android:id="@+id/maritalspinner"
        android:layout_width="157dp"
        android:layout_height="26dp"
        android:layout_below="@+id/radiogroup"
        android:layout_marginLeft="7dp"
        android:layout_marginTop="13dp"
```

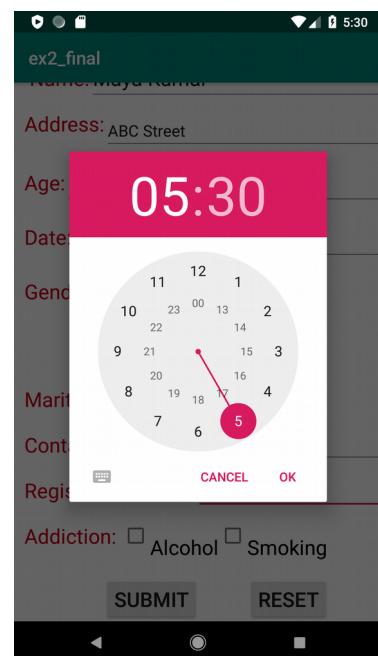
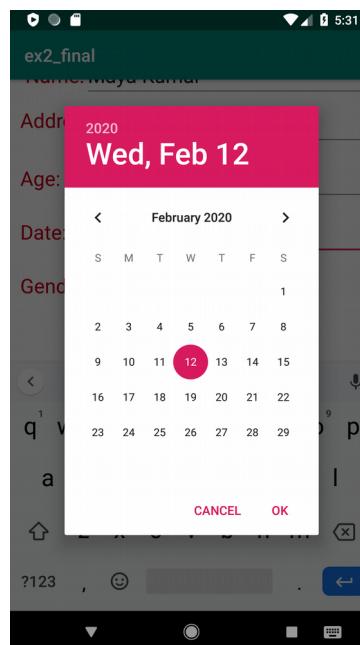
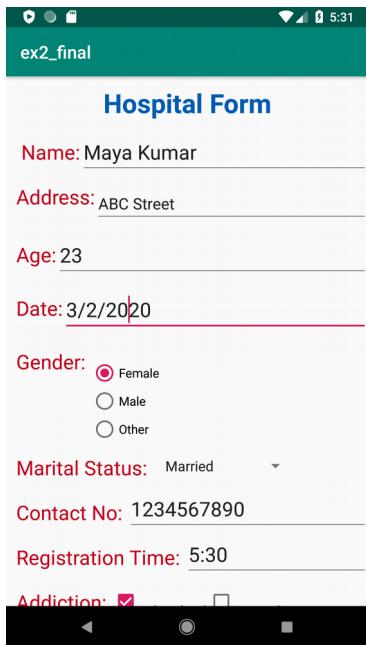
```
        android:layout_toRightOf="@+id/maritalstatus"
        />
<TextView
    android:id="@+id/contactText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/maritalstatus"
    android:textColor="@color/red"
    android:paddingTop="20dp"
    android:text=" Contact No: "
    android:textSize="23dp" />
<EditText
    android:id="@+id/editcontact"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/maritalspinner"
    android:layout_toRightOf="@+id/contactText"
    android:textSize="23dp"
    android:hint="Enter contact no"
    android:paddingTop="20dp" />
<TextView
    android:id="@+id/regtimeText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/contactText"
    android:textColor="@color/red"
    android:paddingTop="20dp"
    android:text=" Registration Time: "
    android:textSize="23dp" />
<EditText
    android:id="@+id/timepick"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editcontact"
    android:layout_toRightOf="@+id/regtimeText"
    android:textSize="23dp"
    android:hint="Double click here!"
    android:paddingTop="10dp" />
<TextView
    android:id="@+id/addictionText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/regtimeText"
    android:textColor="@color/red"
    android:paddingTop="20dp"
    android:text=" Addiction: "
    android:textSize="23dp" />
<CheckBox
    android:id="@+id/alcohol"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Alcohol"
    android:layout_below="@+id/timepick"
    android:layout_toRightOf="@+id/addictionText"
    android:textSize="23dp"
    android:paddingTop="25dp" />
<CheckBox
    android:id="@+id/smoking"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Smoking"
    android:layout_below="@+id/timepick"
    android:layout_toRightOf="@+id/alcohol"
    android:textSize="23dp"
```

```

        android:paddingTop="25dp" />
    <Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/alcohol"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="18dp"
        android:gravity="center"
        android:text="Submit"
        android:textSize="23dp" />
    <Button
        android:id="@+id/resetButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/alcohol"
        android:layout_marginLeft="54dp"
        android:layout_marginTop="18dp"
        android:layout_toRightOf="@+id/submitButton"
        android:gravity="right"
        android:text="Reset"
        android:textSize="23dp" />
</RelativeLayout>
</ScrollView>

```

Ouput:



5:31

Name: Mayuri Kumar

Address: ABC Street

Age: 23

Date: 3/2/2020

Gender: Female
 Male
 Other

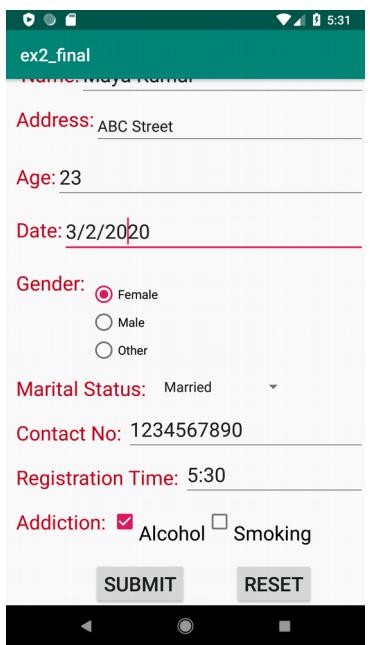
Marital Status: Married

Contact No: 1234567890

Registration Time: 5:30

Addiction: Alcohol Smoking

SUBMIT **RESET**



MainActivity.java

```
package com.example.ex1_final;
import androidx.appcompat.app.AppCompatActivity;
import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.TimePicker;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    EditText name,address,age,date,contactno,regtime;
    RadioButton male,female,other;
    RadioGroup rg;
    CheckBox alcohol,smoking;
    Button submit,reset;
    String gender,status;
    int myear,mmonth,mday;
    String final_string;
    String addiction = "None";
    String f_time,f_date;
    public void openNewActivity(String value){
        Intent intent = new Intent(this, DisplayActivity.class);
        intent.putExtra("key", value);
        startActivity(intent);
    }
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        date=findViewById(R.id.editdate);
        name=findViewById(R.id.editname);
        address=findViewById(R.id.editaddress);
        age=findViewById(R.id.editage);
        contactno=findViewById(R.id.editcontact);
        regtime=findViewById(R.id.timepick);
        male=findViewById(R.id.maleButton);
        female=findViewById(R.id.femaleButton);
        other=findViewById(R.id.OtherButton);
        rg=findViewById(R.id.radiogroup);
        submit=findViewById(R.id.submitButton);
        reset=findViewById((R.id.resetButton));
        alcohol=findViewById(R.id.alcohol);
        smoking=findViewById(R.id.smoking);
        final Spinner spinner =(Spinner)findViewById(R.id.maritalspinner);
        //create an array adapter using string array and default spinner layout
        ArrayAdapter<CharSequence> adapter =
        ArrayAdapter.createFromResource(this,R.array.marital_array,android.R.layout.simple_spinner_item);
        //specify layout to use when list of choices appear
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        //apply adapter to spinner
```

```

        spinner.setAdapter(adapter);
        spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parent, View view, int position,
long id) {
                status = (String)parent.getItemAtPosition(position);
            }
            @Override
            public void onNothingSelected(AdapterView<?> parent) {
                status= "Unselected";
            }
        });
        date.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Calendar mCurrentDate = Calendar.getInstance();
                myear = mCurrentDate.get(Calendar.YEAR);
                mmonth = mCurrentDate.get(Calendar.MONTH);
                mday = mCurrentDate.get(Calendar.DAY_OF_MONTH);
                DatePickerDialog mDatePicker = new DatePickerDialog(MainActivity.this,
new DatePickerDialog.OnDateSetListener() {
                    @Override
                    public void onDateSet(DatePicker view, int year, int month, int
dayOfMonth) {
                        month+=1;
                        date.setText(dayOfMonth + "/" + month + "/" + year);
                        f_date = dayOfMonth + "/" + month + "/" + year;
                    }
                },myear, mmonth, mday);
                mDatePicker.setTitle("Double Click to select date");
                mDatePicker.show();
            }
        });
        regtime.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Calendar mCurrentTime = Calendar.getInstance();
                int hour = mCurrentTime.get(Calendar.HOUR_OF_DAY);
                int minute = mCurrentTime.get(Calendar.MINUTE);
                TimePickerDialog mTimePicker;
                mTimePicker = new TimePickerDialog(MainActivity.this, new
TimePickerDialog.OnTimeSetListener() {
                    @Override
                    public void onTimeSet(TimePicker timePicker, int selectedHour, int
selectedMinute) {
                        regtime.setText(selectedHour + ":" + selectedMinute);
                        f_time = selectedHour + ":" + selectedMinute;
                    }
                }, hour, minute, true); //Yes 24 hour time
                mTimePicker.setTitle("Select Time");
                mTimePicker.show();
            }
        });
        reset.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                name.setText("");
                address.setText("");
                age.setText("");
                date.setText("");
                male.setChecked(false);
                female.setChecked(false);
                other.setChecked(false);
                spinner.setAdapter(null);
            }
        });
    }
}

```

```

        contactno.setText("");
        regtime.setText("");
        alcohol.setChecked(false);
        smoking.setChecked(false);
    }
});
submit.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        switch(rg.getCheckedRadioButtonId())
        {
            case R.id.maleButton:
                gender = "male";
                break;
            case R.id.femaleButton:
                gender= "female";
                break;
            case R.id.OtherButton:
                gender = "Other";
                break;
            default:
                gender="Unselected";
                break;
        }
        if(alcohol.isChecked()==true && smoking.isChecked()==true)
            addiction="Alcohol and Smoking";
        if(alcohol.isChecked()==false && smoking.isChecked()==true)
            addiction="Smoking";
        if(alcohol.isChecked()==true && smoking.isChecked()==false)
            addiction="Alcohol";
        final_string="";
        Log.i("heree","hiiii");
        final_string+="Name:"+name.getEditableText().toString()+"\n";
        Log.i("heree",name.getEditableText().toString());
        final_string+="Address:"+address.getEditableText().toString()+"\n";
        Log.i("heree",address.getEditableText().toString());
        final_string+="Age:"+age.getEditableText().toString()+"\n";
        Log.i("heree",age.getEditableText().toString());
        final_string+="Date:"+f_date+"\n";
        Log.i("heree",date.toString());
        final_string+="Gender:"+gender+"\n";
        Log.i("heree",gender);
        final_string+="Marital Status:"+status+"\n";
        Log.i("heree",status);
        final_string+="Contact No:"+contactno.getEditableText().toString()
        +"\n";
        Log.i("heree",contactno.getEditableText().toString());
        final_string+="Registration:"+f_time+"\n";
        Log.i("heree",regtime.toString());
        final_string+="Addiction:"+addiction+'\n';
        Log.i("heree",addiction);
        Log.i("heree",final_string);
        openNewActivity(final_string);
    }
});
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView
    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">
<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/headingText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:paddingTop="10dp"
        android:text="Hospital Form"
        android:textStyle="bold"
        android:textSize="30dp"
        android:textColor="@color/blue"/>
    <TextView
        android:id="@+id/nameText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/headingText"
        android:paddingTop="20dp"
        android:textColor="@color/red"
        android:text="Name:"
        android:textSize="23dp" />
    <EditText
        android:id="@+id/editname"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/headingText"
        android:layout_toRightOf="@+id/nameText"
        android:textSize="23dp"
        android:hint="Enter Name"
        android:paddingTop="20dp" />
    <TextView
        android:id="@+id/addressText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/nameText"
        android:textColor="@color/red"
        android:paddingTop="20dp"
        android:text="Address:"
        android:textSize="23dp" />
    <EditText
        android:id="@+id/editaddress"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editname"
        android:layout_toRightOf="@+id/addressText"
        android:paddingTop="20dp"
        android:hint="Edit Address" />
    <TextView
        android:id="@+id/ageText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/addressText"
        android:textColor="@color/red"
        android:paddingTop="35dp"
        android:text="Age:"
        android:textSize="23dp" />
    <EditText
        android:id="@+id/editage"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editaddress"
        android:layout_toRightOf="@+id/ageText"
        android:textSize="23dp"
        android:hint="Edit Age"
        android:paddingTop="20dp" />
<TextView
        android:id="@+id/dateText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/ageText"
        android:textColor="@color/red"
        android:paddingTop="30dp"
        android:text=" Date:"
        android:textSize="23dp" />
<EditText
        android:id="@+id/editdate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editage"
        android:layout_toRightOf="@+id/dateText"
        android:textSize="23dp"
        android:hint="Double Click here!"
        android:paddingTop="20dp" />
<TextView
        android:id="@+id/genderText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/dateText"
        android:textColor="@color/red"
        android:paddingTop="30dp"
        android:text=" Gender:"
        android:textSize="23dp" />
<RadioGroup
        android:id="@+id/radiogroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editdate"
        android:layout_toRightOf="@+id/genderText"
        android:paddingTop="30dp"
        tools:layout_editor_absoluteX="144dp"
        tools:layout_editor_absoluteY="332dp">
<RadioButton
        android:id="@+id/femaleButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Female" />
<RadioButton
        android:id="@+id/maleButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Male"
        />
<RadioButton
        android:id="@+id/OtherButton"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Other" />
</RadioGroup>
<TextView
        android:id="@+id/maritalstatus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:layout_below="@+id/genderText"
        android:textColor="@color/red"
        android:paddingTop="90dp"
        android:text=" Marital Status: "
        android:textSize="23dp" />
<Spinner
        android:id="@+id/maritalspinner"
        android:layout_width="157dp"
        android:layout_height="26dp"
        android:layout_below="@+id/radiogroup"
        android:layout_marginLeft="7dp"
        android:layout_marginTop="13dp"
        android:layout_toRightOf="@+id/maritalstatus"
        />
<TextView
        android:id="@+id/contactText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/maritalstatus"
        android:textColor="@color/red"
        android:paddingTop="20dp"
        android:text=" Contact No: "
        android:textSize="23dp" />
<EditText
        android:id="@+id/editcontact"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/maritalspinner"
        android:layout_toRightOf="@+id/contactText"
        android:textSize="23dp"
        android:hint="Enter contact no"
        android:paddingTop="20dp" />
<TextView
        android:id="@+id/regtimeText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/contactText"
        android:textColor="@color/red"
        android:paddingTop="20dp"
        android:text=" Registration Time: "
        android:textSize="23dp" />
<EditText
        android:id="@+id/timepick"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editcontact"
        android:layout_toRightOf="@+id/regtimeText"
        android:textSize="23dp"
        android:hint="Double click here!"
        android:paddingTop="10dp" />
<TextView
        android:id="@+id/addictionText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/regtimeText"
        android:textColor="@color/red"
        android:paddingTop="20dp"
        android:text=" Addiction: "
        android:textSize="23dp" />
<CheckBox
        android:id="@+id/alcohol"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Alcohol"
```

```

        android:layout_below="@+id/timepick"
        android:layout_toRightOf="@+id/addictionText"
        android:textSize="23dp"
        android:paddingTop="25dp" />
<CheckBox
        android:id="@+id/smoking"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Smoking"
        android:layout_below="@+id/timepick"
        android:layout_toRightOf="@+id/alcohol"
        android:textSize="23dp"
        android:paddingTop="25dp" />
<Button
        android:id="@+id/submitButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/alcohol"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="18dp"
        android:gravity="center"
        android:text="Submit"
        android:textSize="23dp" />
<Button
        android:id="@+id/resetButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/alcohol"
        android:layout_marginLeft="54dp"
        android:layout_marginTop="18dp"
        android:layout_toRightOf="@+id/submitButton"
        android:gravity="right"
        android:text="Reset"
        android:textSize="23dp" />
    </RelativeLayout>
</ScrollView>

```

DisplayActivity.java

```

package com.example.ex1_final;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.widget.EditText;
import android.widget.TextView;
public class DisplayActivity extends AppCompatActivity {
    EditText form;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_display);
        Intent intent = getIntent();
        String value = intent.getStringExtra("key");
        Log.i("1heree",value);
        form = findViewById(R.id.form1);
        form.setText(value);
    }
}

```

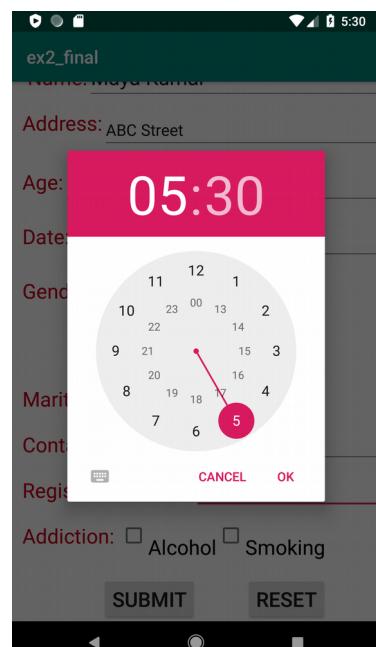
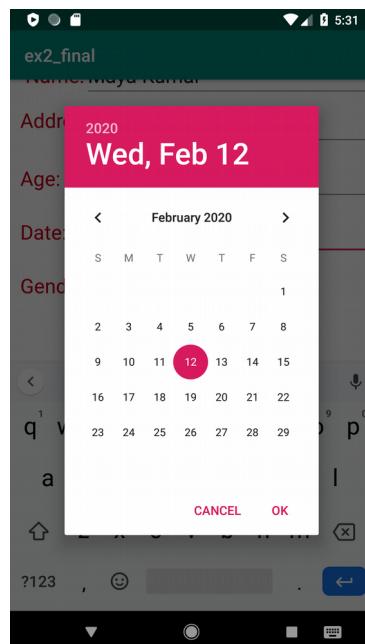
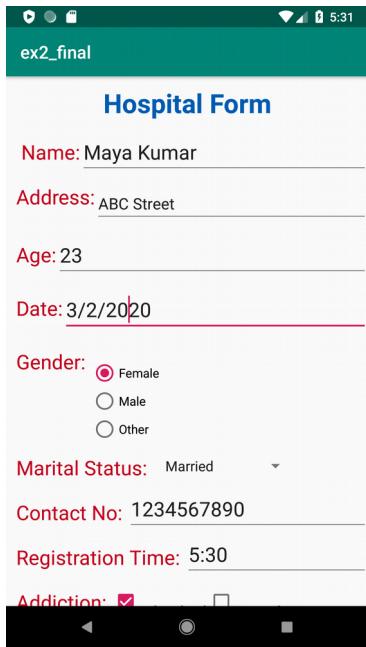
activity_display.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:id="@+id/submitTitle"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Your Form is Submitted!"
        android:textColor="@color/blue"
        android:gravity="center"
        android:textSize="24dp"
        android:paddingTop="20dp"/>
    <EditText
        android:id="@+id/form1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text=""
        android:gravity="center"
        android:textColor="@color/red"
        android:textSize="26dp"/>
</LinearLayout>

```

Output:



ex2_final

Name: Maya Kumar

Address: ABC Street

Age: 23

Date: 3/2/2020

Gender: Female
 Male
 Other

Marital Status: Married

Contact No: 1234567890

Registration Time: 5:30

Addiction: Alcohol Smoking

SUBMIT **RESET**

ex2_final

Your Form is Submitted!

Name: Maya Kumar
Address: ABC Street
Age: 23
Date: 3/2/2020
Gender: female
Marital Status: Married
Contact No: 1234567890
Registration: 5:30
Addiction: Alcohol

MainActivity.java

```
package com.example.csec4152.my_calc;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.text.Editable;
import android.util.Log;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
import org.w3c.dom.Text;
import java.util.ArrayList;
import java.util.Stack;
import java.util.regex.Pattern;
public class MainActivity extends AppCompatActivity {
    Stack<String> input;
    ArrayList<String> post_input;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        input=new Stack<String>();
        post_input=new ArrayList<String>();
        final EditText et_input=(EditText)findViewById(R.id.et_input);
        et_input.setEnabled(false);
        final String[]
ops={"c","del","dot","plus","minus","mul","div","percent","open","close","equal","sin","cos","log"};
        TextView t0=(TextView)findViewById(R.id.tv_0);
        TextView t1=(TextView)findViewById(R.id.tv_1);
        TextView t2=(TextView)findViewById(R.id.tv_2);
        TextView t3=(TextView)findViewById(R.id.tv_3);
        TextView t4=(TextView)findViewById(R.id.tv_4);
        TextView t5=(TextView)findViewById(R.id.tv_5);
        TextView t6=(TextView)findViewById(R.id.tv_6);
        TextView t7=(TextView)findViewById(R.id.tv_7);
        TextView t8=(TextView)findViewById(R.id.tv_8);
        TextView t9=(TextView)findViewById(R.id.tv_9);
        TextView c=(TextView)findViewById(R.id.tv_c);
        TextView del=(TextView)findViewById(R.id.tv_del);
        TextView sin=(TextView)findViewById(R.id.tv_sin);
        TextView cos=(TextView)findViewById(R.id.tv_cos);
        TextView log=(TextView)findViewById(R.id.tv_log);
        TextView lp=(TextView)findViewById(R.id.tv_open);
        TextView rp=(TextView)findViewById(R.id.tv_close);
        TextView pl=(TextView)findViewById(R.id.tv_plus);
        TextView mi=(TextView)findViewById(R.id.tv_minus);
        TextView mul=(TextView)findViewById(R.id.tv_mul);
        TextView div=(TextView)findViewById(R.id.tv_div);
        final TextView eq=(TextView)findViewById(R.id.tv_equal);
        TextView pc=(TextView)findViewById(R.id.tv_percent);
        TextView dot=(TextView)findViewById(R.id.tv_dot);
        t0.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                et_input.setText(et_input.getText()+"0");
            }
        });
        t1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                et_input.setText(et_input.getText()+"1");
            }
        });
    }
}
```

```
});  
t2.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"2");  
    }  
});  
t3.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"3");  
    }  
});  
t4.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"4");  
    }  
});  
t5.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"5");  
    }  
});  
t6.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"6");  
    }  
});  
t7.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"7");  
    }  
});  
t8.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"8");  
    }  
});  
t9.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText(et_input.getText()+"9");  
    }  
});  
c.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        et_input.setText("");  
    }  
});  
del.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        String str=et_input.getText().toString();  
        if (str != null && str.length() > 0)  
            et_input.setText(str.substring(0, str.length() - 1));  
    }  
});  
sin.setOnClickListener(new View.OnClickListener() {
```

```
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"sin");
    }
});
cos.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"cos");
    }
});
log.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"log");
    }
});
lp.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"(");
    }
});
rp.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+")");
    }
});
pl.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"+");
    }
});
mi.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"-");
    }
});
mul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"x");
    }
});
div.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"/");
    }
});
pc.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+"%");
    }
});
dot.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        et_input.setText(et_input.getText()+".");
    }
});
```

```

    });
    eq.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            String equation=et_input.getText().toString();
            Log.e("equation",equation);
            if(check_valid(equation)==1)
            {
                if(equation.startsWith("sin") || equation.startsWith("cos") || equation.startsWith("log"))
                {
                    String x=trig_calc(equation);
                    if(x.contains("E"))
                        et_input.setText("0.0");
                    else
                        et_input.setText(x);
                }
                else
                {
                    Log.e("equation", "postfix");
                    postFix(equation);
                    calc();
                    et_input.setText(input.peek());
                }
            }
            else
                et_input.setText("Invalid");
        }
    });
    //et_input.setSelection(et_input.getEditableText().length());
}
private void postFix(String ip){
    makeEmpty();
    post_input.clear();
    ip = ip.replaceAll("[\\+|-|x|\\/|\\(|\\)|\\%]", ",,$0,");
    ip = ip.replaceAll(",,", ",");
    String sep[]=ip.split(",");
    for(int i=0;i<sep.length;i++)
        if(sep[i].equals("x") || sep[i].equals("(") || sep[i].equals("+") || sep[i].equals("-") ||
           sep[i].equals("/") || sep[i].equals("%")){
            if(input.isEmpty())
                input.push(sep[i]);
            else if ((input.peek().equals("X") || input.peek().equals("/")) &&
                     (sep[i].equals("+") || sep[i].equals("-")))
                post_input.add(input.pop());
                input.push(sep[i]);
            }
            else if ((input.peek().equals("+") || input.peek().equals("-")) &&
                     (sep[i].equals("+") || sep[i].equals("-")))
                post_input.add(input.pop());
                input.push(sep[i]);
            }
            else {
                input.push(sep[i]);
            }
        }
        else if(sep[i].equals("")){
            while(!input.peek().equals("("))
                post_input.add(input.pop());
            input.pop();
        }
        else
            post_input.add(sep[i]);
    }
    while(!input.isEmpty())
}

```

```

        post_input.add(input.pop());
        Log.e("postfix",post_input.toString());
    }
    private void calc(){
        makeEmpty();
        /*
        post_input.clear();
        post_input.add("5");
        post_input.add("5");
        post_input.add("/");
        post_input.add("5");
        post_input.add("+");
        */
        for(String num:post_input){
            if(num.equals("x") || num.equals("+") || num.equals("-") || num.equals("/"))
                ||
                num.equals("%")){
                String val_a=input.pop();
                String val_b=input.pop();
                float a,b;
                try {
                    a = Integer.parseInt(val_a);
                }
                catch (Exception e){
                    a = Float.parseFloat(val_a);
                }
                try {
                    b = Integer.parseInt(val_b);
                }
                catch (Exception e){
                    b = Float.parseFloat(val_b);
                }
                switch (num){
                    case "+":
                        input.push(Float.toString(b+a));
                        break;
                    case "-":
                        input.push(Float.toString(b-a));
                        break;
                    case "x":
                        input.push(Float.toString(b*a));
                        break;
                    case "/":
                        input.push(Float.toString(b/a));
                        break;
                    case "%":
                        input.push(Float.toString(b%a));
                        break;
                }
            }
            else
                input.push(num);
        }
    }
    private String trig_calc(String ip){
        double val = Double.parseDouble(ip.substring(3));
        Log.e("trig",Double.toString(val));
        if(ip.startsWith("sin")){
            double value=(Math.sin(Math.toRadians(val)));
            // Log.e("trig",Double.toString(Math.sin(Math.toRadians(val))));
            return Double.toString(value);
        }
        else if(ip.startsWith("cos")){
            double value=(Math.cos(Math.toRadians(val)));
        }
    }
}

```

```

        return Double.toString(value);
    }
    else if(ip.startsWith("log")) {
        double value=(Math.log10((val)));
        return Double.toString(value);
    }
    else
        return "Invalid";
}
private void makeEmpty(){
    while (!input.isEmpty())
        input.pop();
}
private int check_valid(String ip){
    int opc=0;
    int cc=0;
    int ob=0;
    int cb=0;
    ip = ip.replaceAll("[\\+|-|x|\\/|\\(|\\)|\\%]", ",$0,");
    ip = ip.replaceAll(",","");
    String sep[]=ip.split(",");
    for(int i=0;i<sep.length;i++) {
        if (sep[i].equals("x") || sep[i].equals("+") || sep[i].equals("-") ||
            sep[i].equals("/") || sep[i].equals("%")) {
            opc=opc+1;
        }
        else if (sep[i].equals("("))
            ob=ob+1;
        else if (sep[i].equals(")"))
            cb=cb+1;
        else if (sep[i].matches("\\d+")) || sep[i].matches("\\d+\\.\\d+"))
            cc=cc+1;
    }
    Log.e("opc,cc", Integer.toString(opc) + Integer.toString(cc));
    if((cc-1==opc && ob==cb)|| (cc==0 && opc==0) )
    {
        return 1;
    }
    else {
        return 0;
    }
}
}

```

main_activity.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"
    android:background="#ffffffff"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/et_input"
        android:layout_width="match_parent"
        android:layout_height="185dp"
        android:background="#F3F2F2"
        android:textColor="#000000"
        android:textSize="40dp"
        android:gravity="right|bottom"/>
    <GridLayout

```

```
    android:layout_below="@+id/et_input"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnCount="5"
    android:rowCount="5"
    android:orientation="vertical">
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
<TextView
    android:id="@+id/tv_sin"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="sin"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_cos"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="cos"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_log"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="log"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_del"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="#A4FF0000"
    android:textColor="#fffffff"
    android:layout_margin="1dp"
    android:text="DEL"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="27dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_c"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="#A4FF0000"
        android:textColor="#ffffff"
        android:layout_margin="1dp"
        android:text="C"
        android:gravity="center"
        android:textSize="30dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    <TextView
        android:id="@+id/tv_7"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="7"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_8"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="8"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_9"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="9"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_open"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#60000000"
        android:textColor="#ffffff"
        android:text="("
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_close"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```
        android:layout_margin="1dp"
        android:background="#60000000"
        android:textColor="#ffffff"
        android:text=")"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    
```

```
<TextView
        android:id="@+id/tv_4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="4"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
<TextView
        android:id="@+id/tv_5"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="5"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
<TextView
        android:id="@+id/tv_6"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="6"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
<TextView
        android:id="@+id/tv_plus"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#60000000"
        android:textColor="#ffffff"
        android:text="+"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
<TextView
        android:id="@+id/tv_minus"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#60000000"
        android:textColor="#00000000"
        android:text="-"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
        android:textColor="#ffffff"
        android:text="-"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    
```

```
<TextView
    android:id="@+id/tv_1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="1"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

```
<TextView
    android:id="@+id/tv_2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="2"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

```
<TextView
    android:id="@+id/tv_3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="3"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

```
<TextView
    android:id="@+id/tv_mul"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:layout_weight="1"
    android:background="#60000000"
    android:gravity="center"
    android:padding="10dp"
    android:text="X"
    android:textColor="#ffffff"
    android:textSize="50dp" />

```

```
<TextView
    android:id="@+id/tv_div"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text="/">

```

```
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    
```

```
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    
```

```
<TextView
    android:id="@+id/tv_0"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="0"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="0.75"/>

```

```
<TextView
    android:id="@+id/tv_dot"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="."
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

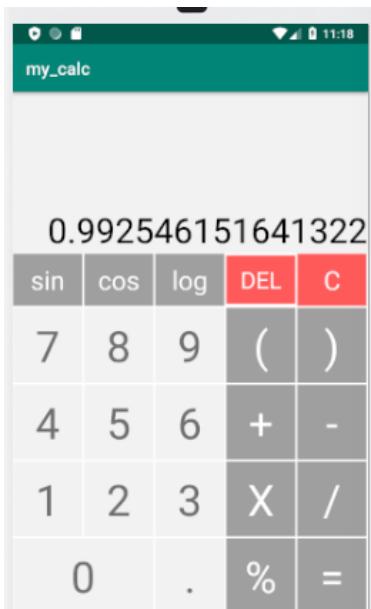
```
<TextView
    android:id="@+id/tv_percent"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text="%"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

```
<TextView
    android:id="@+id/tv_equal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text "="
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>

```

```
</LinearLayout>
</GridLayout>
</RelativeLayout>
```



MainActivity.java

```
package com.example.csec4152.ex4_final;
import androidx.annotation.RequiresApi;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.graphics.drawable.BitmapDrawable;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity {
    int y=0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button bt_paint=findViewById(R.id.bt_paint);
        Button bt_rotate=findViewById(R.id.bt_rotate);
        Button bt_fade=findViewById(R.id.bt_fade);
        Button bt_zoom=findViewById(R.id.bt_zoom);
        final Button bt_car=findViewById(R.id.bt_car);
        Button bt_forward=findViewById(R.id.bt_forward);
        Button bt_backward=findViewById(R.id.bt_backward);
        final ImageView iv_animate=findViewById(R.id.iv_animate);
        bt_car.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                //paint p=new paint(MainActivity.class);
                //setContentView(p);
                iv_animate.setBackgroundResource(R.drawable.car);
            }
        });
        bt_rotate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.rotate_in));
            }
        });
        bt_fade.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.fade_in));
            }
        });
        bt_zoom.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_in));
            }
        });
        bt_paint.setOnClickListener(new View.OnClickListener() {
```

```

@RequiresApi(api = Build.VERSION_CODES.LOLLIPOP)
@Override
public void onClick(View v) {
    //Bitmap b=Bitmap.createBitmap(720,1280, Bitmap.Config.ARGB_8888);
    Bitmap b=Bitmap.createBitmap(800,400, Bitmap.Config.ARGB_8888);
    iv_animate.setBackgroundDrawable(new BitmapDrawable(b));
    Canvas canvas=new Canvas(b);
    if(y%4==0) {
        Paint p=new Paint();
        p.setStrokeWidth(10);
        p.setColor(Color.BLACK);
        RectF r = new RectF(100, 100, 500, 500);
        canvas.drawRect(r,p);
        y=y+1;
    }
    else if (y%4==1) {
        Paint p=new Paint();
        p.setStrokeWidth(10);
        p.setColor(Color.GREEN);
        canvas.drawArc(100, 100, 600, 600, 20, 90, true, p);
        y=y+1;
    }
    else if (y%4==2) {
        Paint p=new Paint();
        p.setStrokeWidth(10);
        p.setColor(Color.RED);
        canvas.drawLine(100, 100, 700, 700, p);
        y=y+1;
    }
    else if (y%4==3) {
        Paint p=new Paint();
        p.setStrokeWidth(10);
        p.setColor(Color.BLUE);
        canvas.drawCircle(200,200,200,p);
        y=y+1;
    }
}
);
bt_forward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(300f).setDuration(600);
    }
});
bt_backward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(-300f).setDuration(600);
    }
});
}
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/relativeLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    >

```

```
    android:background="@color/white"
    tools:context=".MainActivity">
<Button
    android:id="@+id/bt_car"
    android:layout_width="84dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="96dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    android:layout_marginBottom="587dp"
    android:gravity="center"
    android:text="Car"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.363" />
<Button
    android:id="@+id/bt_rotate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="32dp"
    android:layout_marginRight="32dp"
    android:layout_marginBottom="8dp"
    android:gravity="center"
    android:text="Rotate"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/bt_fade"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt_paint"
    app:layout_constraintVertical_bias="0.0" />
<Button
    android:id="@+id/bt_paint"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="12dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    android:text="Paint"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.485"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt_car" />
<Button
    android:id="@+id/bt_forward"
    android:layout_width="wrap_content"
    android:layout_height="48dp"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    android:layout_marginBottom="256dp"
    android:text="Forward"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt_fade"
    app:layout_constraintVertical_bias="0.173" />
<Button
    android:id="@+id/bt_backward"
    android:layout_width="wrap_content"
    android:layout_height="48dp"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="16dp"
    android:layout_marginRight="16dp"
    android:layout_marginBottom="319dp"
    android:text="Backward"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.515"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt_forward"
    app:layout_constraintVertical_bias="0.0" />
<ImageView
    android:id="@+id/iv_animate"
    android:layout_width="match_parent"
    android:layout_height="200dp"
    android:layout_marginTop="451dp"
    android:layout_marginBottom="80dp"
    android:background="@drawable/car"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
<Button
    android:id="@+id/bt_fade"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    android:layout_marginBottom="447dp"
    android:text="Fade"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt_paint"
    app:layout_constraintVertical_bias="0.0" />
<Button
    android:id="@+id/bt_zoom"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="32dp"
    android:layout_marginLeft="32dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    android:layout_marginBottom="8dp"
    android:text="Zoom"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.34"
    app:layout_constraintStart_toEndOf="@+id/bt_fade"
    app:layout_constraintTop_toBottomOf="@+id/bt_paint"
    app:layout_constraintVertical_bias="0.0" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

fade_in.xml

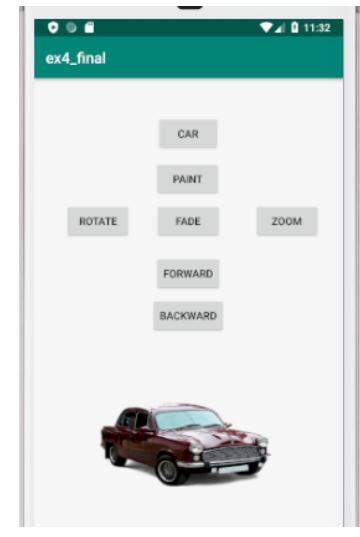
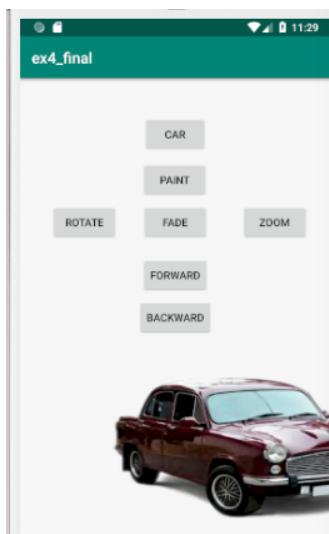
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <alpha
        android:fromAlpha="0.0"
        android:toAlpha="1.0"
        android:duration="2000"/>
</set>
```

zoom_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale xmlns:android="http://schemas.android.com/apk/res/android"
        android:fromXScale="1.0"
        android:fromYScale="1.0"
        android:toXScale="0.5"
        android:toYScale="0.5"
        android:duration="3000"
        android:pivotX="50%"
        android:pivotY="50%"/>
    <scale xmlns:android="http://schemas.android.com/apk/res/android"
        android:startOffset="6000"
        android:fromXScale="1.0"
        android:fromYScale="1.0"
        android:toXScale="2.0"
        android:toYScale="2.0"
        android:duration="3000"
        android:pivotX="50%"
        android:pivotY="50%"/>
</set>
<!-- android:fillEnabled="true"
      android:fillAfter="true" -->
```

rotate_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0"
        android:toDegrees="360"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="1000" />
</set>
```



Ex-5 Android Application Development using Database

MainActivity.java

```
package com.example.ex5_final;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button b1, b2, b3, b4, b5;
    SQLiteDatabase db;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = findViewById(R.id.button1);
        b2 = findViewById(R.id.button2);
        b3 = findViewById(R.id.button3);
        b4 = findViewById(R.id.button4);
        b5 = findViewById(R.id.button5);
        db = openOrCreateDatabase("db", MODE_PRIVATE, null);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                db.execSQL("DROP TABLE IF EXISTS EMPLOYEES;");
                db.execSQL("CREATE TABLE EMPLOYEES(NAME VARCHAR(20), GENDER
VARCHAR(20), ID VARCHAR(20), DEPT VARCHAR(20), SALARY VARCHAR(20));");
                Toast.makeText(getApplicationContext(), "Created!", Toast.LENGTH_SHORT).show();
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent myIntent = new Intent(getApplicationContext(), InsertActivity.class);
                MainActivity.this.startActivity(myIntent);
            }
        });
        b3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent myIntent = new Intent(getApplicationContext(), UpdateActivity.class);
                Intent myIntent2 = new Intent(getApplicationContext(), DeleteActivity.class);
            }
        });
    }
}
```

```
        MainActivity.this.startActivity(myIntent);
    }
});

b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent myIntent = new Intent(getApplicationContext(), DeleteActivity.class);
        MainActivity.this.startActivity(myIntent);
    }
});

b5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent myIntent = new Intent(getApplicationContext(), RetrieveActivity.class);
        MainActivity.this.startActivity(myIntent);
    }
});
}
}
```

InsertActivity.java

```
package com.example.ex5_final;

import androidx.appcompat.app.AppCompatActivity;

import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.Toast;

public class InsertActivity extends AppCompatActivity {
    Button insert;
    EditText id, name, salary;
    RadioGroup gender;
    RadioButton sel;
    Spinner dept;
    SQLiteDatabase db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_insert);
        db = openOrCreateDatabase("db", MODE_PRIVATE, null);
        insert = findViewById(R.id.insert);
        id = findViewById(R.id.id);
        name = findViewById(R.id.name);
        salary = findViewById(R.id.salary);
```

```

gender = findViewById(R.id.rg);
dept = findViewById(R.id.spinner);
insert.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String msg = "";
        if(!id.getText().toString().matches("[A-Za-z0-9]+")) msg += "ID error!";
        if(!name.getText().toString().matches("[A-Za-z]+")) msg += "Name error!";
        if(!salary.getText().toString().matches("[0-9]+")) msg += "Salary error!";
        if(gender.getCheckedRadioButtonId() == -1) msg += "Select gender!";
        else sel = findViewById(gender.getCheckedRadioButtonId());
        if(msg.equals("")) {
            msg = "Inserted!";
            db.execSQL("INSERT INTO EMPLOYEES VALUES(?, ?, ?, ?, ?);", new String[]
{name.getText().toString(), sel.getText().toString(), id.getText().toString(),
dept.getSelectedItem().toString(), salary.getText().toString()});
        }
        Toast.makeText(getApplicationContext(), msg, Toast.LENGTH_SHORT).show();
    }
});
```

DeleteActivity.java

```

package com.example.ex5_final;

import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class DeleteActivity extends AppCompatActivity {
    Button d;
    EditText e;
    SQLiteDatabase db;
    Cursor c;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_delete);
        db = openOrCreateDatabase("db", MODE_PRIVATE, null);
        d = findViewById(R.id.buttond);
        e = findViewById(R.id.editTextd);
        d.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
```

```
String id = e.getText().toString();
c = db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID = ?;", new String[]
{id});
if (!c.moveToFirst())
    Toast.makeText(getApplicationContext(), "Doesn't exist!",
Toast.LENGTH_SHORT).show();
else {
    db.execSQL("DELETE FROM EMPLOYEES WHERE ID = ?;", new String[]
{id});
    Toast.makeText(getApplicationContext(), "Deleted " + id,
Toast.LENGTH_SHORT).show();
}
}
});
```

RetrieveActivity.java

```
package com.example.ex5_final;

import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;

public class RetrieveActivity extends AppCompatActivity {
    Button b;
    EditText e;
    TextView t;
    String id;
    SQLiteDatabase db;
    Cursor rs;
    Button b1;
    Spinner d;
    String dept, msg;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_retrieve);
        db = openOrCreateDatabase("db", MODE_PRIVATE, null);
        b = findViewById(R.id.buttonr);
        e = findViewById(R.id.editTextr);
        t = findViewById(R.id.resultr);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
```

```

public void onClick(View view) {
    id = e.getText().toString();
    rs = db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID = ?;", new String[]
{id});
    rs.moveToFirst();
    try {
        t.setText(rs.getString(0) + " " + rs.getString(1) + " " + rs.getString(2) + " " +
rs.getString(3) + " " + rs.getString(4));
    } catch (Exception ex) {
        t.setText("No such employee");
        ex.printStackTrace();
    }
}
);
b1 = findViewById(R.id.buttonrd);
d = findViewById(R.id.deptspinner);
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        dept = d.getSelectedItem().toString();
        rs = db.rawQuery("SELECT * FROM EMPLOYEES WHERE DEPT = ?;", new
String[]{dept});
        msg = "";
        try {
            while(rs.moveToNext()) {
                msg += rs.getString(0) + " " + rs.getString(1) + " " + rs.getString(2) + " " +
rs.getString(3) + " " + rs.getString(4) + "\n";
            }
            t.setText(msg);
            if(msg.equals("")) {
                t.setText("No such employee");
            }
        } catch (Exception ex) {
            ex.printStackTrace();
        }
    }
});
}
}

```

UpdateActivity.java

```

package com.example.ex5_final;

import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

```

```

import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;

public class RetrieveActivity extends AppCompatActivity {
    Button b;
    EditText e;
    TextView t;
    String id;
    SQLiteDatabase db;
    Cursor rs;
    Button b1;
    Spinner d;
    String dept, msg;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_retrieve);
        db = openOrCreateDatabase("db", MODE_PRIVATE, null);
        b = findViewById(R.id.buttonr);
        e = findViewById(R.id.editTextr);
        t = findViewById(R.id.resultr);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                id = e.getText().toString();
                rs = db.rawQuery("SELECT * FROM EMPLOYEES WHERE ID = ?;", new String[]
{id});
                rs.moveToFirst();
                try {
                    t.setText(rs.getString(0) + " " + rs.getString(1) + " " + rs.getString(2) + " " +
rs.getString(3) + " " + rs.getString(4));
                } catch (Exception ex) {
                    t.setText("No such employee");
                    ex.printStackTrace();
                }
            }
        });
        b1 = findViewById(R.id.buttonrd);
        d = findViewById(R.id.deptspinner);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                dept = d.getSelectedItem().toString();
                rs = db.rawQuery("SELECT * FROM EMPLOYEES WHERE DEPT = ?;", new
String[]{dept});
                msg = "";
                try {
                    while(rs.moveToNext()) {
                        msg += rs.getString(0) + " " + rs.getString(1) + " " + rs.getString(2) + " " +
rs.getString(3) + " " + rs.getString(4) + "\n";
                    }
                }
            }
        });
    }
}

```

```

        t.setText(msg);
        if(msg.equals("")) {
            t.setText("No such employee");
        }
    } catch (Exception ex) {
        ex.printStackTrace();
    }
}
);
}

}
}

```

activity_main.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=".MainActivity" >

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:autoText="false"
        android:gravity="center"
        android:text="Employee Database"
        android:textColor="@android:color/black"
        android:textSize="30sp" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:text="Create"
        android:layout_gravity="center"/>

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:text="Insert"
        android:layout_gravity="center"/>

    <Button

```

```
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:text="Update"
    android:layout_gravity="center"/>

<Button
    android:id="@+id/button4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:text="Delete"
    android:layout_gravity="center"/>

<Button
    android:id="@+id/button5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:text="Retrieve"
    android:layout_gravity="center"/>

</LinearLayout>
```

activity_insert.xml

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

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:layout_marginBottom="100px"
        android:gravity="center|center_horizontal|center_vertical"
        android:text="Insert Data"
        android:textColor="@android:color/black"
        android:textSize="30sp" />

    <EditText
        android:id="@+id/id"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
```

```
    android:gravity="center"
    android:hint="ID"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Name"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/salary"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Salary"
    android:inputType="textPersonName" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Gender" />

<RadioGroup
    android:id="@+id/rg"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center|center_horizontal"
    android:orientation="horizontal">

    <RadioButton
        android:id="@+id/male"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Male" />

    <RadioButton
        android:id="@+id/female"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Female" />

    <RadioButton
        android:id="@+id/other"
        android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:text="Other" />

    </RadioGroup>

    <TextView
        android:id="@+id/textView4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50px"
        android:gravity="center"
        android:text="Department" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="150dp"
        android:entries="@array/dept" />

    <Button
        android:id="@+id/insert"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:text="Insert"
        android:layout_gravity="center" />

</LinearLayout>

```

activity_delete.xml

```

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

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:layout_marginBottom="100px"
        android:gravity="center|center_horizontal|center_vertical"
        android:text="Insert Data"
        android:textColor="@android:color/black"
        android:textSize="30sp" />

    <EditText

```

```
    android:id="@+id/id"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="ID"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Name"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/salary"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Salary"
    android:inputType="textPersonName" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Gender" />

<RadioGroup
    android:id="@+id/rg"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center|center_horizontal"
    android:orientation="horizontal">

    <RadioButton
        android:id="@+id/male"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Male" />

    <RadioButton
        android:id="@+id/female"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Female" />
```

```
<RadioButton
    android:id="@+id/other"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Other" />

</RadioGroup>

<TextView
    android:id="@+id/textView4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Department" />

<Spinner
    android:id="@+id/spinner"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="150dp"
    android:entries="@array/dept" />

<Button
    android:id="@+id/insert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:text="Insert"
    android:layout_gravity="center"/>

</LinearLayout>

activity_retrieve.xml

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

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="100px"
        android:layout_marginBottom="100px"
        android:gravity="center|center_horizontal|center_vertical"
        android:text="Insert Data"
```

```
    android:textColor="@android:color/black"
    android:textSize="30sp" />
```

```
<EditText
    android:id="@+id/id"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="ID"
    android:inputType="textPersonName" />
```

```
<EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Name"
    android:inputType="textPersonName" />
```

```
<EditText
    android:id="@+id/salary"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Salary"
    android:inputType="textPersonName" />
```

```
<TextView
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Gender" />
```

```
<RadioGroup
    android:id="@+id/rg"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center|center_horizontal"
    android:orientation="horizontal">
```

```
<RadioButton
    android:id="@+id/male"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Male" />
```

```
<RadioButton
```

```
    android:id="@+id/female"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Female" />

<RadioButton
    android:id="@+id/other"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Other" />

</RadioGroup>

<TextView
    android:id="@+id/textView4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Department" />

<Spinner
    android:id="@+id/spinner"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="150dp"
    android:entries="@array/dept" />

<Button
    android:id="@+id/insert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:text="Insert"
    android:layout_gravity="center"/>

</LinearLayout>

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

<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
```

```
    android:layout_marginBottom="100px"
    android:gravity="center|center_horizontal|center_vertical"
    android:text="Update Data"
    android:textColor="@android:color/black"
    android:textSize="30sp" />

<EditText
    android:id="@+id/uid"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="ID"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/uname"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Name"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/usalary"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10"
    android:gravity="center"
    android:hint="Salary"
    android:inputType="textPersonName" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Gender" />

<RadioGroup
    android:id="@+id/urg"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center|center_horizontal"
    android:orientation="horizontal">

    <RadioButton
        android:id="@+id/umale"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:text="Male" />

<RadioButton
    android:id="@+id/ufemale"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Female" />

<RadioButton
    android:id="@+id/uother"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Other" />

</RadioGroup>

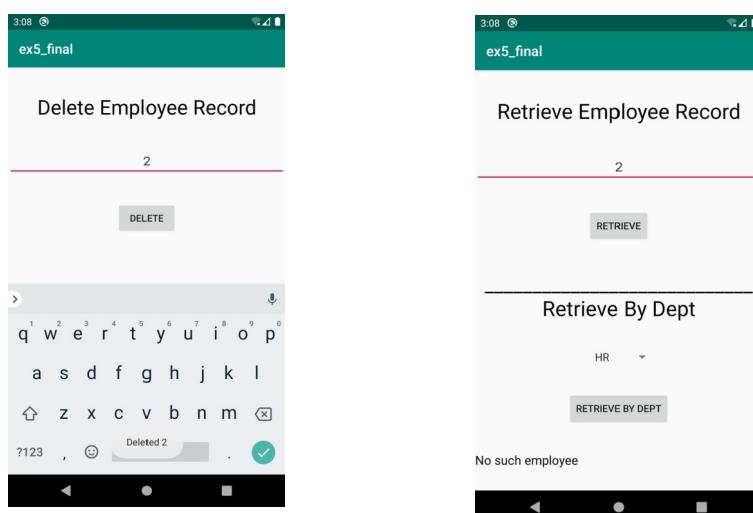
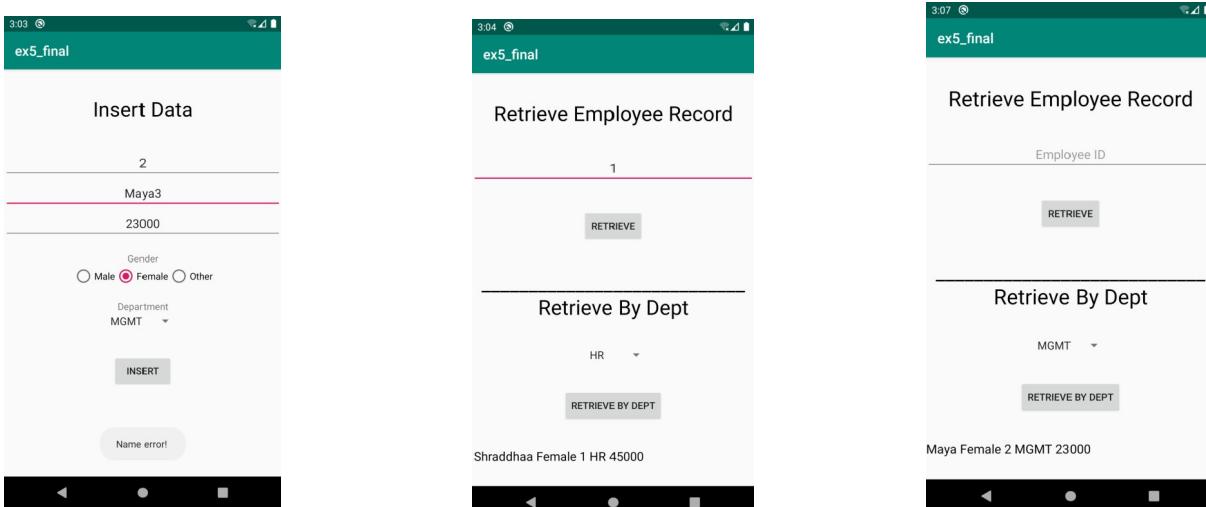
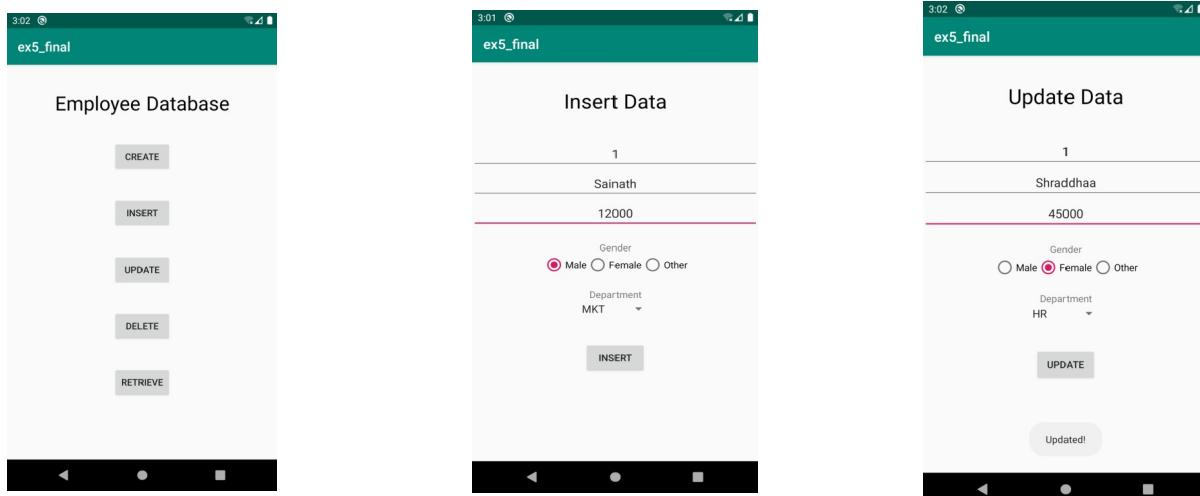
<TextView
    android:id="@+id/textView4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="50px"
    android:gravity="center"
    android:text="Department" />

<Spinner
    android:id="@+id/uspinner"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="150dp"
    android:entries="@array/dept" />

<Button
    android:id="@+id/uupdate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100px"
    android:layout_gravity="center"
    android:text="Update" />

</LinearLayout>
```

Output:



EXERCISE 6

CODE:

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.rssandroidapp">
    <uses-permission android:name="android.permission.INTERNET"/>

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

data/RssItem.java

```
package com.example.rssandroidapp.data;
```

```
public class RssItem {

    // item title
    private String title;
    // item link
    private String link;

    public String getTitle() {
        return title;
    }

    public void setTitle(String title) {
        this.title = title;
    }

    public String getLink() {
        return link;
    }

    public void setLink(String link) {
        this.link = link;
    }
}
```

```

}

@Override
public String toString() {
    return title;
}

}

listeners/ListListener.java
package com.example.rssandroidapp.listeners;

import android.app.Activity;
import android.content.Intent;
import android.net.Uri;
import android.view.View;
import android.widget.AdapterView;

import com.example.rssandroidapp.data.RssItem;

import java.util.List;

public class ListListener implements AdapterView.OnItemClickListener {

    // List item's reference
    List<RssItem> listItems;
    // Calling activity reference
    Activity activity;

    public ListListener(List<RssItem> listItems, Activity activity) {
        this.listItems = listItems;
        this.activity = activity;
    }

    @Override
    public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
        Intent intent = new Intent(Intent.ACTION_VIEW);
        intent.setData(Uri.parse(listItems.get(i).getLink()));
        activity.startActivity(intent);
    }
}

util/RssParseHandler.java
package com.example.rssandroidapp.util;

import com.example.rssandroidapp.data.RssItem;

import org.xml.sax.Attributes;
import org.xml.sax.SAXException;
import org.xml.sax.helpers.DefaultHandler;

```

```

import java.util.ArrayList;
import java.util.List;

public class RssParseHandler extends DefaultHandler {
    private List<RssItem> rssItems;

    // Used to reference item while parsing
    private RssItem currentItem;

    // Parsing title indicator
    private boolean parsingTitle;
    // Parsing link indicator
    private boolean parsingLink;
    public RssParseHandler() {
        rssItems = new ArrayList<RssItem>();
    }

    public List<RssItem> getItems() {
        return rssItems;
    }

    @Override
    public void startElement(String uri, String localName, String qName, Attributes attributes) throws SAXException {
        if ("item".equals(qName)) {
            currentItem = new RssItem();
        } else if ("title".equals(qName)) {
            parsingTitle = true;
        } else if ("link".equals(qName)) {
            parsingLink = true;
        }
    }

    @Override
    public void endElement(String uri, String localName, String qName) throws SAXException {
        if ("item".equals(qName)) {
            rssItems.add(currentItem);
            currentItem = null;
        } else if ("title".equals(qName)) {
            parsingTitle = false;
        } else if ("link".equals(qName)) {
            parsingLink = false;
        }
    }

    @Override
    public void characters(char[] ch, int start, int length) throws SAXException {
        if (parsingTitle) {
            if (currentItem != null)
                currentItem.setTitle(new String(ch, start, length));
        }
    }
}

```

```
        } else if (parsingLink) {
            if (currentItem != null) {
                currentItem.setLink(new String(ch, start, length));
                parsingLink = false;
            }
        }
    }
}
```

util/RssReader.java

```
package com.example.rssandroidapp.util;

import com.example.rssandroidapp.data.RssItem;

import java.util.List;

import javax.xml.parsers.SAXParser;
import javax.xml.parsers.SAXParserFactory;

public class RssReader {
    private String rssUrl;

    public RssReader(String rssUrl) {
        this.rssUrl = rssUrl;
    }

    public List<RssItem> getItems() throws Exception {
        // SAX parse RSS data
        SAXParserFactory factory = SAXParserFactory.newInstance();
        SAXParser saxParser = factory.newSAXParser();

        RssParseHandler handler = new RssParseHandler();

        saxParser.parse(rssUrl, handler);

        return handler.getItems();
    }
}
```

MainActivity.java

```
package com.example.rssandroidapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.AsyncTask;
import android.os.Bundle;
import android.util.Log;
import android.widget.ArrayAdapter;
import android.widget.ListView;

import com.example.rssandroidapp.data.RssItem;
```

```

import com.example.rssandroidapp.listeners.ListListener;
import com.example.rssandroidapp.util.RssReader;

import java.util.List;

public class MainActivity extends AppCompatActivity {
    private MainActivity local;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        local = this;

        GetRSSDataTask task = new GetRSSDataTask();

        // Start download RSS task
        task.execute("https://rss.nytimes.com/services/xml/rss/nyt/World.xml");

        // Debug the thread name
        Log.d("RssReader", Thread.currentThread().getName());
    }
}

private class GetRSSDataTask extends AsyncTask<String,Void, List<RssItem>>{

    @Override
    protected List<RssItem> doInBackground(String... urls) {
        Log.i("RssReader",Thread.currentThread().getName());
        try{
            RssReader rssReader = new RssReader(urls[0]);
            return rssReader.getItems();
        }
        catch (Exception e){
            Log.i("RssReader",e.getMessage());
        }
        return null;
    }
    @Override
    protected void onPostExecute(List<RssItem> result) {

        // Get a ListView from main view
        ListView itcItems = (ListView) findViewById(R.id.listMainView);

        // Create a list adapter
        ArrayAdapter<RssItem> adapter = new
        ArrayAdapter<RssItem>(local,android.R.layout.simple_list_item_1, result);
        // Set list adapter for the ListView
        itcItems.setAdapter(adapter);

        // Set list view item click listener
        itcItems.setOnItemClickListener(new ListListener(result, local));
    }
}

```

```
}
```

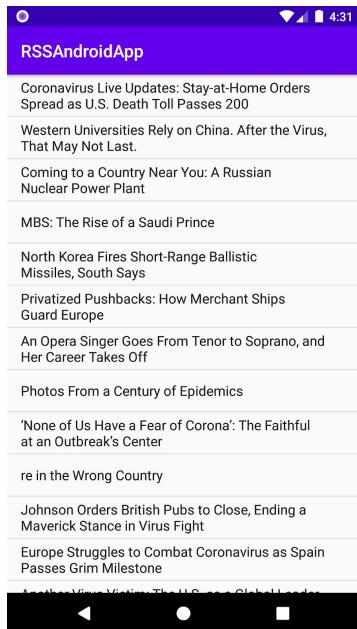
activity_main.xml

```
<?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=".MainActivity">

    <ListView
        android:id="@+id/listMainView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" >
    </ListView>

</LinearLayout>
```

OUTPUT:



EXERCISE 7

CODE:

activity_main.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=".MainActivity">

    <ProgressBar
        android:id="@+id/progBar"
        style="@style/Widget.AppCompat.ProgressBar.Horizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView"
        android:max="10"
        android:padding="45dp"
        android:progress="0" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PROGRAM BAR 1"
        android:layout_marginLeft="15dp"
        android:textSize="25dp"/>

    <TextView
        android:id="@+id/progress_txt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/progBar"
        android:layout_alignParentLeft="true"
        android:layout_marginTop="8dp"
        android:layout_marginLeft="125dp"
        android:text="Progress :"
        android:textSize="25dp" />

    <TextView
        android:id="@+id/progress_val"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/progBar"
        android:layout_marginLeft="15dp"
        android:layout_marginTop="8dp"
        android:layout_toRightOf="@+id/progress_txt"
```

```
    android:text=""
    android:textSize="25dp" />

<Button
    android:id="@+id/start"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_below="@+id/progress_txt"
    android:layout_marginLeft="145dp"
    android:text="Start" />
<TextView
    android:id="@+id/textView1"
    android:layout_below="@+id/start"
    android:layout_marginTop="20dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="PROGRAM BAR 2"
    android:layout_marginLeft="15dp"
    android:textSize="25dp"/>

<ProgressBar
    android:id="@+id/progBar1"
    style="@style/Widget.AppCompat.ProgressBar.Horizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/textView1"
    android:max="10"
    android:padding="45dp"
    android:progress="0" />
<TextView
    android:id="@+id/progress_txt1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/progBar1"
    android:layout_alignParentLeft="true"
    android:layout_marginTop="8dp"
    android:layout_marginLeft="125dp"
    android:text="Progress :"
    android:textSize="25dp" />
<TextView
    android:id="@+id/progress_val1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/progBar1"
    android:layout_marginLeft="15dp"
    android:layout_marginTop="8dp"
    android:layout_toRightOf="@+id/progress_txt1"
    android:text=""
    android:textSize="25dp" />
<Button
```

```
    android:id="@+id/start1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_below="@+id/progress_txt1"
    android:layout_marginLeft="145dp"
    android:text="Start" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.multithreading;

import androidx.appcompat.app.AppCompatActivity;

import android.content.res.ColorStateList;
import android.graphics.Color;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;
import android.widget.ProgressBar;
import android.widget.TextView;

import java.util.concurrent.atomic.AtomicInteger;

public class MainActivity extends AppCompatActivity {
    ProgressBar progressBar,progressBar1;
    TextView progval,progval1;
    Handler handler,handler1;
    Button start,start1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        progressBar = findViewById(R.id.progressBar);
        progval = findViewById(R.id.progress_val);
        start = findViewById(R.id.start);
        handler = new Handler();
        progressBar1 = findViewById(R.id.progressBar1);
        progval1 = findViewById(R.id.progress_val1);
        start1 = findViewById(R.id.start1);
        handler1 = new Handler();
        final AtomicInteger color = new AtomicInteger(0);
        final AtomicInteger color1 = new AtomicInteger(0);
        start.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
```

```

if(color.get()==10||color.get()==0) {
    color.getAndSet(0);
    progressBar.setProgress(0);
    new Thread(new Runnable() {
        @Override
        public void run() {
            for (int i = 0; i < 10; i++) {
                handler.post(new Runnable() {
                    @Override
                    public void run() {
                        if (color.get() % 3 == 0) {
                            progressBar.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
                        } else if (color.get() % 3 == 1) {
                            progressBar.setProgressTintList(ColorStateList.valueOf(Color.BLUE));
                        } else {
                            progressBar.setProgressTintList(ColorStateList.valueOf(Color.RED));
                        }
                        color.getAndIncrement();
                        Integer y = color.get();
                        progressBar.setProgress(y);
                        progval.setText(String.valueOf(y));
                    }
                });
            }
        }
    }).start();
}
});

try {
    Thread.sleep(1000);
} catch (InterruptedException e) {
    e.printStackTrace();
}

}

}

start1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(color1.get()==10||color1.get()==0) {
            color1.getAndSet(0);
            progressBar1.setProgress(0);
            new Thread(new Runnable() {
                @Override
                public void run() {
                    for(int i=0;i<10;i++) {
                        handler1.post(new Runnable() {
                            @Override
                            public void run() {
                                if (color1.get() % 3 == 0) {
                                    progressBar1.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
                                }
                            }
                        });
                    }
                }
            }).start();
        }
    }
});

```

```
        } else if (color1.get() % 3 == 1) {
            progressBar1.setProgressTintList(ColorStateList.valueOf(Color.BLUE));
        } else {
            progressBar1.setProgressTintList(ColorStateList.valueOf(Color.RED));
        }
        color1.getAndIncrement();
        Integer y = color1.get();
        progressBar1.setProgress(y);
        progval1.setText(String.valueOf(y));

    }
});  

try {
    Thread.sleep(1000);
} catch (InterruptedException e) {
    e.printStackTrace();
}
}  

}  

}).start();  

}  

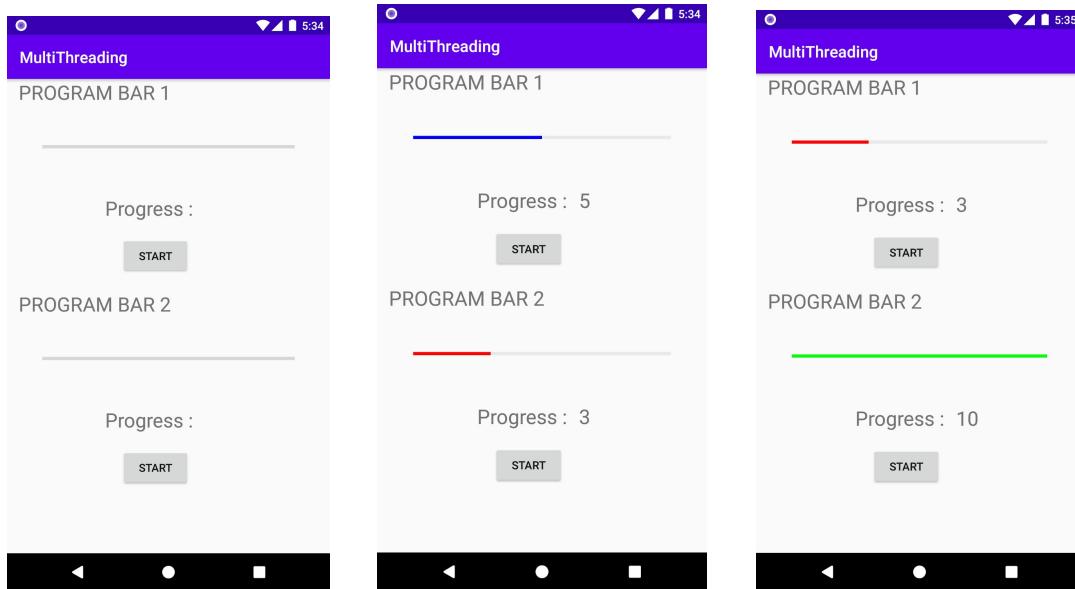
});  

}  

}  

}
}
```

OUTPUT:



EXERCISE 8

CODE:

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.admin.gps">
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="android.permission.INTERNET" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

MainActivity.java

```
package com.example.admin.gps;

import android.Manifest;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.provider.Settings;
import android.support.v4.app.ActivityCompat;
import android.support.v7.app.AlertDialog;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
```

```
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private static final int REQUEST_LOCATION = 1;
    LocationManager locationManager;
    double longitude, latitude;
    TextView longitude1Value, latitude1Value,longitude2Value, latitude2Value,longitude3Value,
latitude3Value;
    Button get_location;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.ACCESS_FINE_LOCATION}, REQUEST_LOCATION);
        locationManager= (LocationManager) getSystemService(Context.LOCATION_SERVICE);
        latitude3Value = (TextView) findViewById(R.id.textView4);
        longitude3Value = (TextView) findViewById(R.id.textView5);
        latitude2Value = (TextView) findViewById(R.id.textView6);
        longitude2Value = (TextView) findViewById(R.id.textView7);
        latitude1Value = (TextView) findViewById(R.id.textView8);
        longitude1Value = (TextView) findViewById(R.id.textView9);
        get_location = (Button) findViewById(R.id.location);
        get_location.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                locationManager = (LocationManager) getSystemService(Context.LOCATION_SERVICE);
                Log.i("here",String.valueOf(isLocationEnabled()));
                if (isLocationEnabled()) {
                    get_location_now();
                } else {
                    showAlert();
                }
            }
        });
    }

    private void get_location_now()
    {
        if (ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION) != PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) != PackageManager.PERMISSION_GRANTED) {
            // TODO: Consider calling
            // ActivityCompat#requestPermissions

```

```

// here to request the missing permissions, and then overriding
// public void onRequestPermissionsResult(int requestCode, String[] permissions,
//                                         int[] grantResults)
// to handle the case where the user grants the permission. See the documentation
// for ActivityCompat#requestPermissions for more details.
ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.ACCESS_FINE_LOCATION}, REQUEST_LOCATION);

}

else {

    locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER, 3000,
10,locationListenerGPS);
    Log.i("here1","gps"+latitude3Value.getText()+" "+longitude3Value.getText());
    Location LocationNet =
locationManager.getLastKnownLocation(LocationManager.NETWORK_PROVIDER);
    Log.i("here2",String.valueOf(LocationNet));
    Location LocationPas =
locationManager.getLastKnownLocation(LocationManager.PASSIVE_PROVIDER);
    Log.i("here3",String.valueOf(LocationPas));

    if(LocationNet!=null){
        latitude = LocationNet.getLatitude();
        longitude = LocationNet.getLongitude();
        longitude2Value.setText(String.valueOf(longitude));
        latitude2Value.setText(String.valueOf(latitude));
        Log.i("here2","net"+latitude2Value.getText()+" "+longitude2Value.getText());

    }
    if(LocationPas!=null){
        latitude = LocationPas.getLatitude();
        longitude = LocationPas.getLongitude();
        longitude1Value.setText(String.valueOf(longitude));
        latitude1Value.setText(String.valueOf(latitude));
        Log.i("here3","pas"+latitude1Value.getText()+" "+longitude1Value.getText());

    }
    else{
        Toast.makeText(this, "Can't Get Your Location",Toast.LENGTH_SHORT).show();
    }
}

private void showAlert() {
    final AlertDialog.Builder dialog = new AlertDialog.Builder(this);
    dialog.setTitle("Enable Location")
    .setMessage("Your Location Settings are Off.\nPlease Enable Location to use this app")
    .setPositiveButton("Location Settings", new DialogInterface.OnClickListener() {
        @Override

```

```

        public void onClick(DialogInterface dialog, int which) {
            Intent intent = new Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);
            startActivity(intent);
        }
    });
    .setNegativeButton("Cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {

        }
    });
    dialog.show();
}
private boolean isLocationEnabled(){
    return locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);
}
private final LocationListener locationListenerGPS = new LocationListener() {
    public void onLocationChanged(Location location) {
        if (location != null) {
            latitude = location.getLatitude();
            longitude = location.getLongitude();
            longitude3Value.setText(String.valueOf(longitude));
            latitude3Value.setText(String.valueOf(latitude));
        }
    }
    @Override
    public void onStatusChanged(String s, int i, Bundle bundle) {

    }
    @Override
    public void onProviderEnabled(String s) {

    }
    @Override
    public void onProviderDisabled(String s) {

    }
};
}

}


```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="com.example.admin.gps.MainActivity">

<TextView
    android:id="@+id/latitude"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Latitude:"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.213"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.483" />

<TextView
    android:id="@+id/latitude2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Latitude:"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.213"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.282" />

<TextView
    android:id="@+id/latitude3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Latitude:"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.219"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.13" />

<TextView
    android:id="@+id/longitude"
    android:layout_width="76dp"
    android:layout_height="34dp"
    android:layout_marginTop="20dp"
    android:text="Longitude:"
    app:layout_constraintHorizontal_bias="0.226"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
```

```
    app:layout_constraintTop_toBottomOf="@+id/latitude" />

<TextView
    android:id="@+id/longitude2"
    android:layout_width="82dp"
    android:layout_height="23dp"
    android:layout_marginTop="20dp"
    android:text="Longitude:"
    app:layout_constraintHorizontal_bias="0.224"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/latitude2" />

<TextView
    android:id="@+id/longitude3"
    android:layout_width="75dp"
    android:layout_height="26dp"
    android:layout_marginTop="16dp"
    android:text="Longitude:"
    app:layout_constraintHorizontal_bias="0.218"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/latitude3" />

<android.support.v7.widget.AppCompatButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Get Location"
    app:layout_constraintTop_toBottomOf="@+id/latitude"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    android:layout_marginTop="60dp"
    android:id="@+id/location"
    />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="GPS"
    app:layout_constraintBottom_toTopOf="@+id/latitude3"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="NETWORK"
    app:layout_constraintBottom_toTopOf="@+id/latitude2"
```

```
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/longitude3" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="PASSIVE"
    app:layout_constraintBottom_toTopOf="@+id/latitude"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/longitude2" />

<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text=""
    app:layout_constraintBottom_toBottomOf="@+id/latitude3"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.273"
    app:layout_constraintStart_toEndOf="@+id/latitude3"
    app:layout_constraintTop_toBottomOf="@+id/textView"
    app:layout_constraintVertical_bias="1.0" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.253"
    app:layout_constraintStart_toEndOf="@+id/longitude3"
    app:layout_constraintTop_toBottomOf="@+id/textView4" />

<TextView
    android:id="@+id/textView6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="12dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.264"
    app:layout_constraintStart_toEndOf="@+id/latitude2"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

<TextView
    android:id="@+id/textView7"
    android:layout_width="75dp"
```

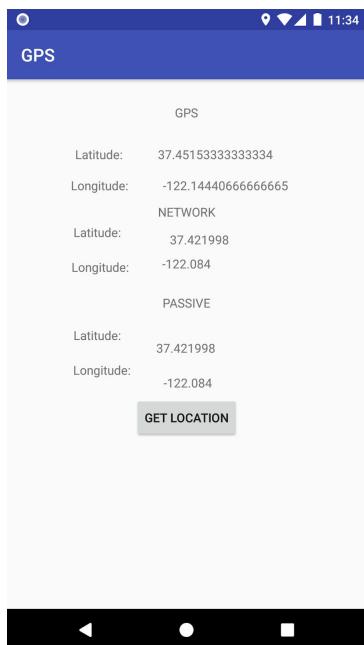
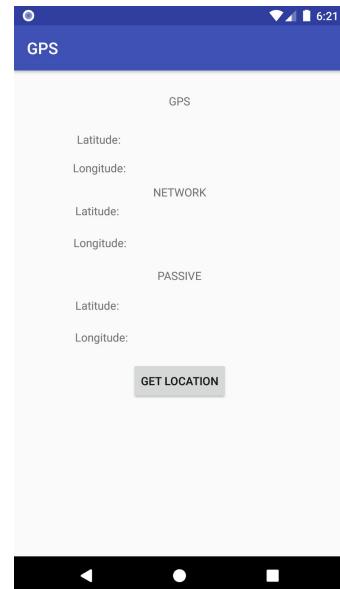
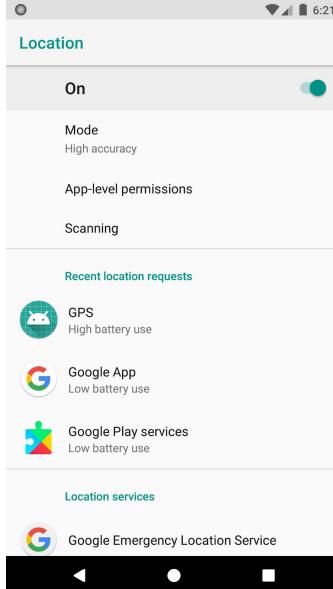
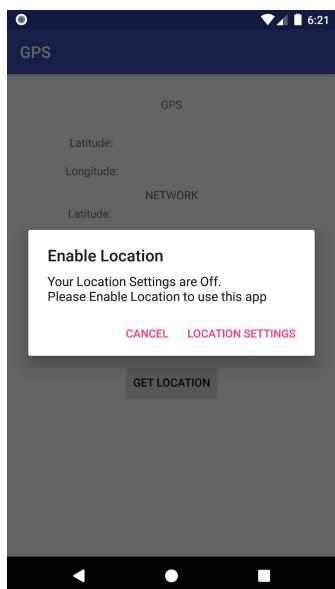
```
    android:layout_height="22dp"
    android:layout_marginTop="8dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.122"
    app:layout_constraintStart_toEndOf="@+id/longitude2"
    app:layout_constraintTop_toBottomOf="@+id/textView6" />

<TextView
    android:id="@+id/textView8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.19"
    app:layout_constraintStart_toEndOf="@+id/latitude"
    app:layout_constraintTop_toBottomOf="@+id/textView3" />

<TextView
    android:id="@+id/textView9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text=""
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.135"
    app:layout_constraintStart_toEndOf="@+id/longitude"
    app:layout_constraintTop_toBottomOf="@+id/textView8" />

</android.support.constraint.ConstraintLayout>
```

OUTPUT:



EXERCISE 9

CODE:

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.sms_app">
    <uses-permission android:name="android.permission.READ_SMS"/>
    <uses-permission android:name="android.permission.RECEIVE_SMS"/>
    <uses-permission android:name="android.permission.SEND_SMS"/>
    <uses-permission android:name="android.permission.READ_PHONE_STATE" />

    <application android:hardwareAccelerated="true"
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <receiver android:name=".MessageReceiver">
            <intent-filter>
                <action android:name="android.provider.Telephony.SMS_RECEIVED"/>
            </intent-filter>
        </receiver>
    </application>

</manifest>
```

MainActivity.java

```
package com.example.sms_app;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

import android.app.PendingIntent;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.telephony.SmsManager;
```

```

import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import static android.Manifest.permission.READ_PHONE_STATE;
import static android.Manifest.permission.READ_SMS;
import static android.Manifest.permission.RECEIVE_SMS;
import static android.Manifest.permission.SEND_SMS;

public class MainActivity extends AppCompatActivity {
    EditText contact_no,user_message;
    Button send;
    TextView msgs;
    IntentFilter intentFilter;
    private BroadcastReceiver intentReceiver = new BroadcastReceiver() {
        @Override
        public void onReceive(Context context, Intent intent) {
            msgs.setText(intent.getExtras().getString("message"));
        }
    };
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ActivityCompat.requestPermissions(MainActivity.this,new
String[]{READ_SMS,RECEIVE_SMS,SEND_SMS,READ_PHONE_STATE},1);
        contact_no = findViewById(R.id.contact_number);
        user_message = findViewById(R.id.user_message);
        send = findViewById(R.id.sendButton);
        msgs = findViewById(R.id.msgs);
        intentFilter = new IntentFilter();
        intentFilter.addAction("SMS_RECEIVED_ACTION");
        send.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                sendMsg(contact_no.getText().toString(),user_message.getText().toString());
            }
        });
    }
    void sendMsg(String num,String myMsg) {
        String SENT = "Message Sent";
        String DELIVERED = "Message Delivered";
        PendingIntent sentPI = PendingIntent.getBroadcast(this, 0, new Intent(SENT), 0);
        PendingIntent deliveredPI = PendingIntent.getBroadcast(this,0,new Intent(DELIVERED),0);
        SmsManager smsManager = SmsManager.getDefault();
        smsManager.sendTextMessage(num,null,myMsg,sentPI,deliveredPI);
    }
    @Override

```

```

protected void onPause() {
    unregisterReceiver(intentReceiver);
    super.onPause();
}

@Override
protected void onResume() {
    registerReceiver(intentReceiver,intentFilter);
    super.onResume();
}
}

```

MessageReceiver.java

```

package com.example.sms_app;

import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.telephony.SmsMessage;
import android.util.Log;
import android.widget.Toast;

import java.util.Date;

import androidx.core.app.NotificationCompat;

public class MessageReceiver extends BroadcastReceiver {

    @Override
    public void onReceive(Context context, Intent intent) {
        //get message passed
        Bundle bundle = intent.getExtras();
        SmsMessage[] messages;
        String str="";
        if(bundle!=null){
            Object[] pdus = (Object[]) bundle.get("pdus");
            messages = new SmsMessage[pdus!=null ? pdus.length:0];
            for(int i =0;i<messages.length;i++){
                messages[i] = SmsMessage.createFromPdu((byte[])(pdus!=null ? pdus[i]:null));
                str+=messages[i].getOriginatingAddress();
                str+=": ";
                str+=messages[i].getMessageBody();
                str+="\n";
            }
            Toast.makeText(context,str,Toast.LENGTH_SHORT).show();
        }
    }
}

```

```

    NotificationCompat.Builder mBuilder = new
NotificationCompat.Builder(context,"notify_channel").setSmallIcon(R.mipmap.ic_launcher_round)
        .setContentTitle("You've got a Message!")
        .setContentText(str)
        .setAutoCancel(true)
        .setPriority(NotificationCompat.PRIORITY_DEFAULT);
Intent notificationIntent = new Intent(context, MainActivity.class);
notificationIntent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
PendingIntent contentIntent = PendingIntent.getActivity(context, 0, notificationIntent, 0);
mBuilder.setContentIntent(contentIntent);

// Add as notification
NotificationManager manager = (NotificationManager)
context.getSystemService(Context.NOTIFICATION_SERVICE);
if(Build.VERSION.SDK_INT>=Build.VERSION_CODES.O){
    String channelId = "notify_channel";
    NotificationChannel channel = new NotificationChannel(channelId,"Notification
Chanel",NotificationManager.IMPORTANCE_HIGH);
    manager.createNotificationChannel(channel);
    mBuilder.setChannelId(channelId);
}
manager.notify((int)((new Date().getTime()/1000)%Integer.MAX_VALUE),mBuilder.build());
//manager.notify(0, mBuilder.build());
Log.i("sms","sent notif?");

Intent broadcastIntent = new Intent();
broadcastIntent.setAction("SMS_RECEIVED_ACTION");
broadcastIntent.putExtra("message",str);
context.sendBroadcast(broadcastIntent);

}
}
}

```

activity_main.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=".MainActivity">

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Contact Number"
        android:backgroundTint="@color/colorPrimary"
        android:layout_marginTop="5dp"

```

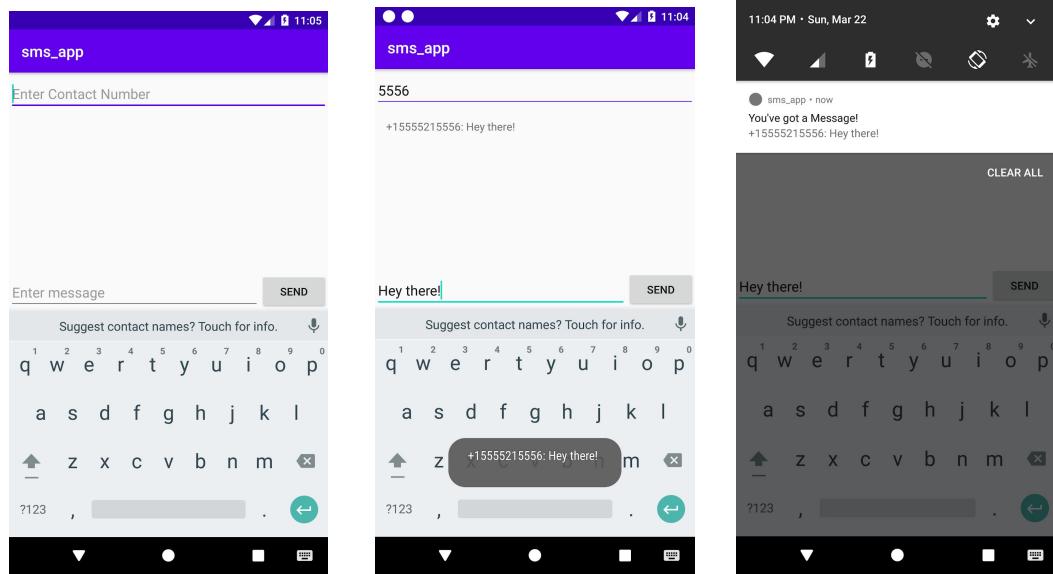
```
    android:id="@+id/contact_number"

    />
<ScrollView
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/scrollView"
    android:layout_below="@+id/contact_number"
    android:layout_above="@+id/user_message">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">
        <TextView
            android:id="@+id/msg"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="50px" />
    </LinearLayout>
</ScrollView>
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_toLeftOf="@+id/sendButton"
    android:hint="Enter message"
    android:id="@+id/user_message"

    />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="SEND"
    android:id="@+id/sendButton"
    android:layout_alignParentBottom="true"
    android:layout_alignParentRight="true"
    />

</RelativeLayout>
```

OUTPUT:



EXERCISE 10

CODE:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent" >
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SD CARD WRITE"
        android:textStyle="bold"
        android:textSize="30dp"
        android:id="@+id/sdwriteTxt"
        android:layout_marginTop="12dp"
        android:layout_centerHorizontal="true"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter file name:"
        android:layout_marginTop="12dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/sdwriteTxt"
        android:textSize="20dp"
        android:id="@+id/enterfilenametxt"
        />

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/enterfilenametxt"
        android:layout_marginTop="12dp"
        android:gravity="center"
        android:layout_marginLeft="12dp"
        android:layout_marginRight="12dp"
```

```
    android:id="@+id/writefilename"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter Contents:"
    android:inputType="textMultiLine"
    android:layout_marginTop="12dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@+id/writefilename"
    android:textSize="20dp"
    android:id="@+id/entercontentTxt"
/>

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/entercontentTxt"
    android:layout_marginTop="12dp"
    android:layout_marginLeft="12dp"
    android:layout_marginRight="12dp"
    android:id="@+id/writecontents"/>
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="WRITE"
    android:id="@+id/writebutton"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="10dp"
    android:layout_below="@+id/writecontents"/>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="SD CARD READ"
    android:textStyle="bold"
    android:textSize="30dp"
    android:id="@+id/sdreadTxt"
    android:layout_marginTop="12dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@+id/writebutton" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter file name:"
    android:layout_marginTop="12dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@+id/sdreadTxt"
    android:textSize="20dp"
    android:id="@+id/enterfilenametxt1"
/>
```

```

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:layout_below="@+id/enterfilenametxt1"
    android:layout_marginTop="12dp"
    android:layout_marginLeft="12dp"
    android:layout_marginRight="12dp"
    android:id="@+id/readfilename"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Contents:"
    android:layout_marginTop="12dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@+id/readfilename"
    android:textSize="20dp"
    android:id="@+id/contentTxt"
    />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/contentTxt"
    android:layout_marginTop="12dp"
    android:layout_marginLeft="12dp"
    android:layout_marginRight="12dp"
    android:id="@+id/readcontents"/>
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="READ"
    android:layout_below="@+id/readcontents"
    android:layout_centerHorizontal="true"
    android:id="@+id/readbutton"
    android:layout_marginTop="10dp"/>
</RelativeLayout>
</ScrollView>

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.sd_card">
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round">

```

```
    android:supportsRtl="true"
    android:theme="@style/AppTheme">
    <activity android:name=".MainActivity">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>

</manifest>
```

MainActivity.java

```
package com.example.sd_card;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

import android.Manifest;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.io.File;
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;
import java.io.IOException;

public class MainActivity extends AppCompatActivity {
    TextView readcontents;
    EditText writecontents,writefile,readfile;
    Button read,write;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        readcontents = findViewById(R.id.readcontents);
        writecontents = findViewById(R.id.writecontents);
        writefile = findViewById(R.id.writefilename);
        readfile = findViewById(R.id.readfilename);
        read = findViewById(R.id.readbutton);
        write = findViewById(R.id.writebutton);
        final File sdcard = Environment.getExternalStorageDirectory();
```

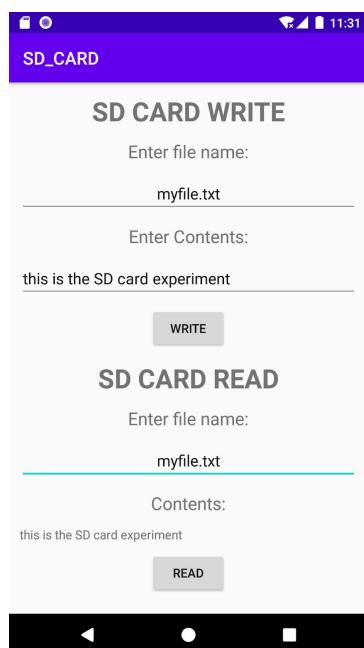
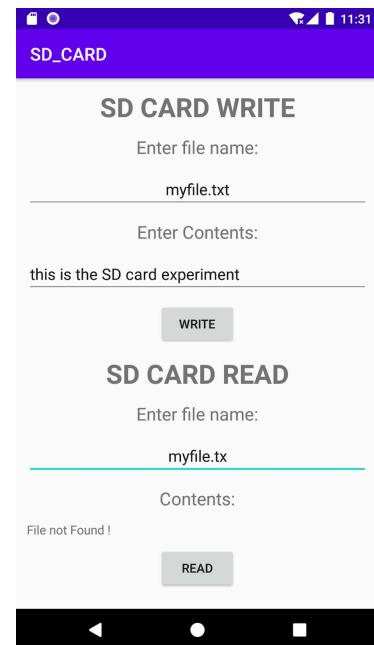
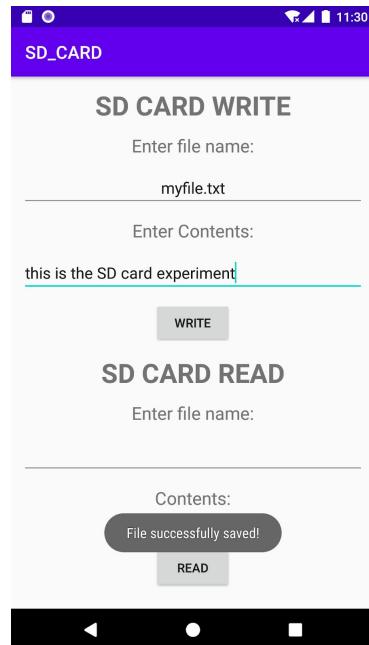
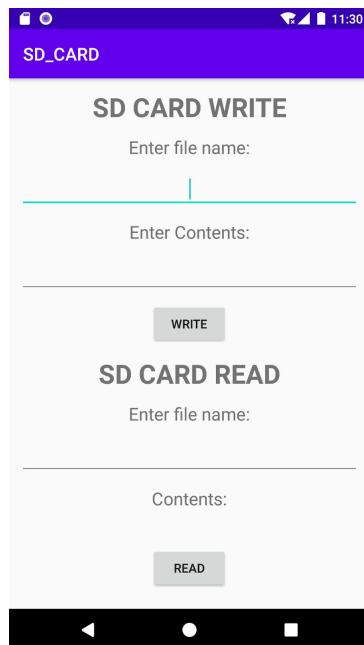
```

ActivityCompat.requestPermissions(this,new
String[]{Manifest.permission.READ_EXTERNAL_STORAGE,Manifest.permission.WRITE_EXTERNAL_STORAGE},1);
        write.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String pathwrite = sdcard.getAbsolutePath() + "/" + writefile.getText().toString();
                String contentwrite = writecontents.getText().toString();
                write_file(pathwrite,contentwrite);
            }
        });
        read.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String pathread = sdcard.getAbsolutePath() + "/" + readfile.getText().toString();
                read_file(pathread);
            }
        });
    }
void write_file(String pathwrite, String contentwrite){
    try {
        FileWriter writer = new FileWriter(pathwrite, false);
        writer.write(contentwrite);
        writer.close();
        Toast.makeText(this,"File successfully saved!",Toast.LENGTH_SHORT).show();
    }
    catch (FileNotFoundException e){
        Toast.makeText(this,"FileNotFoundException",Toast.LENGTH_SHORT).show();
    }
    catch (IOException e){
        Toast.makeText(this,"IOException",Toast.LENGTH_SHORT).show();
    }
}
void read_file(String pathread){
    try{
        FileReader reader = new FileReader(pathread);
        char [] buff = new char[1024];
        reader.read(buff);
        String text = new String(buff);
        readcontents.setText(text);
    }
    catch(FileNotFoundException e){
        readcontents.setText("File not Found !");
    }
    catch(IOException e){
        readcontents.setText("Could not read successfully!");
    }
}

```

```
}
```

OUTPUT:



EXERCISE 11

CODE:

activity_main.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=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="ALARM CLOCK"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:id="@+id/alText"/>

    <TextClock
        android:id="@+id/currTime"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/alText"
        />
    <TimePicker
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/cancel"
        android:layout_marginTop="30dp"
        android:id="@+id/timePicker"
        android:visibility="gone"
        />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/cancel"
```

```
    android:id="@+id/text"
    android:text=""
    android:layout_centerHorizontal="true"
/>
<androidx.appcompat.widget.AppCompatButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="SET ALARM"
    android:id="@+id/button"
    android:layout_marginTop="10dp"
    android:layout_below="@+id/currTime"
    android:layout_centerHorizontal="true"/>
<androidx.appcompat.widget.AppCompatButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="CANCEL"
    android:id="@+id/cancel"
    android:layout_marginTop="10dp"
    android:layout_below="@+id/button"
    android:layout_centerHorizontal="true"/>

```



```
</RelativeLayout>
```

MainActivity.java

```
package com.example.alarm_clock;

import android.app.TimePickerDialog;
import android.media.Ringtone;
import android.media.RingtoneManager;
import android.os.Bundle;
import android.os.Handler;
import android.os.Looper;
import android.provider.Settings;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextClock;
import android.widget.TextView;
import android.widget.TimePicker;

import androidx.appcompat.app.AppCompatActivity;

import java.util.Calendar;
import java.util.Timer;
import java.util.TimerTask;
import java.util.concurrent.atomic.AtomicInteger;

public class MainActivity extends AppCompatActivity {
    TimePicker alarmtime;
```

```

TextClock currtime;
TextView t;
Button setAlarm,cancel;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    currtime = findViewById(R.id.currTime);
    setAlarm = findViewById(R.id.button);
    alarmtime = findViewById(R.id.timePicker);
    cancel = findViewById(R.id.cancel);
    t = findViewById(R.id.text);
    final AtomicInteger value = new AtomicInteger(0);
    final AtomicInteger stop = new AtomicInteger(0);
    final Timer timer = new Timer();
    final Ringtone r =
RingtoneManager.getRingtone(getApplicationContext(),RingtoneManager.getDefaultUri(RingtoneManager.TYPE_ALARM));
    setAlarm.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            alarmtime.setVisibility(View.VISIBLE);
            stop.getAndSet(0);
            timer.scheduleAtFixedRate(new TimerTask() {
                @Override
                public void run() {
                    //write if else to see if alarm time is same as currtime
                    Log.i("here1",currtime.getText().toString());
                    Log.i("here2",AlarmTime());
                    if(currtime.getText().toString().equals(AlarmTime())&&stop.get()==0){
                        Log.i("here3","Works");

                        r.play();
                        runOnUiThread(new Runnable() {
                            @Override
                            public void run() {
                                t.setText("ALARM IS RINGING");
                            }
                        });
                    }
                }
            });
        }
    else{
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                t.setText("");
            }
        });
        r.stop();
    }
}

```

```

        },0,1000); //you want the delay to be zero because the task should be immediate and
you want to check each second
    }
});

cancel.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        stop.getAndSet(1);
    }
});
}

public String AlarmTime(){
    Integer alarmHour = alarmtime.getHour();
    Integer alarmMin = alarmtime.getMinute();
    String alarm_time,end="AM",min,hr;
    if (alarmHour>=12){
        end = "PM";
        if (alarmHour!=12)
            alarmHour-=12;
    }
    if (alarmMin<10)
        min = "0"+String.valueOf(alarmMin);
    else{
        min = String.valueOf(alarmMin);
    }
    if (alarmHour==0)
        hr="12";
    else{
        hr = String.valueOf(alarmHour);
    }
    alarm_time = hr+":"+min+" "+end;

    return alarm_time;
}
}

```

OUTPUT:

