Experiment – 1

Aim: Design an application to perform the arithmetic operations by reading the input from user

Solution:

activity_main.xml:

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

  <EditText
    android:id="@+id/aBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:minHeight="48dp"
    android:minWidth="48dp"
    android:hint="Enter a Value"
    android:inputType="text"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/bBox"/>

  <EditText
    android:id="@+id/bBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter b Value"
    android:inputType="text"
    android:minWidth="48dp"
    android:minHeight="48dp"
    app:layout_constraintBottom_toTopOf="@+id/addBtn"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/aBox" />

  <Button
    android:id="@+id/addBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="+"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/subBtn"
    app:layout_constraintBottom_toTopOf="@+id/mulBtn"
```

```xml
        app:layout_constraintTop_toBottomOf="@+id/bBox"/>

    <Button
        android:id="@+id/subBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-"
        tools:layout_editor_absoluteX="230dp"
        tools:layout_editor_absoluteY="322dp"
        app:layout_constraintBottom_toTopOf="@+id/divBtn"
        app:layout_constraintStart_toEndOf="@+id/addBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/bBox"/>

    <Button
        android:id="@+id/mulBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="*"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/addBtn"
        app:layout_constraintEnd_toStartOf="@+id/divBtn"
        app:layout_constraintBottom_toTopOf="@+id/result"/>

    <Button
        android:id="@+id/divBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="/"
        tools:layout_editor_absoluteX="230dp"
        tools:layout_editor_absoluteY="322dp"
        app:layout_constraintBottom_toTopOf="@+id/result"
        app:layout_constraintStart_toEndOf="@+id/mulBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/subBtn" />

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/divBtn" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.arith;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText aval, bval;
    Button add, sub, mul, div;
    TextView res;
    Double a, b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        aval = findViewById(R.id.aBox);
        bval = findViewById(R.id.bBox);
        add = findViewById(R.id.addBtn);
        sub = findViewById(R.id.subBtn);
        mul = findViewById(R.id.mulBtn);
        div = findViewById(R.id.divBtn);
        res = findViewById(R.id.result);
        add.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                a = Double.parseDouble(aval.getText().toString());
                b = Double.parseDouble(bval.getText().toString());
                res.setText("Result: "+(a+b));
            }
        });
        sub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                a = Double.parseDouble(aval.getText().toString());
                b = Double.parseDouble(bval.getText().toString());
                res.setText("Result: "+(a-b));
            }
        });
        mul.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                a = Double.parseDouble(aval.getText().toString());
                b = Double.parseDouble(bval.getText().toString());
                res.setText("Result: "+(a*b));
```
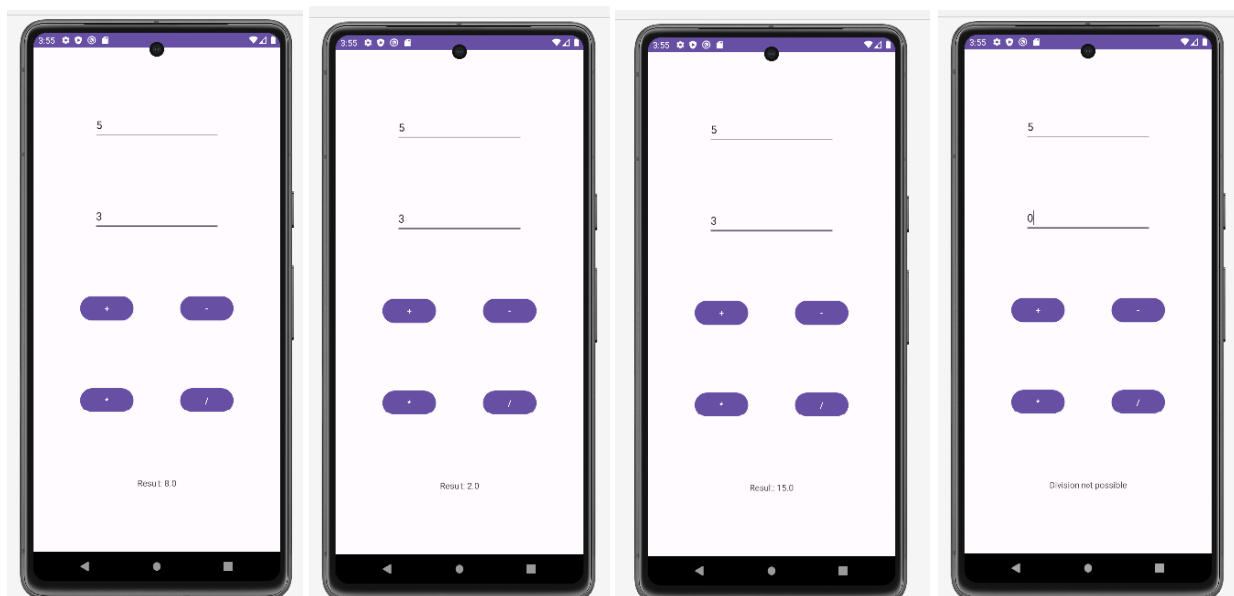
```
        }
    });
    div.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            a = Double.parseDouble(aval.getText().toString());
            b = Double.parseDouble(bval.getText().toString());
            if(b!=0)
                res.setText("Result: "+(a/b));
            else
                res.setText("Division not possible");
        }
    });
  }
}
```

Output:

Experiment – 2
Aim: Design an application to calculate the body mass index by reading the input from user

Solution:
activity_main.xml:

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

  <TextView
    android:id="@+id/header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="BMI Calculator"
    android:textSize="48dp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/wtLbl" />

  <TextView
    android:id="@+id/wtLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Weight (in Kg)"
    android:textStyle="bold"
    tools:layout_editor_absoluteX="53dp"
    tools:layout_editor_absoluteY="178dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/wtBox"
    app:layout_constraintBottom_toTopOf="@+id/htLbl"
    app:layout_constraintTop_toBottomOf="@+id/header" />

  <EditText
    android:id="@+id/wtBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter Weight"
    android:inputType="text"
    android:minHeight="48dp"
    tools:layout_editor_absoluteX="184dp"
    tools:layout_editor_absoluteY="164dp"
```

```xml
        app:layout_constraintBottom_toTopOf="@+id/htBox"
        app:layout_constraintStart_toEndOf="@+id/wtLbl"
        app:layout_constraintTop_toBottomOf="@+id/header"
        app:layout_constraintEnd_toEndOf="parent"/>

    <TextView
        android:id="@+id/htLbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Height (in Cm)"
        android:textStyle="bold"
        tools:layout_editor_absoluteX="56dp"
        tools:layout_editor_absoluteY="295dp"
        app:layout_constraintTop_toBottomOf="@+id/wtLbl"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/wtBox"
        app:layout_constraintBottom_toTopOf="@+id/calcBtn"/>

    <EditText
        android:id="@+id/htBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:minHeight="48dp"
        android:hint="Enter Height"
        android:inputType="text"
        tools:layout_editor_absoluteX="184dp"
        tools:layout_editor_absoluteY="275dp"
        app:layout_constraintBottom_toTopOf="@+id/calcBtn"
        app:layout_constraintStart_toEndOf="@+id/htLbl"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/wtBox"/>

    <Button
        android:id="@+id/calcBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        tools:layout_editor_absoluteX="157dp"
        tools:layout_editor_absoluteY="431dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/htBox"
        app:layout_constraintBottom_toTopOf="@+id/result"/>

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center_horizontal"
```

```
        android:textStyle="bold"
        tools:layout_editor_absoluteX="180dp"
        tools:layout_editor_absoluteY="571dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/calcBtn"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:
```java
package com.example.bmicalc;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText wtval, htval;
    Button btn;
    TextView res;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        wtval = findViewById(R.id.wtBox);
        htval = findViewById(R.id.htBox);
        btn = findViewById(R.id.calcBtn);
        res = findViewById(R.id.result);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Float wt = Float.parseFloat(wtval.getText().toString());
                Float ht_m = Float.parseFloat(htval.getText().toString())/100;
                Float bmi = wt/ (ht_m*ht_m);
                if(bmi < 18.5)
                    res.setText("The BMI is: "+bmi+" \n Under Weight ");
                else if (bmi >= 18.5 && bmi < 24.9)
                    res.setText("The BMI is: "+bmi+" \n Healthy ");
                else if (bmi >= 24.9 && bmi < 30)
                    res.setText("The BMI is: "+bmi+" \n Over Weight ");
                else if (bmi>=30)
                    res.setText("The BMI is: "+bmi+" \n Suffering from obesity ");
            }
        });
```
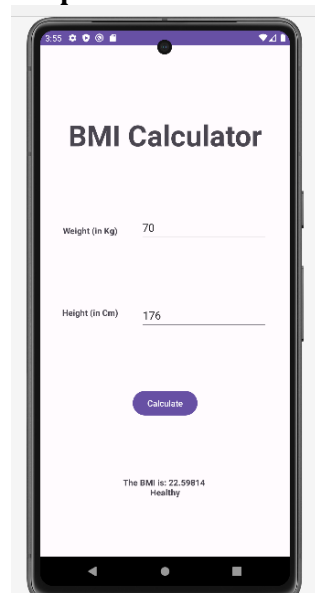
```
        }
}
```

Output:

Experiment – 3

Aim: Design an application to fill the registration form using AutoCompleteTextView and RadioButton by reading the input from user

Solution:
activity_main.xml:

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

    <TextView
        android:id="@+id/header"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Registration Form"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/nameLbl"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.605"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/nameLbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/FNameLbl"
        app:layout_constraintEnd_toStartOf="@+id/NameBox"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/header" />

    <AutoCompleteTextView
        android:id="@+id/PlaceBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Enter Location"
        android:minHeight="48dp"
        app:layout_constraintBottom_toTopOf="@+id/SubmitBtn"
        app:layout_constraintStart_toEndOf="@+id/PlaceLbl"
        app:layout_constraintTop_toBottomOf="@+id/GenderGroup"
        app:layout_constraintEnd_toEndOf="parent"/>
```

```xml
<TextView
    android:id="@+id/PlaceLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Place of Birth"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/GenderGroup"
    app:layout_constraintEnd_toStartOf="@+id/PlaceBox"
    app:layout_constraintBottom_toTopOf="@+id/SubmitBtn"/>

<TextView
    android:id="@+id/GenderLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Gender"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/PlaceLbl"
    app:layout_constraintEnd_toStartOf="@+id/GenderGroup"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/FNameLbl" />

<TextView
    android:id="@+id/FNameLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Father Name"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/GenderLbl"
    app:layout_constraintEnd_toStartOf="@+id/FNameBox"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/nameLbl" />

<RadioGroup
    android:id="@+id/GenderGroup"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintStart_toEndOf="@+id/GenderLbl"
    app:layout_constraintBottom_toTopOf="@+id/PlaceBox"
    app:layout_constraintTop_toBottomOf="@+id/FNameBox"
    app:layout_constraintEnd_toEndOf="parent">

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

    <RadioButton
```

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

        </RadioGroup>

        <EditText
            android:id="@+id/NameBox"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:ems="10"
            android:hint="Enter Name"
            android:inputType="text"
            android:minHeight="48dp"
            app:layout_constraintBottom_toTopOf="@+id/FNameBox"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toEndOf="@+id/nameLbl"
            app:layout_constraintTop_toBottomOf="@+id/header" />

        <EditText
            android:id="@+id/FNameBox"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:ems="10"
            android:hint="Enter Father Name"
            android:inputType="text"
            android:minHeight="48dp"
            app:layout_constraintBottom_toTopOf="@+id/GenderGroup"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toEndOf="@+id/FNameLbl"
            app:layout_constraintTop_toBottomOf="@+id/NameBox" />

        <Button
            android:id="@+id/SubmitBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Submit"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toBottomOf="@+id/PlaceBox"
            app:layout_constraintBottom_toBottomOf="parent"/>


</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:
```java
package com.example.registrationformacrg;

import androidx.appcompat.app.AppCompatActivity;
```

```java
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText name,fname;
    AutoCompleteTextView places;
    RadioGroup rg;
    RadioButton rb;
    Button btn;
    String[] Locations = {"Bangalore","Delhi","Pune","Bombay","Chennai","Hyderabad","Calcutta"};
    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.NameBox);
        fname = findViewById(R.id.FNameBox);
        places = findViewById(R.id.PlaceBox);
        btn = findViewById(R.id.SubmitBtn);
        ArrayAdapter adapter = new ArrayAdapter(this, android.R.layout.select_dialog_item,Locations);
        places.setThreshold(1);
        places.setAdapter(adapter);
        rg = findViewById(R.id.GenderGroup);
        rg.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(RadioGroup group, int checkedId) {
                rb = findViewById(checkedId);
            }
        });
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String res1 = "Name: "+name.getText().toString()+"\nFather Name:
"+fname.getText().toString()+"\nGender: "+rb.getText()+"\nPlace of Birth:
"+places.getText().toString();
                Toast.makeText(MainActivity.this,res1,Toast.LENGTH_SHORT).show();
            }
        });
    }
```

Output:

Experiment – 4

Aim: Design an application to fill the course selection of discipline electives for upcoming semester using Spinner by reading the input from user

Solution:
activity_main.xml:

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

  <TextView
    android:id="@+id/header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Electives Selection"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/nameBox"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

  <TextView
    android:id="@+id/nameLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Student Name"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/nameBox"
    app:layout_constraintTop_toBottomOf="@+id/header"
    app:layout_constraintBottom_toTopOf="@+id/rollnoLbl"/>

  <EditText
    android:id="@+id/nameBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:minHeight="48dp"
    android:hint="Enter Student Name"
    android:inputType="text"
    app:layout_constraintStart_toEndOf="@+id/nameLbl"
    app:layout_constraintTop_toBottomOf="@+id/header"
    app:layout_constraintBottom_toTopOf="@+id/rollnoBox"
```

```xml
        app:layout_constraintEnd_toEndOf="parent"/>

    <TextView
        android:id="@+id/rollnoLbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Roll No"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/nameLbl"
        app:layout_constraintEnd_toStartOf="@+id/rollnoBox"
        app:layout_constraintBottom_toTopOf="@+id/delbl"/>

    <EditText
        android:id="@+id/rollnoBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:minHeight="48dp"
        android:hint="Enter Student RollNo"
        android:inputType="text"
        app:layout_constraintStart_toEndOf="@+id/rollnoLbl"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/delbl"
        app:layout_constraintTop_toBottomOf="@+id/nameBox"/>

    <TextView
        android:id="@+id/delbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Discipline Elective"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/electivesBox"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.054"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/rollnoLbl" />

    <Spinner
        android:id="@+id/electivesBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:minHeight="48dp"
        app:layout_constraintBottom_toTopOf="@+id/SubmitBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/delbl"/>

    <Button
        android:id="@+id/SubmitBtn"
```

```xml
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    android:onClick="displayDetails"
    app:layout_constraintTop_toBottomOf="@+id/electivesBox"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/result"
    app:layout_constraintEnd_toStartOf="@+id/ResetBtn"/>

  <Button
    android:id="@+id/ResetBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Reset"
    android:onClick="resetDetails"
    app:layout_constraintStart_toEndOf="@+id/SubmitBtn"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/electivesBox"
    app:layout_constraintBottom_toTopOf="@+id/result"/>

  <TextView
    android:id="@+id/result"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:gravity="center_horizontal"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/SubmitBtn"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

strings.xml:

```xml
<resources>
  <string name="app_name">DESelectionSpinner</string>
  <string-array name="courses">
    <item>Mobile Application Development</item>
    <item>Java Full Stack</item>
    <item>.Net Full Stack</item>
  </string-array>
</resources>
```

MainActivity.java:

```java
package com.example.deselectionspinner;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
```

```java
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText name,rollno;
    Spinner elec;
    TextView res;
    String selectedCourse;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.nameBox);
        rollno = findViewById(R.id.rollnoBox);
        elec = findViewById(R.id.electivesBox);
        res = findViewById(R.id.result);
        ArrayAdapter adapter = new ArrayAdapter(this,
android.R.layout.simple_spinner_item,getResources().getStringArray(R.array.courses));
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        elec.setAdapter(adapter);
        elec.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
                selectedCourse = parent.getItemAtPosition(position).toString();
            }

            @Override
            public void onNothingSelected(AdapterView<?> parent) {

            }
        });
    }
    public void displayDetails(View v) {
        res.setText("Name: "+name.getText().toString()+"\nRoll No:
"+rollno.getText().toString()+"\nSelected Course: "+selectedCourse);
    }
    public void resetDetails(View v){
        name.setText("");
        rollno.setText("");
        res.setText("");
    }
}
```

Output:

Experiment – 5

Aim: Design an application to check the user is eligibility to vote or not by reading the data of birth and aadhar card number.

acitivity_main.xml:

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

    <TextView
        android:id="@+id/header"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Vote Eligibility"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/nameBox"/>

    <TextView
        android:id="@+id/nameLbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="User Name"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/header"
        app:layout_constraintBottom_toTopOf="@+id/aadharLbl"
        app:layout_constraintEnd_toStartOf="@+id/nameBox" />

    <EditText
        android:id="@+id/nameBox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:minHeight="48dp"
        android:hint="Enter Username"
        android:inputType="text"
        app:layout_constraintStart_toEndOf="@+id/nameLbl"
        app:layout_constraintBottom_toTopOf="@+id/aadharBox"
        app:layout_constraintTop_toBottomOf="@+id/header"
        app:layout_constraintEnd_toEndOf="parent"/>
```

```xml
<TextView
    android:id="@+id/aadharLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Aadhar No."
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/nameLbl"
    app:layout_constraintBottom_toTopOf="@+id/dobLbl"
    app:layout_constraintEnd_toStartOf="@+id/aadharBox"/>

<EditText
    android:id="@+id/aadharBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:minHeight="48dp"
    android:hint="Enter Aadhar Number"
    android:inputType="number"
    app:layout_constraintStart_toEndOf="@+id/aadharLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/nameBox"
    app:layout_constraintBottom_toTopOf="@id/dateBox"/>

<TextView
    android:id="@+id/dobLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Date of Birth"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/checkBtn"
    app:layout_constraintTop_toBottomOf="@+id/aadharLbl"
    app:layout_constraintEnd_toStartOf="@+id/dateBox"
    app:layout_constraintStart_toStartOf="parent"/>

<EditText
    android:id="@+id/dateBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:minHeight="48dp"
    android:hint="Select Date"
    android:inputType="date"
    app:layout_constraintStart_toEndOf="@+id/dobLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/aadharBox"
    app:layout_constraintBottom_toTopOf="@+id/checkBtn"/>

<Button
```

```
                android:id="@+id/checkBtn"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Check"
                android:onClick="checkEligibility"
                app:layout_constraintTop_toBottomOf="@+id/aadharBox"
                app:layout_constraintEnd_toEndOf="parent"
                app:layout_constraintStart_toStartOf="parent"
                app:layout_constraintBottom_toBottomOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.agecalcdpd;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.app.DatePickerDialog;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.EditText;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity {
    EditText name, num, date;
    Button btn;
    int diff;

    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.nameBox);
        num = findViewById(R.id.aadharBox);
        date = findViewById(R.id.dateBox);
        date.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Calendar c = Calendar.getInstance();
                int pYear = c.get(Calendar.YEAR);
                int pMonth = c.get(Calendar.MONTH);
                int pDate = c.get(Calendar.DATE);
```

```java
            DatePickerDialog dialog = new DatePickerDialog(MainActivity.this,
android.R.style.Theme_DeviceDefault_DialogWhenLarge, new
DatePickerDialog.OnDateSetListener() {
                @Override
                public void onDateSet(DatePicker view, int year, int month, int dayOfMonth) {
                    date.setText(dayOfMonth+"/"+(month+1)+"/"+year);
                    diff = pYear - year;
                }
            },pYear, pMonth, pDate);
            dialog.show();
        }
    });
  }

  public void checkEligibility(View v) {
    String s_name = name.getText().toString();
    String s_num = num.getText().toString();
    Intent in = new Intent(getApplicationContext(), ResultActivity.class);
    in.putExtra("NAME",s_name);
    in.putExtra("AADHAR",s_num);
    in.putExtra("AGE",diff);
    startActivity(in);
  }
}
```

activity_result.xml:

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

  <TextView
    android:id="@+id/result"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:gravity="center_horizontal"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

ResultActivity.java:

```java
package com.example.agecalcdpd;
```
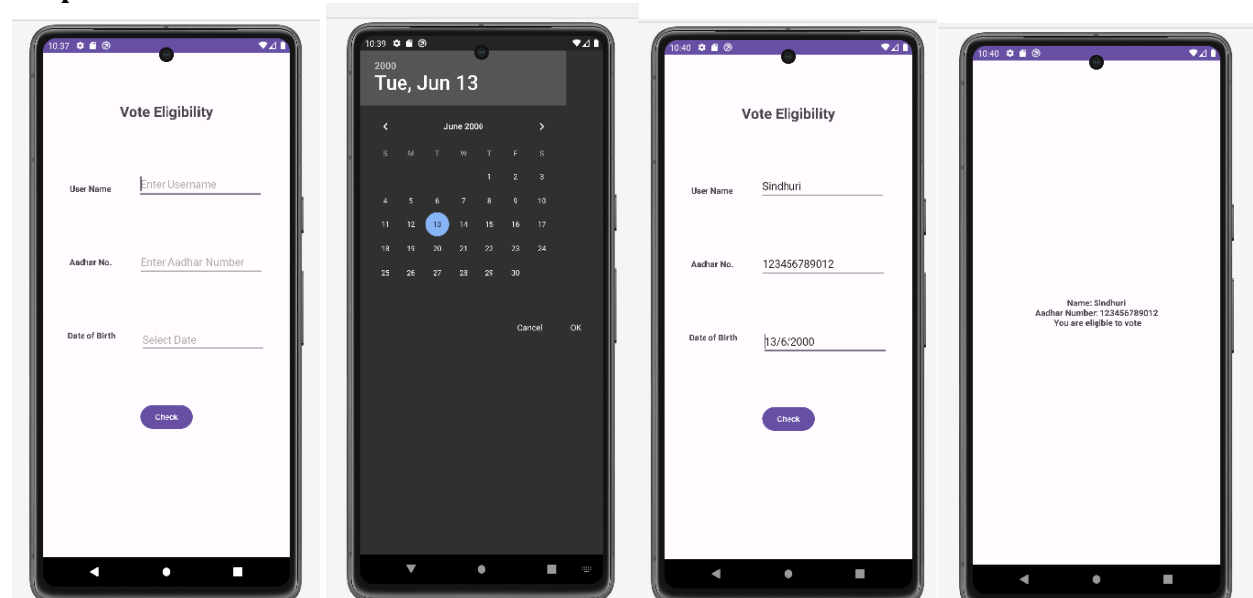
```java
import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class ResultActivity extends AppCompatActivity {
    TextView res;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_result);
        res = findViewById(R.id.result);
        Intent intt = getIntent();
        String r_name = intt.getStringExtra("NAME");
        String r_aadhar = intt.getStringExtra("AADHAR");
        int age = intt.getIntExtra("AGE",0);
        if(age>=18)
            res.setText("Name: "+r_name+"\nAadhar Number: "+r_aadhar+"\n You are eligible to vote");
        else
            res.setText("Name: "+r_name+"\nAadhar Number: "+r_aadhar+"\n You are not eligible to
vote");
    }
}
```

Output:

Aim: Design an application to order the cake by selecting the date and time and display the order details in another activity.

acitivity_main.xml:

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

  <TextView
    android:id="@+id/header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Cake Bakery"
    android:textSize="34sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/cakeBox"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

  <TextView
    android:id="@+id/itemLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="76dp"
    android:text="Cake Flavour"
    android:textStyle="bold"
    app:layout_constraintEnd_toStartOf="@+id/cakeBox"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/header" />

  <Spinner
    android:id="@+id/cakeBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:minHeight="48dp"
    app:layout_constraintTop_toBottomOf="@+id/header"
    app:layout_constraintBottom_toTopOf="@+id/cakeImage"
    app:layout_constraintStart_toEndOf="@+id/itemLbl"
    app:layout_constraintEnd_toEndOf="parent" />

  <TextView
    android:id="@+id/dateLbl"
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Date of Delivery"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/cakeImage"
        app:layout_constraintTop_toBottomOf="@+id/itemLbl"
        app:layout_constraintBottom_toTopOf="@+id/timeLbl" />

    <ImageView
        android:id="@+id/cakeImage"
        android:layout_width="157dp"
        android:layout_height="152dp"
        app:srcCompat="@drawable/download"
        android:onClick="selectDate"
        app:layout_constraintBottom_toTopOf="@+id/timeImage"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/dateLbl"
        app:layout_constraintTop_toBottomOf="@+id/cakeBox" />

    <TextView
        android:id="@+id/timeLbl"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Time of Delivery"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/orderBtn"
        app:layout_constraintEnd_toStartOf="@id/timeImage"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/dateLbl"
        android:contentDescription="@null"/>

    <ImageView
        android:id="@+id/timeImage"
        android:layout_width="192dp"
        android:layout_height="102dp"
        android:onClick="selectTime"
        app:layout_constraintBottom_toTopOf="@+id/orderBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/timeLbl"
        app:layout_constraintTop_toBottomOf="@+id/cakeImage"
        app:srcCompat="@drawable/_90436_time" />

    <Button
        android:id="@+id/orderBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Place Order"
        android:onClick="placeOrder"
        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/timeImage"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.cakedelapptp;

import androidx.appcompat.app.AppCompatActivity;

import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.DatePicker;
import android.widget.Spinner;
import android.widget.TimePicker;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity {
    Spinner cakeitem;
    String[] cakes = {"Vanilla","Red Velvet","Choclate","Strawberry","Butterscotch"};
    String c_flavour,datedel,timedel;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        cakeitem = findViewById(R.id.cakeBox);
        ArrayAdapter adapter = new ArrayAdapter(this, android.R.layout.simple_spinner_item,cakes);
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        cakeitem.setAdapter(adapter);
        cakeitem.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
                c_flavour = parent.getItemAtPosition(position).toString();
            }

            @Override
            public void onNothingSelected(AdapterView<?> parent) {

            }
        });
    }
    public void selectDate(View v){
        Calendar c = Calendar.getInstance();
```

```java
      int pYear = c.get(Calendar.YEAR);
      int pMonth = c.get(Calendar.MONTH);
      int pDate = c.get(Calendar.DATE);
      DatePickerDialog dialog = new DatePickerDialog(this,
android.R.style.Theme_DeviceDefault_DialogWhenLarge, new
DatePickerDialog.OnDateSetListener() {
          @Override
          public void onDateSet(DatePicker view, int year, int month, int dayOfMonth) {
              datedel = dayOfMonth+"/"+(month+1)+"/"+year;
          }
      },pYear,pMonth,pDate);
      dialog.show();
   }
   public void selectTime(View v){
      Calendar c1 = Calendar.getInstance();
      int pHour = c1.get(Calendar.HOUR);
      int pMinute = c1.get(Calendar.MINUTE);
      TimePickerDialog tdialog = new TimePickerDialog(this,
android.R.style.Theme_DeviceDefault_DialogWhenLarge, new
TimePickerDialog.OnTimeSetListener() {
          @Override
          public void onTimeSet(TimePicker view, int hourOfDay, int minute) {
              timedel = hourOfDay+":"+minute;
          }
      },pHour,pMinute,false);
      tdialog.show();
   }
   public void placeOrder(View v) {
      Intent in = new Intent(getApplicationContext(), OrderActivity.class);
      in.putExtra("ITEM",c_flavour);
      in.putExtra("DATE",datedel);
      in.putExtra("TIME",timedel);
      startActivity(in);
   }
}
```

Activity_order.xml:

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

   <TextView
      android:id="@+id/result"
      android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"
        android:gravity="center_horizontal"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```
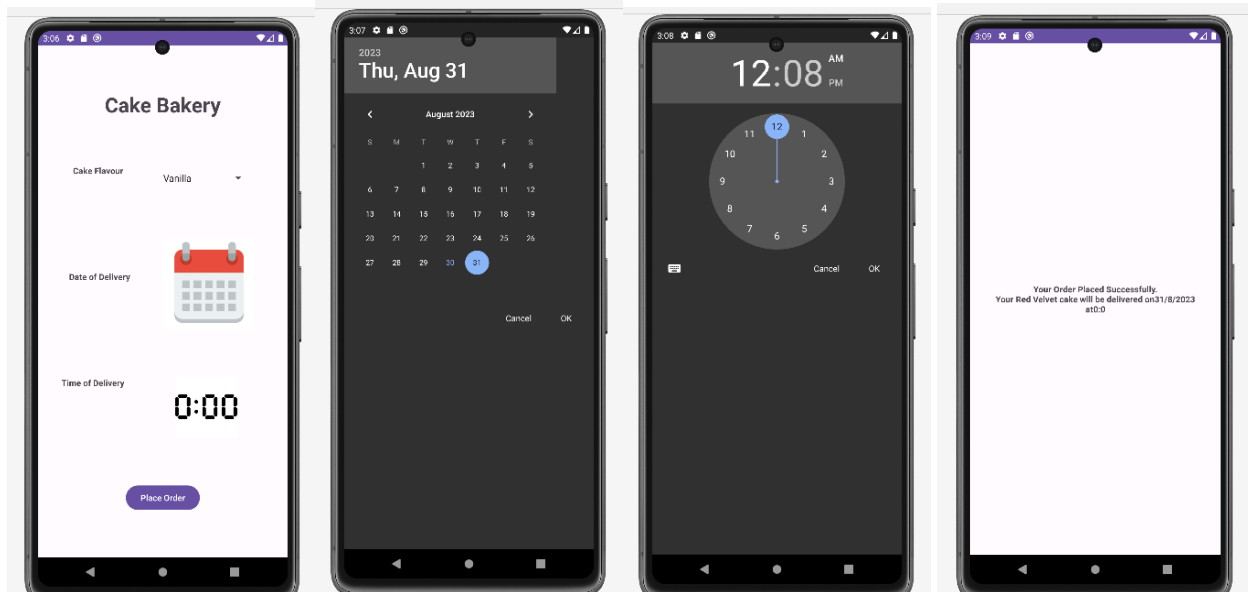
OrderActivity.java:

```java
package com.example.cakedelapptp;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class OrderActivity extends AppCompatActivity {
    TextView res;
    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_order);
        res = findViewById(R.id.result);
        Intent intt = getIntent();
        String cakeFlavour = intt.getStringExtra("ITEM");
        String dated = intt.getStringExtra("DATE");
        String timed = intt.getStringExtra("TIME");
        res.setText("Your Order Placed Successfully."+"\nYour "+cakeFlavour+" cake will be delivered
on"+dated+"\nat"+timed);
    }
}
```

Output:

Experiment – 7

Aim: Design an application to provide the nutrition details of burger and pizza by using fragments.

acitivity_main.xml:

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

    <ImageView
        android:id="@+id/burgerBtn"
        android:layout_width="180dp"
        android:layout_height="205dp"
        app:srcCompat="@drawable/photo_1571091718767_18b5b1457add"
        android:onClick="changeFragment"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/pizzaBtn"
        app:layout_constraintBottom_toTopOf="@+id/fragmentPortion"/>

    <ImageView
        android:id="@+id/pizzaBtn"
        android:layout_width="179dp"
        android:layout_height="184dp"
        app:srcCompat="@drawable/pizza_recipe_1"
        android:onClick="changeFragment"
        app:layout_constraintStart_toEndOf="@+id/burgerBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/fragmentPortion"/>

    <androidx.fragment.app.FragmentContainerView
        android:id="@+id/fragmentPortion"
        android:name="com.example.fragmentsexample.BlankFragment"
        android:layout_width="375dp"
        android:layout_height="375dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/burgerBtn"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.fragmentsexample;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void changeFragment(View v){
        Fragment frag;
        FragmentManager fm = getSupportFragmentManager();
        FragmentTransaction ft = fm.beginTransaction();
        if(v==findViewById(R.id.burgerBtn)){
            frag = new BlankFragment();
            ft.replace(R.id.fragmentPortion,frag);
            ft.commit();
        }
        if(v==findViewById(R.id.pizzaBtn)){
            frag = new BlankFragment2();
            ft.replace(R.id.fragmentPortion,frag);
            ft.commit();
        }
    }
}
```

fragment_blank.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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="#BF9000"
    tools:context=".BlankFragment">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
```

```
            android:textSize="24dp"
            android:textStyle="bold"
            android:textAlignment="center"
            android:textColor="#990000"
            android:text = "Burger Details\nCalories:354\nFat:18g\nProtein:22g"
            android:gravity="center_vertical"
            tools:ignore="RtlCompat" />

</FrameLayout>
```

BlankFragment.java:

```java
package com.example.fragmentsexample;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link BlankFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class BlankFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    public BlankFragment() {
        // Required empty public constructor
    }

    /**
     * Use this factory method to create a new instance of
     * this fragment using the provided parameters.
     *
     * @param param1 Parameter 1.
     * @param param2 Parameter 2.
     * @return A new instance of fragment BlankFragment.
     */
```

```java
    // TODO: Rename and change types and number of parameters
    public static BlankFragment newInstance(String param1, String param2) {
        BlankFragment fragment = new BlankFragment();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        if (getArguments() != null) {
            mParam1 = getArguments().getString(ARG_PARAM1);
            mParam2 = getArguments().getString(ARG_PARAM2);
        }
    }

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                   Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_blank, container, false);
    }
}
```

fragment_blank2.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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="#38761d"
    tools:context=".BlankFragment2">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:textSize="24dp"
        android:textStyle="bold"
        android:textAlignment="center"
        android:textColor="#85200c"
        android:text = "Pizza Details\nCalories:285\nFat:10g\nProtein:12g"
        android:gravity="center_vertical"
        tools:ignore="RtlCompat" />

</FrameLayout>
```

BlankFragment2.xml:

```java
package com.example.fragmentsexample;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link BlankFragment2#newInstance} factory method to
 * create an instance of this fragment.
 */
public class BlankFragment2 extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;

    public BlankFragment2() {
        // Required empty public constructor
    }

    /**
     * Use this factory method to create a new instance of
     * this fragment using the provided parameters.
     *
     * @param param1 Parameter 1.
     * @param param2 Parameter 2.
     * @return A new instance of fragment BlankFragment2.
     */
    // TODO: Rename and change types and number of parameters
    public static BlankFragment2 newInstance(String param1, String param2) {
        BlankFragment2 fragment = new BlankFragment2();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }
```

```
  @Override
  public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    if (getArguments() != null) {
      mParam1 = getArguments().getString(ARG_PARAM1);
      mParam2 = getArguments().getString(ARG_PARAM2);
    }
  }

  @Override
  public View onCreateView(LayoutInflater inflater, ViewGroup container,
                Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    return inflater.inflate(R.layout.fragment_blank2, container, false);
  }
}
```
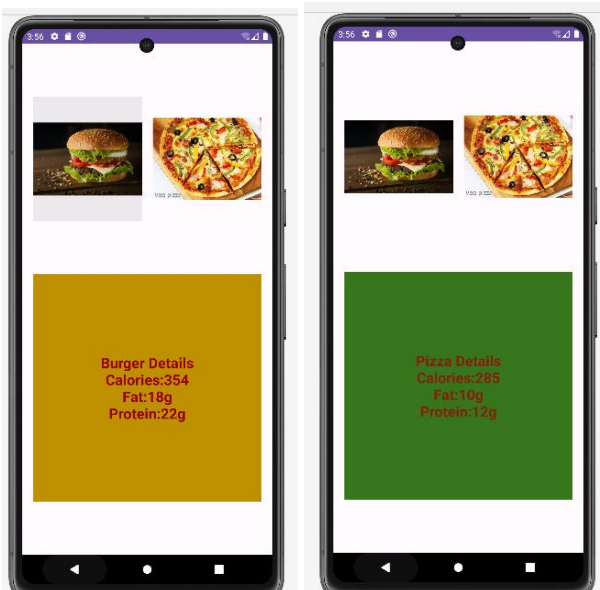
Output:

Experiment – 8

Aim: Design an application to provide the student details with section number using fragments.

acitivity_main.xml:

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

    <ListView
        android:id="@+id/studentList"
        android:layout_width="175dp"
        android:layout_height="match_parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/fragmentPortion"
        app:layout_constraintBottom_toBottomOf="parent"/>

    <androidx.fragment.app.FragmentContainerView
        android:id="@+id/fragmentPortion"
        android:name="com.example.studentdetailsfragments.DetailsFragment"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toEndOf="@+id/studentList"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintEnd_toEndOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.studentdetailsfragments;

import androidx.appcompat.app.AppCompatActivity;

import android.app.Fragment;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {
```

```java
    ListView list;
    String Stu[] = {"ABC","DEF","GHI","JKL"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        list = findViewById(R.id.studentList);
        ArrayAdapter adapter = new ArrayAdapter(this, android.R.layout.simple_list_item_1,Stu);
        list.setAdapter(adapter);
        list.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                DetailsFragment frag = (DetailsFragment)
getSupportFragmentManager().findFragmentById(R.id.fragmentPortion);
                frag.change(position);
            }
        });
    }
}
```

fragment_details.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".DetailsFragment">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:textAlignment="center"
        android:gravity="center_vertical"
        android:text="Name: \nSection Number:"
        android:textStyle="bold"
        android:textSize="18dp"
        tools:ignore="RtlCompat" />

</FrameLayout>
```

DetailsFragment.java:

```java
package com.example.studentdetailsfragments;

import android.os.Bundle;
```

```java
import androidx.fragment.app.Fragment;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

/**
 * A simple {@link Fragment} subclass.
 * Use the {@link DetailsFragment#newInstance} factory method to
 * create an instance of this fragment.
 */
public class DetailsFragment extends Fragment {

    // TODO: Rename parameter arguments, choose names that match
    // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
    private static final String ARG_PARAM1 = "param1";
    private static final String ARG_PARAM2 = "param2";

    // TODO: Rename and change types of parameters
    private String mParam1;
    private String mParam2;
    String Users[] = {"ABC","DEF","GHI","JKL"};
    String Section[] = {"5CSE1","5CSE2","5CSE3","5CSE4"};
    TextView res;

    public DetailsFragment() {
        // Required empty public constructor
    }

    /**
     * Use this factory method to create a new instance of
     * this fragment using the provided parameters.
     *
     * @param param1 Parameter 1.
     * @param param2 Parameter 2.
     * @return A new instance of fragment DetailsFragment.
     */
    // TODO: Rename and change types and number of parameters
    public static DetailsFragment newInstance(String param1, String param2) {
        DetailsFragment fragment = new DetailsFragment();
        Bundle args = new Bundle();
        args.putString(ARG_PARAM1, param1);
        args.putString(ARG_PARAM2, param2);
        fragment.setArguments(args);
        return fragment;
    }

    @Override
    public void onCreate(Bundle savedInstanceState) {
```
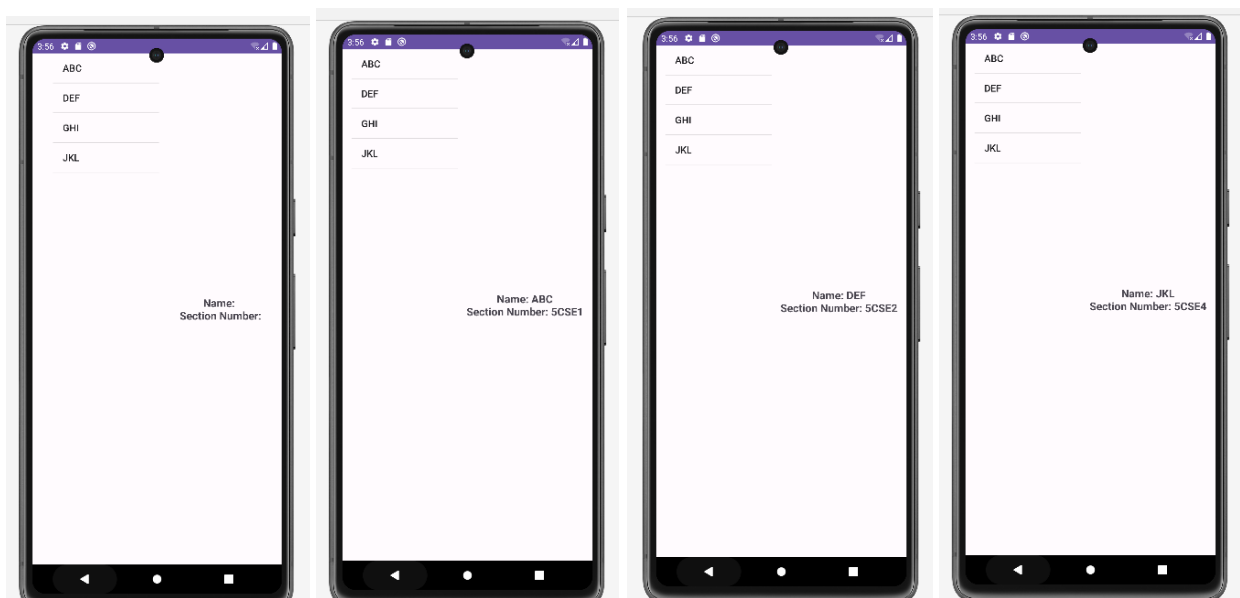
```java
      super.onCreate(savedInstanceState);
      if (getArguments() != null) {
        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);
      }

  }

  @Override
  public View onCreateView(LayoutInflater inflater, ViewGroup container,
                 Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    View view = inflater.inflate(R.layout.fragment_details, container, false);
    res = view.findViewById(R.id.result);
    return view;
  }
  public void change(int position){
    res.setText("Name: "+Users[position]+"\nSection Number: "+Section[position]);
  }
}
```

Output:

Experiment – 10
Aim: Design an application to run music in the background while using other application.

Solution:
Step 1: Create a MyService java file:
Choose the "app" folder and create a new file by selecting "New", then "Service" and entering a name.
You can choose any filename you like, for example "MyService.java".

Step 2: Create a resource directory
To create a menu, you need to create raw folder so create one inside the "raw" folder by selecting it
and choosing "File", "New", then "Folder" and entering "raw" as the name and type as raw.

Step 3: Add an audio file:
Add the audio file under "raw" directory.

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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/playerImage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:srcCompat="@drawable/download__1_"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/playBtn"/>

    <ImageView
        android:id="@+id/playBtn"
        android:layout_width="108dp"
        android:layout_height="95dp"
        app:srcCompat="@drawable/download_play"
        android:onClick="changePlay"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/stopBtn"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/playerImage"/>

    <ImageView
        android:id="@+id/stopBtn"
        android:layout_width="103dp"
        android:layout_height="99dp"
```

```
    app:srcCompat="@drawable/download_stop"
    android:onClick="changePlay"
    app:layout_constraintStart_toEndOf="@+id/playBtn"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/playerImage"
    app:layout_constraintBottom_toBottomOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:
```java
package com.example.musicplayerservices;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void changePlay(View view){
        if(view == findViewById(R.id.playBtn)){
            startService(new Intent(this,MyService.class));
        }
        else if(view==findViewById(R.id.stopBtn)){
            stopService(new Intent(this,MyService.class));
        }
    }
}
```

MyService.java:
```java
package com.example.musicplayerservices;

import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
import android.provider.Settings;

public class MyService extends Service {

    MediaPlayer mp;

    @Override
    public IBinder onBind(Intent intent) {
```

```
      return null;
   }
   public int onStartCommand(Intent intent, int flags, int startId) {
      mp = MediaPlayer.create(this,R.raw.ringtone);
      mp.setLooping(true);
      mp.start();
      return START_STICKY;
   }
   public void onDestroy(){
      super.onDestroy();
      mp.stop();
   }

}
```

Output:

Experiment – 11
Aim: Design an application to monitor the battery level using broadcast receivers.

Solution:
Create a BatteryReceiver java file:
Choose the "app" folder and create a new java file by selecting "New", then "Java Class" and entering a name. You can choose any filename you like, for example "BatteryReceiver.java".

activity_main.xml:

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

  <TextView
    android:id="@+id/batteryText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="50dp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/checkBtn"
    app:layout_constraintBottom_toTopOf="@+id/progressBar"/>

  <Button
    android:id="@+id/checkBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Check Battery Percentage"
    android:onClick="checkBatteryPercentage"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/batteryText"/>

  <ProgressBar
    android:id="@+id/progressBar"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:minHeight="100dp"
    android:minWidth="200dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/batteryText"
```

```xml
                app:layout_constraintBottom_toBottomOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.broadcastrecieverex;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.view.View;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView tv;
    ProgressBar progress;
    BatteryReceiver BR;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv = findViewById(R.id.batteryText);
        progress = findViewById(R.id.progressBar);

    }
    public void checkBatteryPercentage(View view){
        BR = new BatteryReceiver(tv,progress);
        registerReceiver(BR,new IntentFilter(Intent.ACTION_BATTERY_CHANGED));
    }

    @Override
    protected void onStop() {
        super.onStop();
        unregisterReceiver(BR);
    }
}
```

BatteryReceiver.java:

```java
package com.example.broadcastrecieverex;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.res.ColorStateList;
import android.graphics.Color;
```
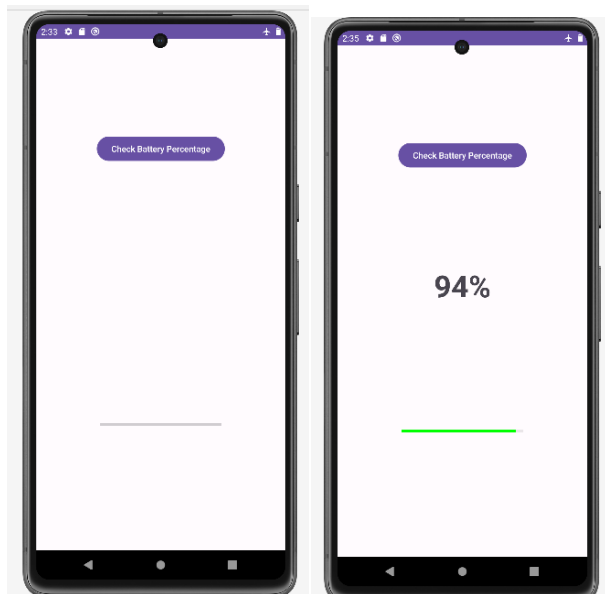
```java
import android.os.Build;
import android.widget.ProgressBar;
import android.widget.TextView;

import androidx.annotation.RequiresApi;

public class BatteryReceiver extends BroadcastReceiver {
    TextView tview;
    ProgressBar prg;
    BatteryReceiver(TextView tv, ProgressBar progressBar){
        tview = tv;
        prg = progressBar;
    }
    @RequiresApi(api = Build.VERSION_CODES.LOLLIPOP)
    @Override
    public void onReceive(Context context, Intent intent) {
        int per = intent.getIntExtra("level",0);
        if(per>=50) {
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
        }
        else if(per<50 && per>=20){
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.YELLOW));
        } else if (per<20 && per>0) {
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.RED));
        }
    }
}
```
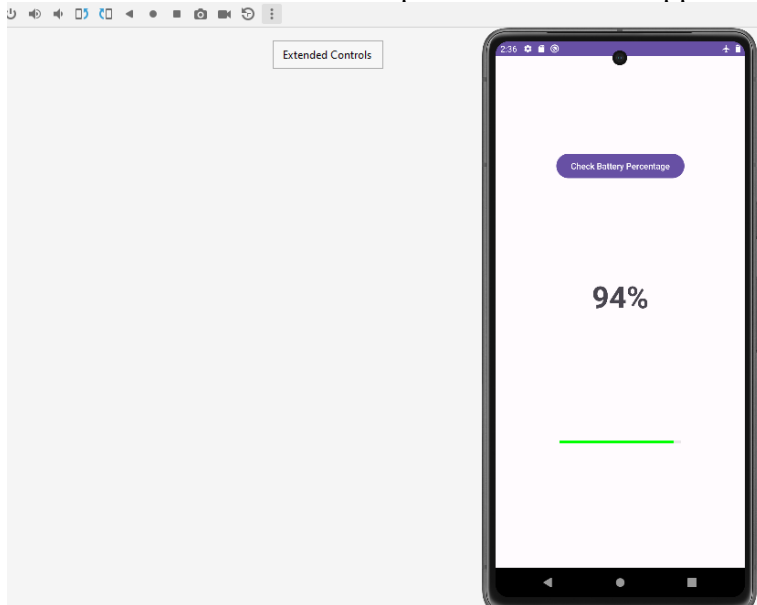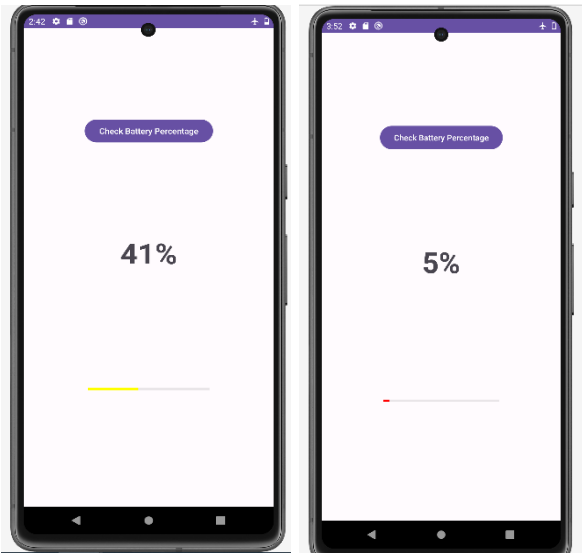
Go to extended controls then separate window will appear for the controls

Change the Battery level

Experiment – 12
Aim: Design an application to store the student details using SQLite Database

Solution:
Create a MyDBHandler java file:
Choose the "Java" folder and create a new java file by selecting "New", then "Java Class" and entering a name. You can choose any filename you like, for example "MyDBHandler.java".

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

  <EditText
    android:id="@+id/nameBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter Student Name"
    android:inputType="text"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/nameLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/idBox"/>

  <TextView
    android:id="@+id/Header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Students Database"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/nameBox"/>

  <TextView
    android:id="@+id/nameLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Student Name"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
```

```xml
    app:layout_constraintEnd_toStartOf="@+id/nameBox"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/idLbl"/>

<TextView
    android:id="@+id/idLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Student Id"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/idBox"
    app:layout_constraintTop_toBottomOf="@+id/nameLbl"
    app:layout_constraintBottom_toTopOf="@+id/insertBtn"/>

<EditText
    android:id="@+id/idBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter Student Id"
    android:inputType="text"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/idLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/nameBox"
    app:layout_constraintBottom_toTopOf="@+id/deleteBtn"/>

<Button
    android:id="@+id/insertBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="ADD"
    app:layout_constraintBottom_toTopOf="@+id/displayBtn"
    app:layout_constraintEnd_toStartOf="@+id/deleteBtn"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/idLbl" />

<Button
    android:id="@+id/deleteBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="25dp"
    android:text="DELETE"
    app:layout_constraintBottom_toTopOf="@+id/displayBtn"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/insertBtn"
    app:layout_constraintTop_toBottomOf="@+id/idBox" />

<Button
```

```xml
        android:id="@+id/displayBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="DISPLAY ALL"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/deleteBtn"
        app:layout_constraintBottom_toTopOf="@+id/result"/>

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/displayBtn"
        app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.dbproject;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText eid,ename;
    Button ins,del,dis;
    TextView res;
    MyDBHandler db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        eid = findViewById(R.id.idBox);
        ename = findViewById(R.id.nameBox);
        ins = findViewById(R.id.insertBtn);
        del = findViewById(R.id.deleteBtn);
        dis = findViewById(R.id.displayBtn);
        res = findViewById(R.id.result);
        db = new MyDBHandler(getApplicationContext(),"students",null,1);

        ins.setOnClickListener(new View.OnClickListener() {
            @Override
```

```java
        public void onClick(View view) {
            String sid = eid.getText().toString();
            String sname = ename.getText().toString();
            db.insertRecord(sid,sname);
            Toast.makeText(getApplicationContext(),"Inserted",Toast.LENGTH_LONG).show();
        }
    });
    del.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String sid = eid.getText().toString();
            db.deleteRecord(sid);
            Toast.makeText(getApplicationContext(),"Deleted",Toast.LENGTH_LONG).show();
        }
    });
    dis.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String tabledata = db.displayRecord();
            res.setText(tabledata);
        }
    });

  }
}
```

MyDBHandler.java:
```java
package com.example.dbproject;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;

public class MyDBHandler extends SQLiteOpenHelper {
    public MyDBHandler(@Nullable Context context, @Nullable String name, @Nullable
SQLiteDatabase.CursorFactory factory, int version) {
        super(context, name, factory, version);
    }
    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table students (stuId varChar(10),stuname varChar(20))");
    }
    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

    }
    public void insertRecord(String sid,String sname){
```
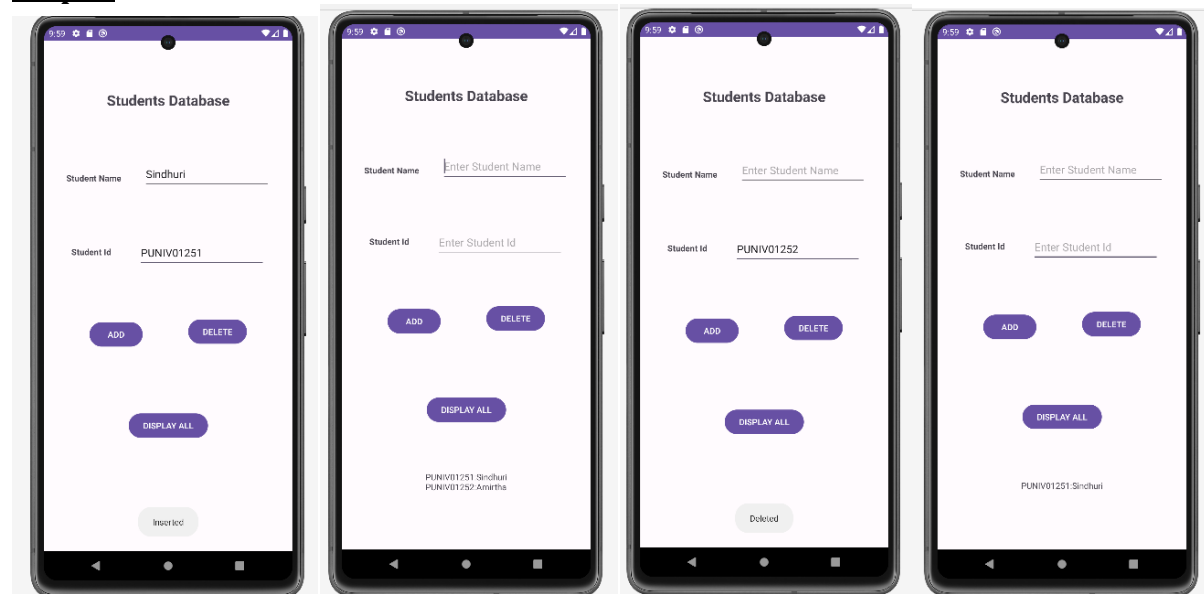
```
        SQLiteDatabase db = this.getWritableDatabase();
        //One Way to insert the records using execSQL method
        db.execSQL("insert into students values (?,?)",new String[]{sid,sname});
        //Alternative Way to insert the records using insert() menthod and ContentValues Object
        /*ContentValues values = new ContentValues();
        values.put("stuId",sid);
        values.put("stuname",sname);
        db.insert("students",null,values);*/
        db.close();
    }
  public void deleteRecord(String sid){
        SQLiteDatabase db = this.getWritableDatabase();
        //One Way to delete the records using execSQL method
        //db.execSQL("delete from students where stuId=?",new String[]{sid});
        //Alternative Way to insert the records using delete() menthod
        db.delete("students","stuId=?",new String[]{sid});
    }
  public String displayRecord(){
        String tdata = "";
        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery("select * from students",null);
        while (cursor.moveToNext()) {
            String i = cursor.getString(0);
            String n = cursor.getString(1);
            tdata += i+":"+n+"\n";
        }
        db.close();
        return tdata;
    }
}
```

Output:

Experiment – 13

Aim: Design an application to monitor the health conditions of a user and to notify the same.

Solution:

activity_main.xml:

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

  <EditText
    android:id="@+id/bpBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter BP value"
    android:inputType="text"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/bpLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/tempBox"/>

  <TextView
    android:id="@+id/tempLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Temperature"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/tempBox"
    app:layout_constraintTop_toBottomOf="@+id/bpLbl"
    app:layout_constraintBottom_toTopOf="@+id/submitBtn"/>

  <TextView
    android:id="@+id/bpLbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Blood Pressure"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/bpBox"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/tempLbl"/>

  <EditText
```

```xml
    android:id="@+id/tempBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Enter Temperature Value"
    android:inputType="text"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/tempLbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bpBox"
    app:layout_constraintBottom_toTopOf="@+id/submitBtn"/>

<Button
    android:id="@+id/submitBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/tempBox"/>

<TextView
    android:id="@+id/Header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Body Vital Details"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/bpBox"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:
```java
package com.example.healthmonitoringapp;

import androidx.annotation.RequiresApi;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
```

```java
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    EditText bp,temp;
    Button btn;
    Integer bp_int,temp_int;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bp = findViewById(R.id.bpBox);
        temp = findViewById(R.id.tempBox);
        btn = findViewById(R.id.submitBtn);
        btn.setOnClickListener(new View.OnClickListener() {
            @RequiresApi(api = Build.VERSION_CODES.O)
            @Override
            public void onClick(View v) {
                bp_int = Integer.parseInt(bp.getText().toString());
                temp_int = Integer.parseInt(temp.getText().toString());
                String msg;
                int notificationId = 100;
                if((bp_int>=60&&bp_int<=100)||temp_int==98)
                    msg = "Your Vitals are fine";
                else
                    msg = "You need to consult doctor";
                String CHANNEL_ID = "my_ch";
                String CHANNEL_NAME = "my_channel";
                int importance = NotificationManager.IMPORTANCE_HIGH;
                NotificationChannel channel = new
NotificationChannel(CHANNEL_ID,CHANNEL_NAME,importance);
                NotificationManager manager = (NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
                manager.createNotificationChannel(channel);
                Intent it = new Intent(MainActivity.this, NotificationResult.class);
                it.putExtra("Message",msg);
                it.addFlags(Intent.FLAG_ACTIVITY_SINGLE_TOP|Intent.FLAG_ACTIVITY_CLEAR_TOP);
                PendingIntent pintent =
PendingIntent.getActivity(MainActivity.this,0,it,PendingIntent.FLAG_UPDATE_CURRENT);
                NotificationCompat.Builder builder = new
NotificationCompat.Builder(MainActivity.this,CHANNEL_ID);
                builder.setSmallIcon(R.drawable.ic_launcher_background);
                builder.setContentIntent(pintent);
                builder.setContentTitle("Vital Conditions");
                builder.setContentText("BP: "+bp_int+" Temperature: "+temp_int);
                manager.notify(notificationId,builder.build());
            }
        });
    }
}
```

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

    <TextView
        android:id="@+id/result"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textStyle="bold"
        android:textSize="40dp"
        android:textColor="#0F08F0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

NotificationResult.java:

```java
package com.example.healthmonitoringapp;

import androidx.appcompat.app.AppCompatActivity;

import android.app.NotificationManager;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class NotificationResult extends AppCompatActivity {
    TextView res;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_notification_result);
        onNewIntent(getIntent());
        NotificationManager manager = (NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
        manager.cancel(100);
    }

    @Override
    protected void onNewIntent(Intent intent) {
        Bundle extras = intent.getExtras();
```
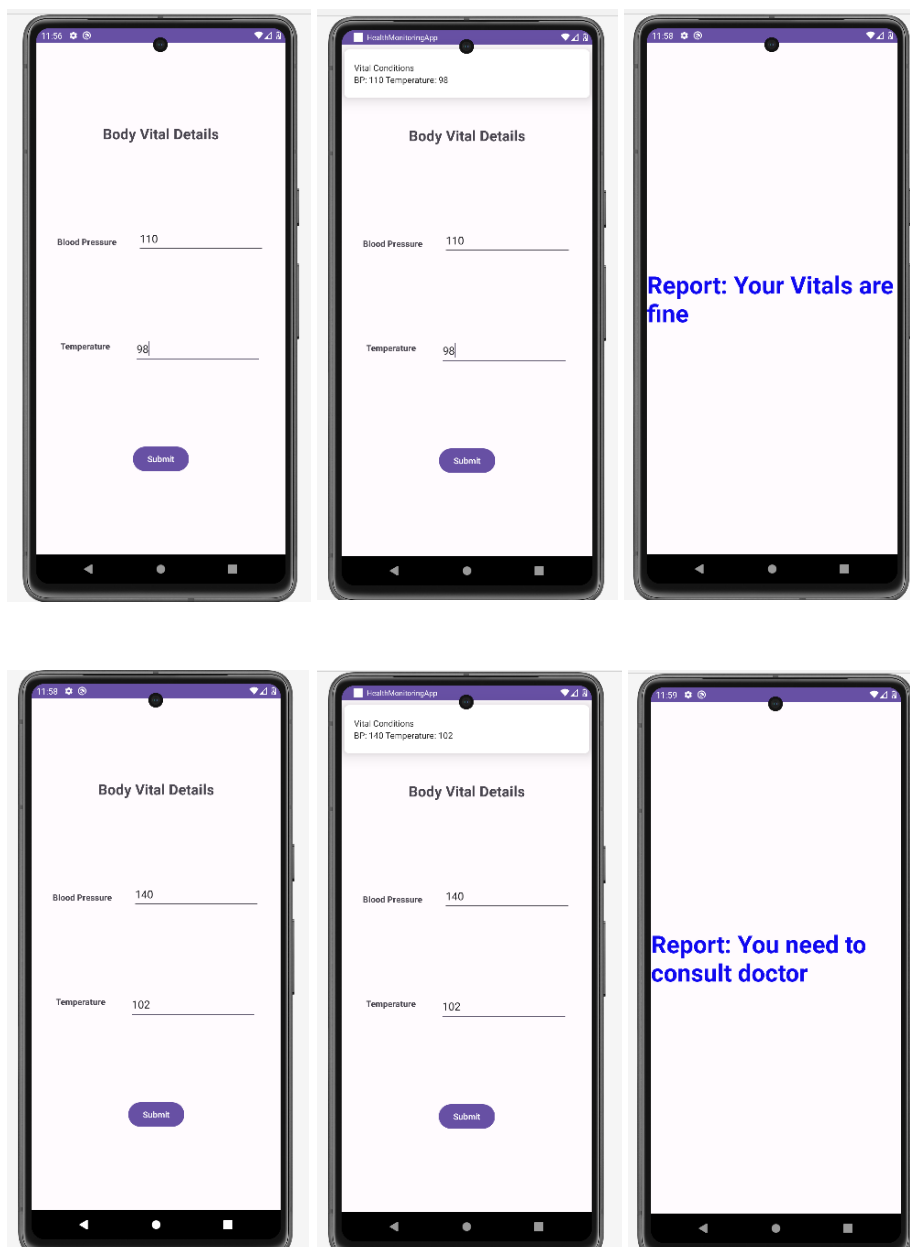
```
        if(extras!=null) {
          if (extras.containsKey("Message")) {
             setContentView(R.layout.activity_notification_result);
             String msg = extras.getString("Message");
             res = findViewById(R.id.result);
             res.setText("Report: "+msg);
          }
          super.onNewIntent(intent);
        }
    }
}
```

Output:

Experiment – 14

Aim: Design an application to Book the movie tickets. Save the movie name and number of tickets using shared preferences.

Solution:

activity_main.xml:

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

  <TextView
    android:id="@+id/Header"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Ticket Booking App"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/movieslist"/>

  <TextView
    android:id="@+id/movieTitle"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Movies"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/movieslist"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/ticketscountlbl"/>

  <Spinner
    android:id="@+id/movieslist"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/movieTitle"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/Header"
    app:layout_constraintBottom_toTopOf="@+id/ticketsctBox"/>

  <TextView
```

```xml
    android:id="@+id/ticketscountlbl"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="No. of Tickets"
    android:textStyle="bold"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/ticketsctBox"
    app:layout_constraintTop_toBottomOf="@+id/movieTitle"
    app:layout_constraintBottom_toTopOf="@+id/submitBtn"/>

  <EditText
    android:id="@+id/ticketsctBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint=" Enter no. of tickets"
    android:inputType="text"
    android:minHeight="48dp"
    app:layout_constraintStart_toEndOf="@+id/ticketscountlbl"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/movieslist"
    app:layout_constraintBottom_toTopOf="@+id/submitBtn"/>

  <Button
    android:id="@+id/submitBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Submit"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ticketsctBox"
    app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.movieticketbookingsp;

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.Toast;
```

```java
public class MainActivity extends AppCompatActivity {
    EditText count;
    Spinner list;
    Button sub;
    String movies[] = {"Jawan","Leo","Tiger3","Ghost"};
    int selectedPos;
    SharedPreferences sharedPreferences;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        count = findViewById(R.id.ticketsctBox);
        list = findViewById(R.id.movieslist);
        sub = findViewById(R.id.submitBtn);
        ArrayAdapter           adapter           =           new           ArrayAdapter(this,
android.R.layout.simple_spinner_dropdown_item,movies);
        list.setAdapter(adapter);
        list.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
                selectedPos = position;
            }

            @Override
            public void onNothingSelected(AdapterView<?> parent) {

            }
        });
        sub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                sharedPreferences = getSharedPreferences("MyPreferences",MODE_PRIVATE);
                SharedPreferences.Editor editor = sharedPreferences.edit();
                editor.putInt("MovieName",selectedPos);
                editor.putInt("TicketsCount",Integer.parseInt(count.getText().toString()));
                editor.apply();
                Toast.makeText(MainActivity.this, "Saved Successfully", Toast.LENGTH_SHORT).show();
            }
        });
    }

    @Override
    protected void onResume() {
        super.onResume();
        SharedPreferences sh = getSharedPreferences("MyPreferences",MODE_PRIVATE);
        int spos = sh.getInt("MovieName",0);
        int ct = sh.getInt("TicketsCount",0);
        list.setSelection(spos);
        count.setText(String.valueOf(ct));
    }
```
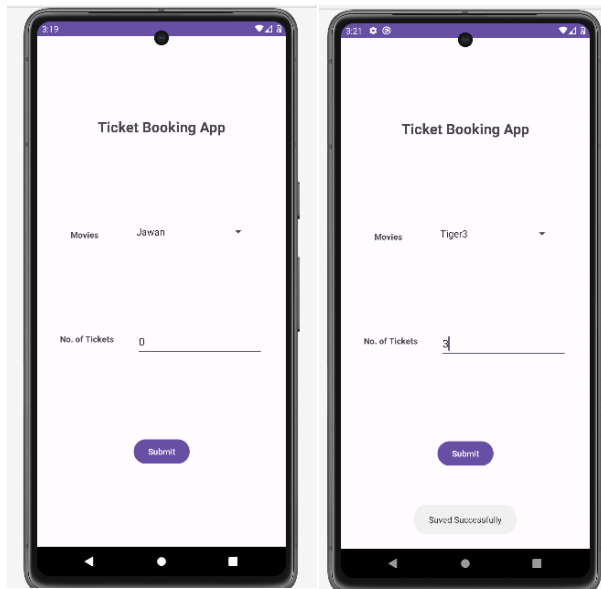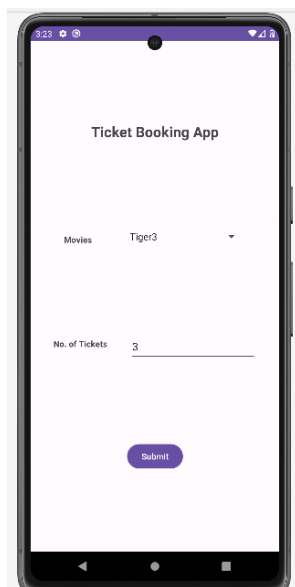
}

Output:

You can clear the app from running and open the same app again

Aim: Design an application to perform various animations on a particular image

<ins>**Solution:**</ins>

Step 1: Create an anim resource directory
To create a animation, you need to create anim folder by selecting it and choosing "New", then "android resource directory" and entering "anim" as the name and type as anim.

Step 2: Add all animations files:
Create all animation transistions under anim directory

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

  <ImageView
    android:id="@+id/logoImage"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:srcCompat="@drawable/download"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/rotBtn"/>

  <Button
    android:id="@+id/blinkBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Blink"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/rotBtn"
    app:layout_constraintTop_toBottomOf="@+id/logoImage"
    app:layout_constraintBottom_toTopOf="@+id/moveBtn"/>

  <Button
    android:id="@+id/rotBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Rotate"
    app:layout_constraintStart_toEndOf="@+id/blinkBtn"
    app:layout_constraintEnd_toStartOf="@+id/fadeBtn"
    app:layout_constraintTop_toBottomOf="@+id/logoImage"
```

```xml
        app:layout_constraintBottom_toTopOf="@+id/slideBtn"/>

    <Button
        android:id="@+id/fadeBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fade"
        app:layout_constraintStart_toEndOf="@+id/rotBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/logoImage"
        app:layout_constraintBottom_toTopOf="@+id/zoomBtn"/>

    <Button
        android:id="@+id/moveBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Move"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/slideBtn"
        app:layout_constraintTop_toBottomOf="@+id/blinkBtn"
        app:layout_constraintBottom_toBottomOf="parent"/>

    <Button
        android:id="@+id/slideBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Slide"
        app:layout_constraintStart_toEndOf="@+id/moveBtn"
        app:layout_constraintEnd_toStartOf="@+id/zoomBtn"
        app:layout_constraintTop_toBottomOf="@+id/rotBtn"
        app:layout_constraintBottom_toBottomOf="parent"/>


    <Button
        android:id="@+id/zoomBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Zoom"
        app:layout_constraintStart_toEndOf="@+id/slideBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/fadeBtn"
        app:layout_constraintBottom_toBottomOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

blink.xml:
```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 = "1000"
```

```
      android:repeatMode = "reverse"
      android:repeatCount = "infinite"
      android:interpolator = "@android:anim/accelerate_interpolator" />

</set>
```

rotate.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 = "5000" />
   <rotate android:fromDegrees="360"
     android:toDegrees="0"
     android:pivotX="50%"
     android:pivotY="50%"
     android:startOffset = "6000"
     android:duration = "5000" />
</set>
```

fade.xml:
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
   <alpha android:fromAlpha="0"
     android:toAlpha="1"
     android:duration = "2000"
     android:interpolator = "@android:anim/accelerate_interpolator" />
   <alpha android:fromAlpha="1"
     android:toAlpha="0"
     android:duration = "2000"
     android:interpolator = "@android:anim/accelerate_interpolator" />
</set>
```

move.xml:
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
   <translate android:fromXDelta="0%"
     android:toXDelta="75%"
     android:duration = "2000"
     android:interpolator ="@android:anim/linear_interpolator" />
</set>
```

slide.xml:
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
   <scale android:fromYScale="1.0"
     android:toYScale="0.0"
     android:fromXScale="1.0"
```

```xml
    android:toXScale="1.0"
    android:duration = "2000"
    android:interpolator = "@android:anim/linear_interpolator"/>
</set>
```

zoom.xml:
```xml
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <scale android:fromXScale="1"
    android:toXScale="5"
    android:fromYScale="1"
    android:toYScale="5"
    android:pivotX="50%"
    android:pivotY="50%"
    android:duration = "5000" />
  <scale android:fromXScale="1"
    android:toXScale="0.2"
    android:fromYScale="1"
    android:toYScale="0.2"
    android:pivotX="50%"
    android:pivotY="50%"
    android:duration = "5000" />
</set>
```

MainActivity.java:
```java
package com.example.animationsexample;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {
  ImageView im;
  Button bli,fad,mov,rot,sli,zoom;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    im = findViewById(R.id.logoImage);
    bli = findViewById(R.id.blinkBtn);
    rot = findViewById(R.id.rotBtn);
    fad = findViewById(R.id.fadeBtn);
    mov = findViewById(R.id.moveBtn);
    sli = findViewById(R.id.slideBtn);
    zoom = findViewById(R.id.zoomBtn);
```
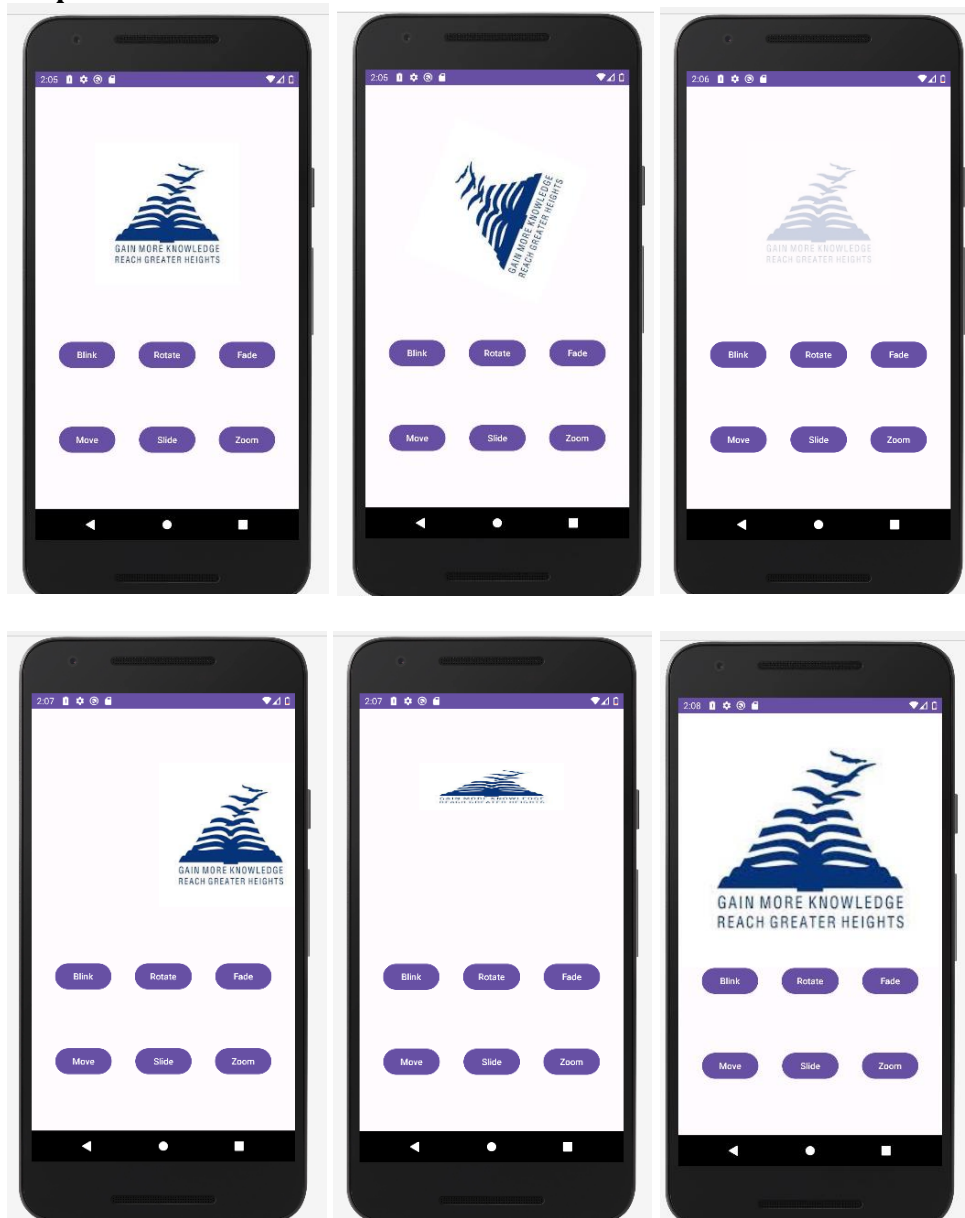
```java
        bli.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.blink);
            im.startAnimation(animation);
          }
        });
        rot.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.rotate);
            im.startAnimation(animation);
          }
        });
        fad.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.fade);
            im.startAnimation(animation);
          }
        });
        mov.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.move);
            im.startAnimation(animation);
          }
        });
        sli.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.slide);
            im.startAnimation(animation);
          }
        });
        zoom.setOnClickListener(new View.OnClickListener() {
          @Override
          public void onClick(View v) {
            Animation animation =
AnimationUtils.loadAnimation(getApplicationContext(),R.anim.zoom);
            im.startAnimation(animation);
          }
        });
  }
}
```

Output:

<h1 style="text-align:center">Experiment – 16</h1>

Aim: Design an application to find the current location of user.

Solution:

Step 1: Add Google play location service dependency
You need to go to your app-level Gradle file and add the google play service dependency. Paste the below code under your dependencies section.

```
implementation("com.google.android.gms:play-services-location:21.0.1")
```

Step 2: Provide permissions in Manifest
Go to your manifest file and add the permission for internet, fine and coarse location access. You can find the permissions in the below code.

```
<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />
<uses-permission android:name="android.permission.INTERNET"/>
```

activity_main.xml:

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

    <TextView
        android:id="@+id/addressTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="User Address"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/getBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/getBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Get Current Location"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/addressTxt"
        app:layout_constraintBottom_toBottomOf="parent"/>
```

```
                    </androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.findmylocation;

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

import android.Manifest;
import android.content.pm.PackageManager;
import android.location.Location;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import com.google.android.gms.location.FusedLocationProviderClient;
import com.google.android.gms.location.LocationServices;
import com.google.android.gms.tasks.OnSuccessListener;
import com.google.android.gms.tasks.Task;

public class MainActivity extends AppCompatActivity {
    TextView tv;
    Button locBtn;
    FusedLocationProviderClient locationProviderClient;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv = findViewById(R.id.addressTxt);
        locBtn = findViewById(R.id.getBtn);
        locationProviderClient = LocationServices.getFusedLocationProviderClient(this);
        locBtn.setOnClickListener(new View.OnClickListener() {
            @RequiresApi(api = Build.VERSION_CODES.M)
            @Override
            public void onClick(View view) {

if(ActivityCompat.checkSelfPermission(MainActivity.this,Manifest.permission.ACCESS_COARSE_LOC
ATION)!=PackageManager.PERMISSION_GRANTED){
            requestPermissions(new String[]{Manifest.permission.ACCESS_COARSE_LOCATION},1);
            return;
        }
        Task<Location> location = locationProviderClient.getLastLocation();
        location.addOnSuccessListener(new OnSuccessListener<Location>() {
            @Override
            public void onSuccess(Location location) {
                double latitude = location.getLatitude();
                double longitude = location.getLongitude();
```

```
                tv.setText("Latitude: "+latitude+"\n Longitude: "+longitude);
            }
        });
    }
});
}
}
```

Output: