



Atma Ram Sanatan Dharma College

University of Delhi



Android Programming

(SEC) Practical File

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Submitted By -

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Semester - 4

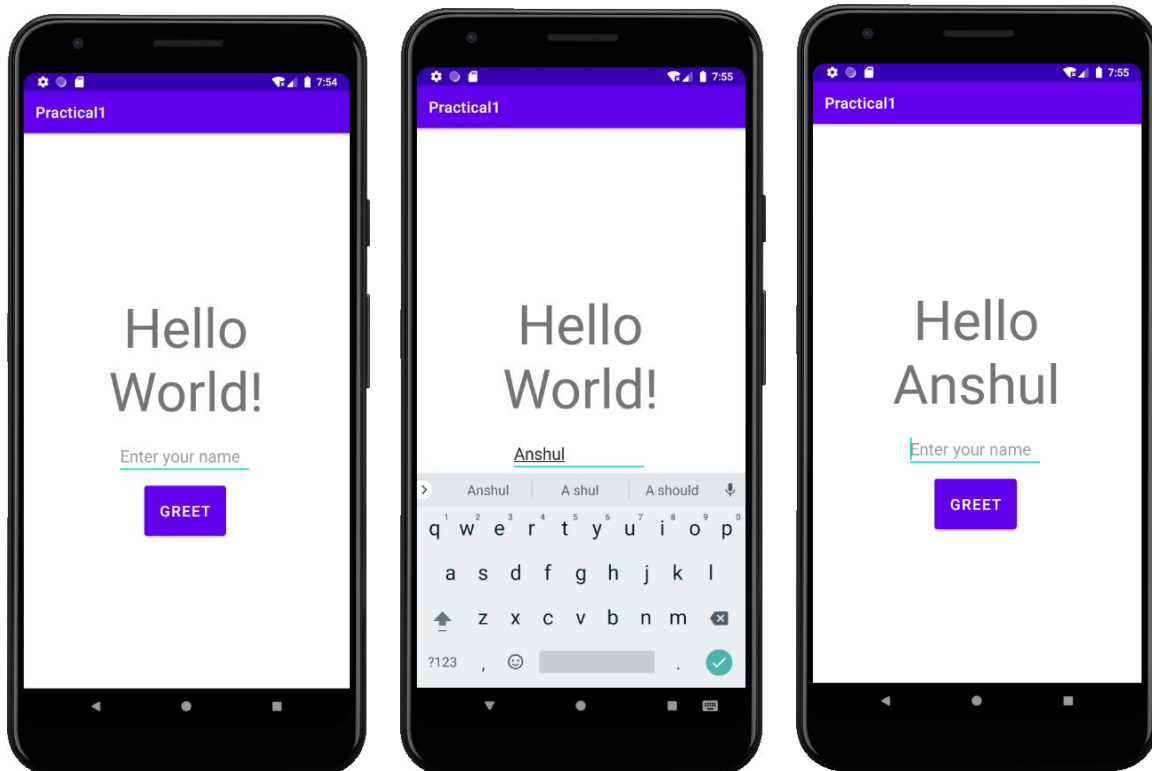
B.Sc. (Hons.) Computer Science

Submitted To -

Mr. Lokesh Kumar Shrivastav

1

Create “Hello World” application that will display “Hello World” in the middle of the screen in the emulator. Also display “Hello World” in the middle of the screen in the android phone.



res/layout/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">

    <TextView
        android:id="@+id/textView"
        android:layout_width="228dp"
        android:layout_height="162dp"
        android:gravity="center"
        android:text="Hello World!"
        android:textAlignment="center"
```

```

        android:textSize="72sp"
        app:layout_constraintBottom_toTopOf="@+id/editTextPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.864" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="196dp"
    android:padding="20sp"
    android:text="Greet"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.494"
    app:layout_constraintStart_toStartOf="parent" />

<EditText
    android:id="@+id/editTextPersonName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="8dp"
    android:ems="7"
    android:hint="Enter your name"
    android:inputType="textPersonName"
    android:textSize="22sp"
    app:layout_constraintBottom_toTopOf="@+id/button"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.491"
    app:layout_constraintStart_toStartOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical1;

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 {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        TextView greet = (TextView) findViewById(R.id.textView);
    }
}

```

```
EditText txt = (EditText) findViewById(R.id.editTextPersonName);
Button btn = (Button) findViewById(R.id.button);

btn.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View v) {
        String name = txt.getText().toString();
        greet.setText("Hello " + name + "!");
        txt.setText("");
    }
});
}
```

2

Create an application to display various android activity lifecycle phases.



```
D/MainActivity: onCreate Called!
D/MainActivity: onStart Called!
D/MainActivity: onResume Called!
D/OpenGLRenderer: HWUI GL Pipeline
D/: HostConnection:get() New Host Connection established 0xe08a91c0, tid 8137
I/zygote: android:hardware:configstore::V1_0::ISurfaceFlingerConfigs::hasWideColorDisplay retrieved: 0
I/OpenGLRenderer: Initialized EGL, version 1.4
D/OpenGLRenderer: Swap behavior 1
W/OpenGLRenderer: Failed to choose config with EGL_SWAP_BEHAVIOR_PRESERVED, retrying without...
D/OpenGLRenderer: Swap behavior 0
D/EGL_emulation: eglCreateContext: 0xe3505240: maj 2 min 0 rcv 2
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/MainActivity: onPause Called!
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/MainActivity: onStop Called!
D/MainActivity: onRestart Called!
D/MainActivity: onStart Called!
D/MainActivity: onResume Called!
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
I/chatty: uid=10081(com.anshul.practical2) RenderThread identical 1 line
D/EGL_emulation: eglMakeCurrent: 0xe3505240: ver 2 0 (tinfo 0xe35032b0)
D/MainActivity: onPause Called!
D/MainActivity: onStop Called!
D/MainActivity: onDestroy Called!
```

res/layout/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">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        android:textSize="48sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

src/MainActivity.java

```
package com.anshul.practical2;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;
import android.os.Bundle;
import android.util.Log;
import android.view.Gravity;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Log.d("MainActivity", "onCreate Called!");

        Context context = getApplicationContext();
        Toast toast = Toast.makeText(context, "onCreate Called!",
Toast.LENGTH_SHORT);
        toast.show();
    }

    @Override
    protected void onStart() {
        super.onStart();
        Context context = getApplicationContext();
        Toast toast = Toast.makeText(context, "onStart Called!",
Toast.LENGTH_SHORT);
        toast.setGravity(Gravity.LEFT| Gravity.BOTTOM, 0, 0);
        toast.show();

        Log.d("MainActivity", "onStart Called!");
    }

    @Override
    protected void onResume() {
        super.onResume();
        Context context = getApplicationContext();
        Toast toast = Toast.makeText(context, "onResume Called!",
Toast.LENGTH_SHORT);
        toast.setGravity(Gravity.RIGHT|Gravity.BOTTOM, 0, 0);
        toast.show();

        Log.d("MainActivity", "onResume Called!");
    }

    @Override
    protected void onPause() {
        super.onPause();
        Context context = getApplicationContext();
        Toast toast = Toast.makeText(context, "onPause Called!",
```

```

Toast.LENGTH_SHORT);
    toast.show();

    Log.d("MainActivity", "onPause Called!");
}

@Override
protected void onStop() {
    super.onStop();
    Context context = getApplicationContext();
    Toast toast = Toast.makeText(context, "onStop Called!",
Toast.LENGTH_SHORT);
    toast.show();

    Log.d("MainActivity", "onStop Called!");
}

@Override
protected void onRestart() {
    super.onRestart();
    Context context = getApplicationContext();
    Toast toast = Toast.makeText(context, "onRestart Called!",
Toast.LENGTH_SHORT);
    toast.show();

    Log.d("MainActivity", "onRestart Called!");
}

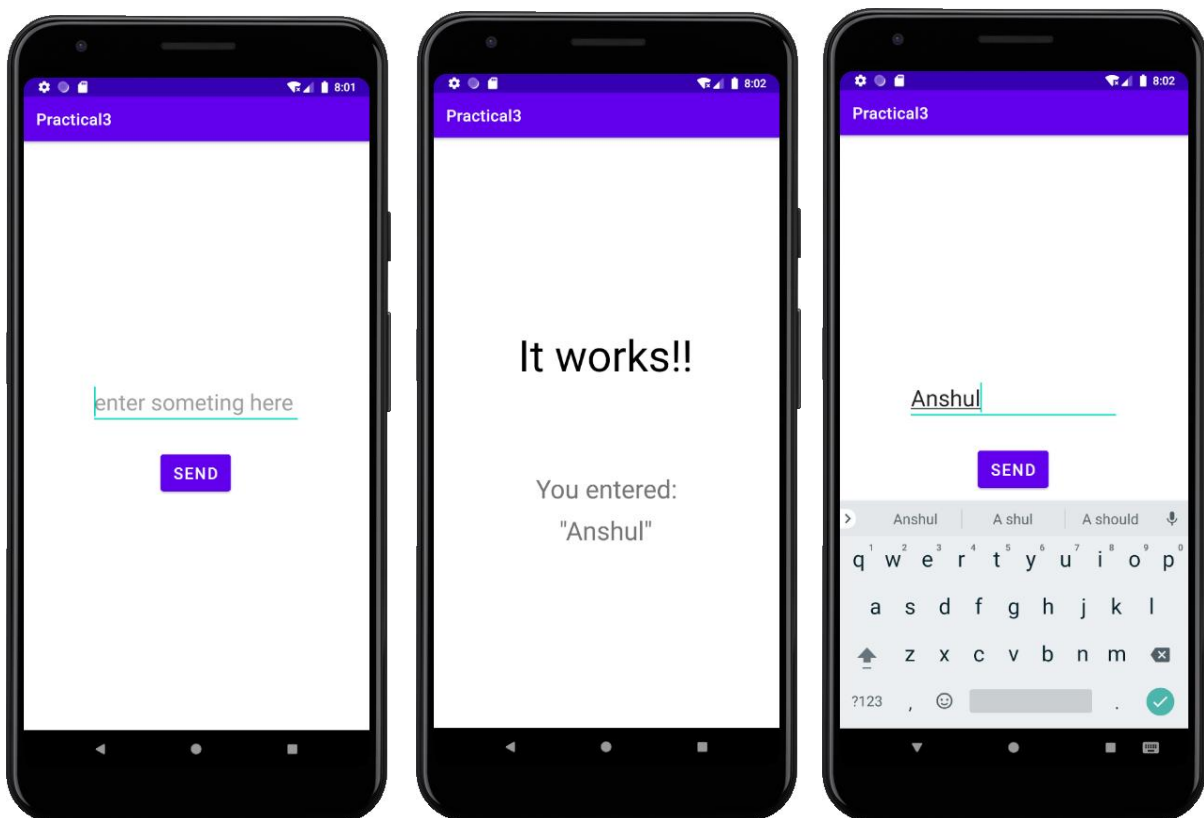
@Override
protected void onDestroy() {
    super.onDestroy();
    Context context = getApplicationContext();
    Toast toast = Toast.makeText(context, "onDestroy Called!",
Toast.LENGTH_SHORT);
    toast.setGravity(Gravity.LEFT|Gravity.BOTTOM, 0, 0);
    toast.show();

    Log.d("MainActivity", "onDestroy Called!");
}
}

```

3

Create an application with first activity with an editText and send button. On click of send button, make use of explicit intent to send text to second activity and display there in text view.



res/layout/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">

    <EditText
        android:id="@+id/editTextInput"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="8"
```



```

        android:hint="enter someting here"
        android:inputType="textPersonName"
        android:textSize="28dp"
        app:layout_constraintBottom_toTopOf="@+id/btnSend"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.907" />

<Button
    android:id="@+id/btnSend"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="292dp"
    android:text="send"
    android:textSize="20dp"
    android:padding="10dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

res/layout/activity_second.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=".SecondActivity">

    <TextView
        android:id="@+id/textViewHeading"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="84dp"
        android:text="It works!!"
        android:textColor="@color/black"
        android:textFontWeight="800"
        android:textSize="54dp"
        app:layout_constraintBottom_toTopOf="@+id/textView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.482" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""

```

```

        android:textSize="32dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.675" />

<TextView
    android:id="@+id/textViewSubHeading"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="You entered:"
    android:textSize="32dp"
    app:layout_constraintBottom_toTopOf="@+id/textView"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textViewHeading"
    app:layout_constraintVertical_bias="0.923" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical3;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        EditText inputTxt = findViewById(R.id.editTextInput);
        Button btn = findViewById(R.id.btnSend);

        // Button OnClick Event Listener
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String input = inputTxt.getText().toString();
                Intent intent = new Intent(MainActivity.this,
SecondActivity.class);
                intent.putExtra("input", input);
                startActivity(intent);
            }
        });
    }
}

```

src/SecondActivity.java

```
package com.anshul.practical3;

import androidx.appcompat.app.AppCompatActivity;

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

public class SecondActivity extends AppCompatActivity {

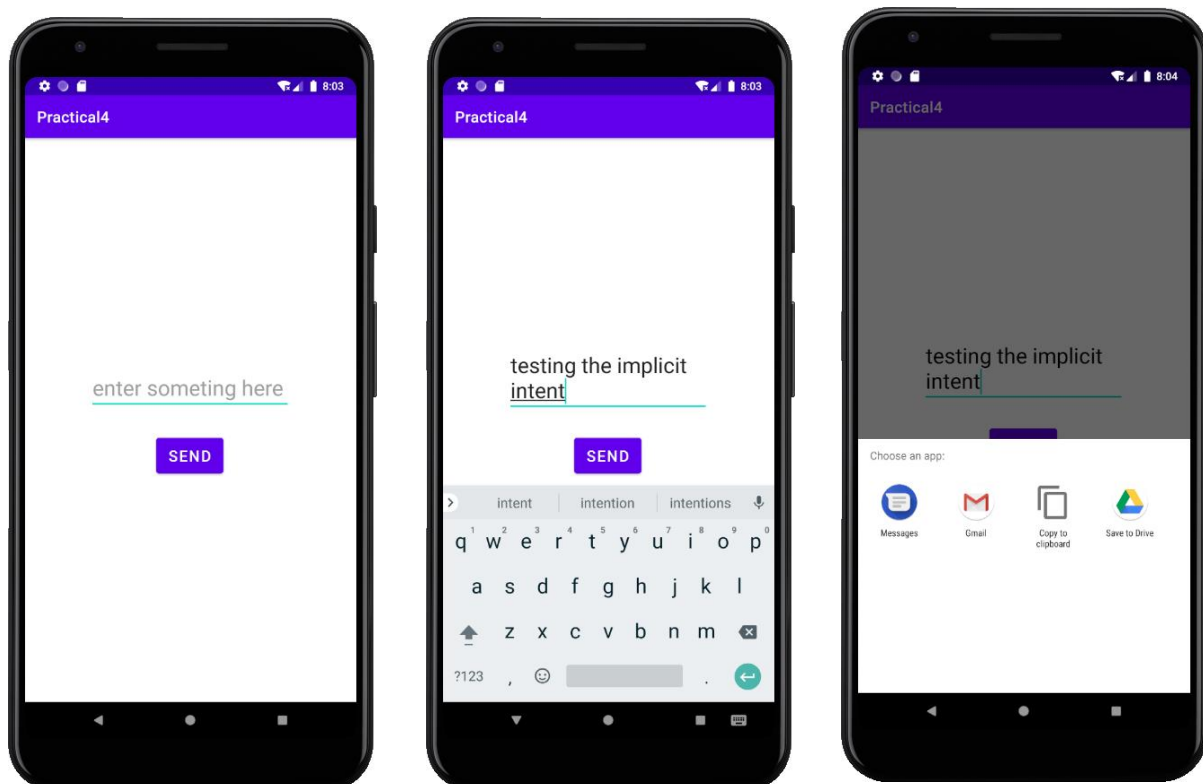
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);

        TextView textView = findViewById(R.id.textView);

        Intent intent = getIntent();
        String input = intent.getStringExtra("input");
        textView.setText "\"" + input + "\"");
    }
}
```

4

Create an application with first activity with an editText and send button. On click of send button, make use of implicit intent that uses a SEND ACTION and let user select app from app chooser and navigate to that application.



res/layout/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">

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

```

        android:gravity="start|top"
        android:inputType="textMultiLine"
        android:ems="8"
        android:hint="enter someting here"
        android:textSize="28dp"
        app:layout_constraintBottom_toTopOf="@+id/btnSend"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.907" />

<Button
    android:id="@+id/btnSend"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="292dp"
    android:text="send"
    android:textSize="20dp"
    android:padding="10dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical4;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        EditText inputTxt = findViewById(R.id.editTextInput);
        Button btn = findViewById(R.id.btnSend);

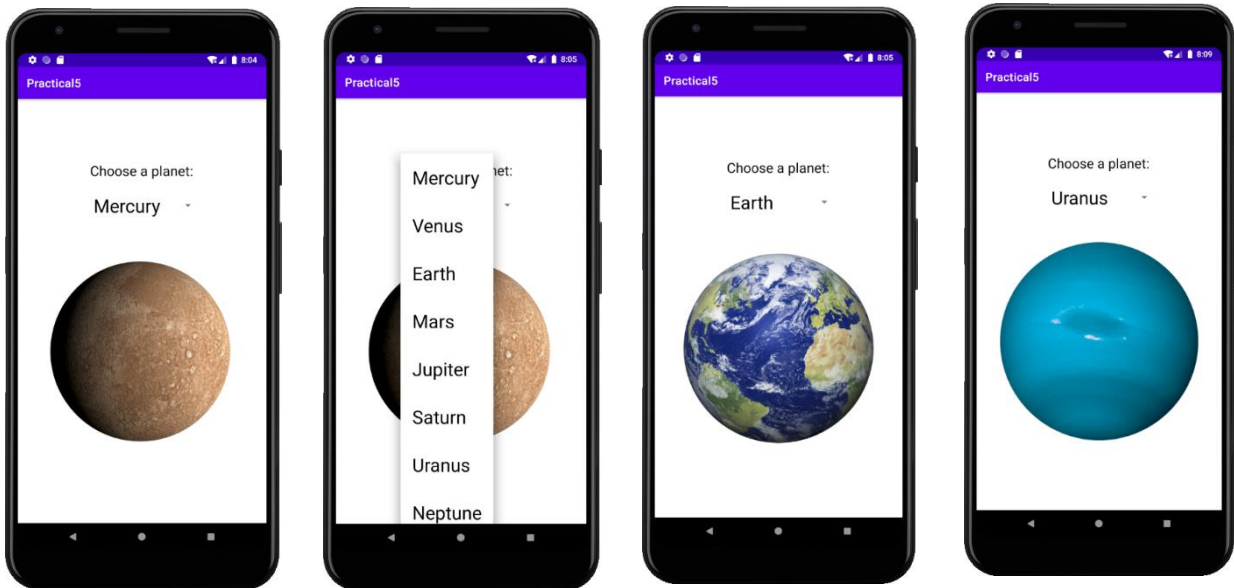
        // Button OnClick Event Listener
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String input = inputTxt.getText().toString();
                Intent intent = new Intent(Intent.ACTION_SEND);
                intent.setType("text/plain");
            }
        });
    }
}

```

```
        // Adding data to intent
        intent.putExtra(Intent.EXTRA_TEXT, input);
        startActivity(Intent.createChooser(intent, "Choose an app:"));
    }
}
}
```

5

Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.



res/values/strings.xml

```
<resources>
    <string name="app_name">Practical5</string>
    <string-array name="planets_array">
        <item>Mercury</item>
        <item>Venus</item>
        <item>Earth</item>
        <item>Mars</item>
        <item>Jupiter</item>
        <item>Saturn</item>
        <item>Uranus</item>
        <item>Neptune</item>
    </string-array>
</resources>
```

res/layout/spinner_item.xml

```
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@android:id/text1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="20dp"
    android:textSize="32sp">
```

```
android:textColor="@color/black"
android:textFontWeight="900"
/>
```

res/layout/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">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="108dp"
        android:text="Choose a planet:"
        android:textSize="24dp"
        android:textColor="@color/black"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:entries="@array/planets_array"
        app:layout_constraintBottom_toTopOf="@+id/imageView"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView"
        app:layout_constraintVertical_bias="0.072" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="350dp"
        android:layout_height="350dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

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

src/MainActivity.java

```
package com.anshul.practical5;
```



```

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.Spinner;

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Add event listener to spinner
        Spinner spinner = (Spinner) findViewById(R.id.spinner);
        spinner.setOnItemSelectedListener(this);

        // Applying own style to spinner
        ArrayAdapter adapter = ArrayAdapter.createFromResource(this,
            R.array.planets_array, R.layout.spinner_item);
        spinner.setAdapter(adapter);
    }

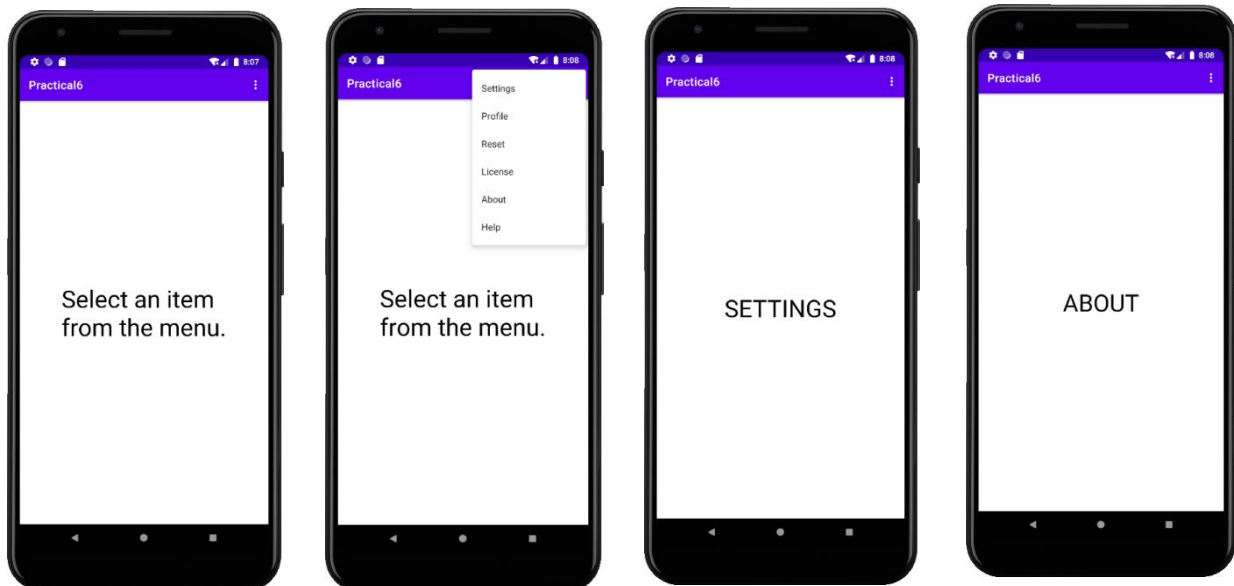
    @Override
    public void onItemClick(AdapterView<?> parent, View view, int position,
long id) {
        // Check selected item and change image
        String item = parent.getItemAtPosition(position).toString();
        ImageView imgView = (ImageView) findViewById(R.id.imageView);
        if(item.equalsIgnoreCase("Mercury"))
            imgView.setImageResource(R.drawable.mercury);
        if(item.equalsIgnoreCase("Venus"))
            imgView.setImageResource(R.drawable.venus);
        if(item.equalsIgnoreCase("Mars"))
            imgView.setImageResource(R.drawable.mars);
        if(item.equalsIgnoreCase("Earth"))
            imgView.setImageResource(R.drawable.earth);
        if(item.equalsIgnoreCase("Jupiter"))
            imgView.setImageResource(R.drawable.jupiter);
        if(item.equalsIgnoreCase("Saturn"))
            imgView.setImageResource(R.drawable.saturn);
        if(item.equalsIgnoreCase("Uranus"))
            imgView.setImageResource(R.drawable.uranus);
        if(item.equalsIgnoreCase("Neptune"))
            imgView.setImageResource(R.drawable.neptune);
    }

    @Override
    public void onNothingSelected(AdapterView<?> parent) {
        // Do nothing
    }
}

```

6

Create a menu with 5 options and selected option should appear in text box in upper case.



res/layout/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"
    app:layout_behavior="@string/appbar_scrolling_view_behavior"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Select an item\nfrom the menu."
        android:textColor="@color/black"
        android:textFontWeight="700"
        android:textSize="42dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

res/layout/menu_layout.xml

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

    <item android:id="@+id/settings"
        android:title="Settings" />
    <item android:id="@+id/profile"
        android:title="Profile" />
    <item android:id="@+id/reset"
        android:title="Reset" />
    <item android:id="@+id/license"
        android:title="License" />
    <item android:id="@+id/about"
        android:title="About" />
    <item android:id="@+id/help"
        android:title="Help"
        app:showAsAction="withText"/>
</menu>
```

src/MainActivity.java

```
package com.anshul.practical6;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.TextView;
import android.widget.Toolbar;

public class MainActivity extends AppCompatActivity {

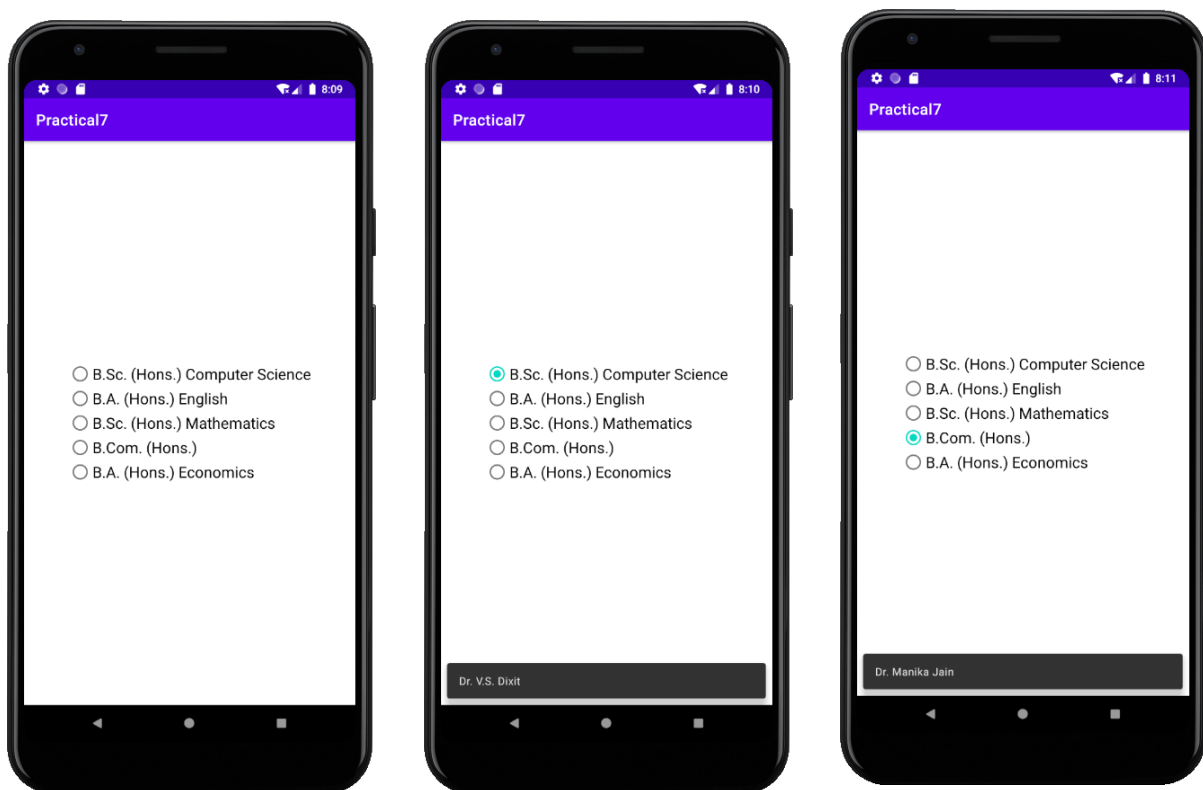
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_layout, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        TextView textView = (TextView) findViewById(R.id.textView);
        textView.setText(item.getTitle().toString().toUpperCase());
        return true;
    }
}
```

7

Create a radio button group with radio button of all courses in your college and on selecting a particular course, teacher-in-charge of that course should appear at the bottom of the screen.



res/layout/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">

    <RadioGroup
        android:id="@+id/radioGroup"
        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_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical7;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.RadioButton;
import android.widget.RadioGroup;

import com.google.android.material.snackbar.Snackbar;

import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

    private HashMap<String, String> courseMap;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        RadioGroup courses = (RadioGroup) findViewById(R.id.radioGroup);

        if (courseMap == null){
            courseMap = new HashMap<>();
            courseMap.put("B.Sc. (Hons.) Computer Science", "Dr. V.S. Dixit");
            courseMap.put("B.Sc. (Hons.) Mathematics", "Dr. Raj Kumar Bhagat");
            courseMap.put("B.A. (Hons.) English", "Dr. Shubha Dwivedi");
            courseMap.put("B.A. (Hons.) Economics", "Dr. Arpa Sinha");
            courseMap.put("B.Com. (Hons.)", "Dr. Manika Jain");

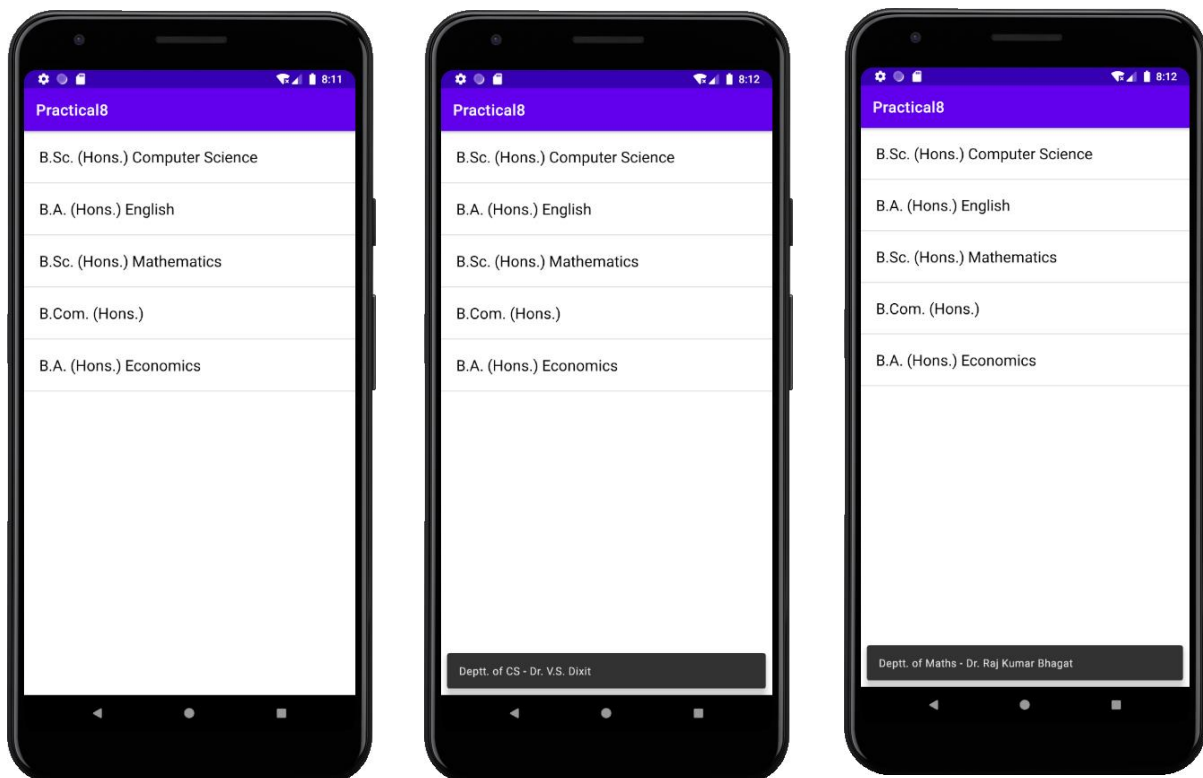
            for (String course: courseMap.keySet()){
                RadioButton radioBtn = new RadioButton(MainActivity.this);
                radioBtn.setText(course);
                radioBtn.setTextSize(20);
                courses.addView(radioBtn);
            }

            courses.setOnCheckedChangeListener(new
RadioGroup.OnCheckedChangeListener() {
                @Override
                public void onCheckedChanged(RadioGroup group, int checkedId) {
                    int id = courses.getCheckedRadioButtonId();
                    RadioButton radioBtn = (RadioButton) findViewById(id);
                    Snackbar.make(courses, courseMap.get(radioBtn.getText()),
                        Snackbar.LENGTH_SHORT).show();
                }
            });
        }
    }
}

```

8

Create a list of all courses in your college and on selecting a particular course parent department and the teacher-in-charge of that department should appear at the bottom of the screen.



res/layout/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">

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="match_parent">

    </ListView>
```

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

res/layout/list_item.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textColor="@color/black"
    android:textSize="20sp"
    android:padding="20dp"
/>
```

src/MainActivity.java

```
package com.anshul.practical8;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.TextView;

import com.google.android.material.snackbar.Snackbar;

import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        HashMap<String, String> courseMap = new HashMap<>();
        courseMap.put("B.Sc. (Hons.) Computer Science", "Deptt. of CS - Dr. V.S. Dixit");
        courseMap.put("B.Sc. (Hons.) Mathematics", "Deptt. of Maths - Dr. Raj Kumar Bhagat");
        courseMap.put("B.A. (Hons.) English", "Deptt. of English - Dr. Shubha Dwivedi");
        courseMap.put("B.A. (Hons.) Economics", "Deptt. of Economics - Dr. Arpa Sinha");
        courseMap.put("B.Com. (Hons.)", "Deptt. of Commerce - Dr. Manika Jain");

        ListView listView = (ListView) findViewById(R.id.listView);
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
            R.layout.list_item, R.id.textView, courseMap.keySet().toArray(new
            String[0]));
        listView.setAdapter(adapter);
    }
}
```

```
        listView.setOnItemClickListener(new AdapterView.OnItemClickListener(){
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                String value = courseMap.get(adapter.getItem(position));
                Snackbar.make(listView, value,
                    Snackbar.LENGTH_LONG).show();
            }
        });
    }
}
```


9(a)

Create an application with three buttons (with different color names) vertically aligned, on selecting a button color of the screen will change.



res/layout/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"
    android:id="@+id/layoutParent">

    <LinearLayout
        android:id="@+id/linearLayout"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <Button
            android:id="@+id/btnRed"
            android:layout_width="250dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
```

```

        android:padding="15dp"
        android:text="Red"
        android:backgroundTint="@android:color/holo_red_dark"/>
    <Button
        android:id="@+id/btnGreen"
        android:layout_width="250dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Green"
        android:backgroundTint="@android:color/holo_green_dark"/>
    <Button
        android:id="@+id/btnBlue"
        android:layout_width="250dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Blue"
        android:backgroundTint="@android:color/holo_blue_dark"/>
    <Button
        android:id="@+id/btnReset"
        android:layout_width="250dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Reset"/>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical9a;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
import androidx.lifecycle.ViewModelStoreOwner;

import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.LinearLayout;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {

    ConstraintLayout layout;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        layout = (ConstraintLayout) findViewById(R.id.layoutParent);
    }
}

```

```

        Button btnRed = (Button) findViewById(R.id.btnRed);
        Button btnGreen = (Button) findViewById(R.id.btnGreen);
        Button btnBlue = (Button) findViewById(R.id.btnBlue);
        Button btnReset = (Button) findViewById(R.id.btnReset);

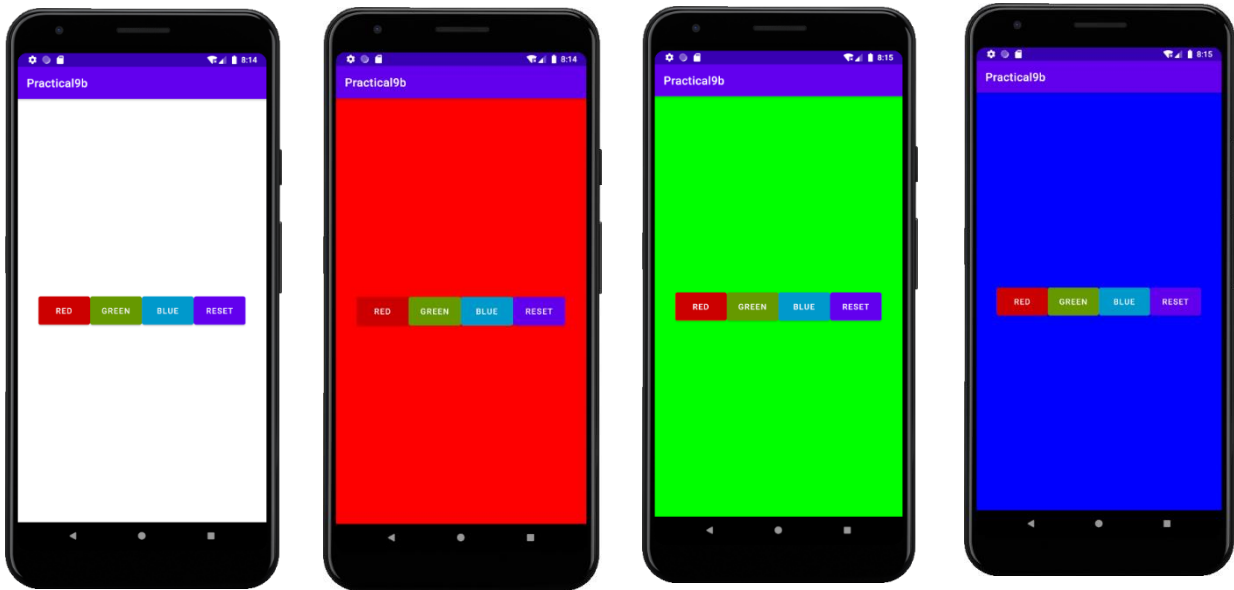
        btnRed.setOnClickListener(this);
        btnGreen.setOnClickListener(this);
        btnBlue.setOnClickListener(this);
        btnReset.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch(v.getId()){
            case R.id.btnRed:
                layout.setBackgroundColor(Color.RED);
                break;
            case R.id.btnGreen:
                layout.setBackgroundColor(Color.GREEN);
                break;
            case R.id.btnBlue:
                layout.setBackgroundColor(Color.BLUE);
                break;
            case R.id.btnReset:
                layout.setBackgroundColor(Color.TRANSPARENT);
                break;
            default:
                layout.setBackgroundColor(Color.TRANSPARENT);
                break;
        }
    }
}

```

9(b)

Create an application with three buttons (with different color names) horizontally aligned, on selecting a button color of the screen will change.



res/layout/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"
    android:id="@+id/layoutParent">

    <LinearLayout
        android:id="@+id/linearLayout"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <Button
            android:id="@+id/btnRed"
            android:layout_width="90dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
```

```

        android:padding="15dp"
        android:text="Red"
        android:backgroundTint="@android:color/holo_red_dark"/>
    <Button
        android:id="@+id/btnGreen"
        android:layout_width="90dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Green"
        android:backgroundTint="@android:color/holo_green_dark"/>
    <Button
        android:id="@+id/btnBlue"
        android:layout_width="90dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Blue"
        android:backgroundTint="@android:color/holo_blue_dark"/>
    <Button
        android:id="@+id/btnReset"
        android:layout_width="90dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:text="Reset"/>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical9b;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
import androidx.lifecycle.ViewModelStoreOwner;

import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.LinearLayout;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {

    ConstraintLayout layout;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        layout = (ConstraintLayout) findViewById(R.id.layoutParent);
        Button btnRed = (Button) findViewById(R.id.btnRed);
        Button btnGreen = (Button) findViewById(R.id.btnGreen);
    }
}

```

```

        Button btnBlue = (Button) findViewById(R.id.btnBlue);
        Button btnReset = (Button) findViewById(R.id.btnReset);

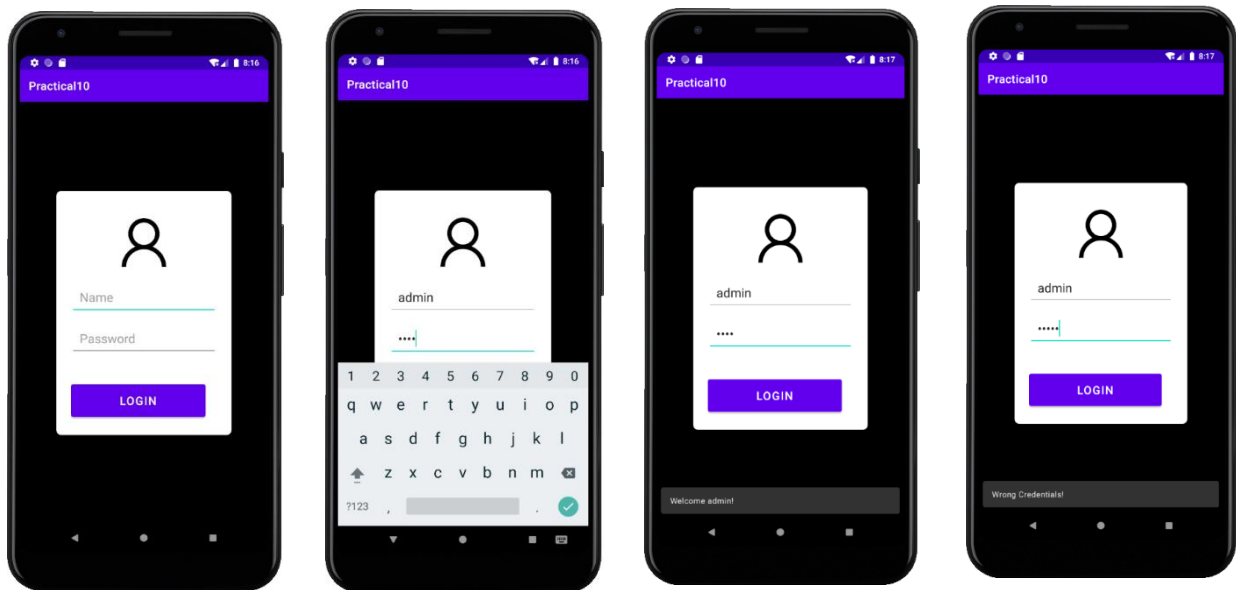
        btnRed.setOnClickListener(this);
        btnGreen.setOnClickListener(this);
        btnBlue.setOnClickListener(this);
        btnReset.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch(v.getId()){
            case R.id.btnRed:
                layout.setBackgroundColor(Color.RED);
                break;
            case R.id.btnGreen:
                layout.setBackgroundColor(Color.GREEN);
                break;
            case R.id.btnBlue:
                layout.setBackgroundColor(Color.BLUE);
                break;
            case R.id.btnReset:
                layout.setBackgroundColor(Color.TRANSPARENT);
                break;
            default:
                layout.setBackgroundColor(Color.TRANSPARENT);
                break;
        }
    }
}

```

10

Create a Login application (check username and password). On successful login, pop up the message. ("Welcome username").



res/layout/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"
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    android:id="@+id/layout"
    android:background="#000">

    <androidx.cardview.widget.CardView
        android:layout_margin="64dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        card_view:cardCornerRadius="8dp"
        card_view:cardElevation="8dp"
        android:background="#fff"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" >
```

```

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:padding="25dp">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="124dp"
        android:layout_height="129dp"
        android:layout_gravity="center"
        app:srcCompat="@drawable/user" />

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="12dp"
        android:ems="10"
        android:hint="Name"
        android:textSize="22sp"
        android:padding="15dp" />

    <EditText
        android:id="@+id/editTextTextPassword"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="44dp"
        android:ems="10"
        android:hint="Password"
        android:inputType="textPassword"
        android:textSize="22sp"
        android:padding="15dp" />

    <Button
        android:id="@+id/button"
        android:layout_width="234dp"
        android:layout_height="wrap_content"
        android:padding="15dp"
        android:text="Login"
        android:textSize="20sp" />

</LinearLayout>

</androidx.cardview.widget.CardView>

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```

package com.anshul.practical10;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;

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

```



```

import android.widget.EditText;

import com.google.android.material.snackbar.Snackbar;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

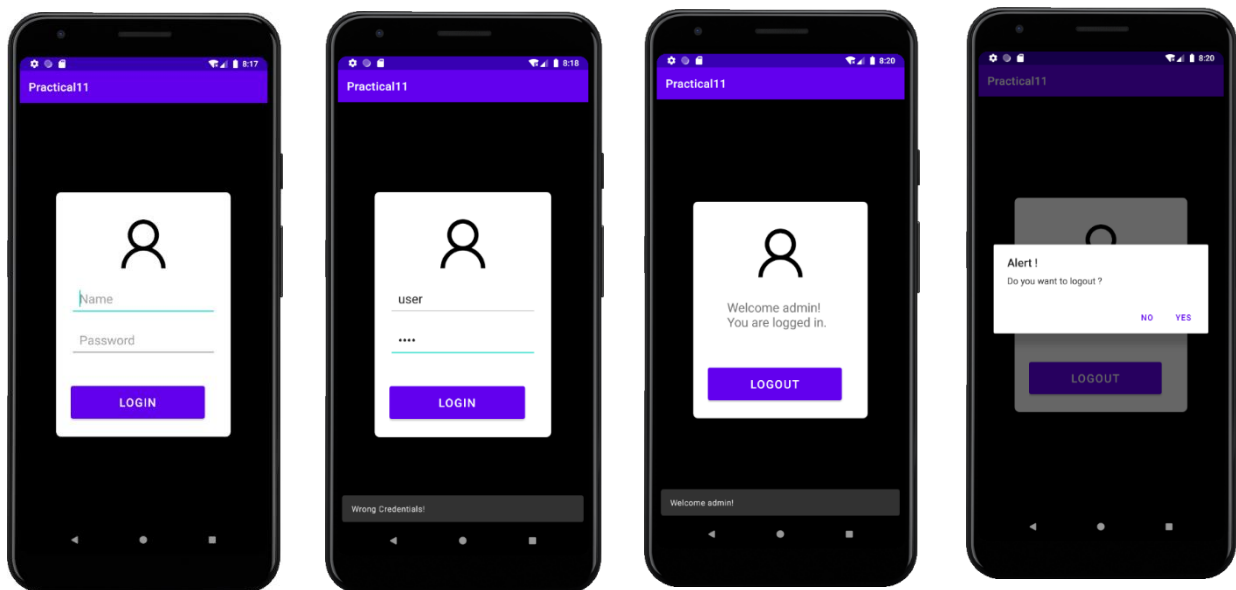
        ConstraintLayout layout = (ConstraintLayout) findViewById(R.id.layout);
        EditText username = (EditText) findViewById(R.id.editTextTextPersonName);
        EditText password = (EditText) findViewById(R.id.editTextTextPassword);
        Button btn = (Button) findViewById(R.id.button);

        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(username.getText().toString().equals("admin") &&
                    password.getText().toString().equals("pass")){
                    Snackbar.make(layout,
                        "Welcome "+username.getText()+"!",
                        Snackbar.LENGTH_LONG).show();
                }
                else{
                    Snackbar.make(layout,
                        "Wrong Credentials!", Snackbar.LENGTH_LONG).show();
                }
            }
        });
    }
}

```

11

Create a login application as above, on successful login redirect to another activity with logout button. On click of logout button a dialog appears with OK and CANCEL button. On OK button click go to login activity and on CANCEL stay at same activity.



res/layout/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"
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    android:id="@+id/layout"
    android:background="#000">

    <androidx.cardview.widget.CardView
        android:layout_margin="64dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        card_view:cardCornerRadius="8dp"
        card_view:cardElevation="8dp"
        android:background="#fff"
        app:layout_constraintBottom_toBottomOf="parent"
```

```

        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" >

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="25dp">

            <ImageView
                android:id="@+id/imageView"
                android:layout_width="124dp"
                android:layout_height="129dp"
                android:layout_gravity="center"
                app:srcCompat="@drawable/user" />

            <EditText
                android:id="@+id/editTextTextPersonName"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginBottom="12dp"
                android:ems="10"
                android:hint="Name"
                android:textSize="22sp"
                android:padding="15dp" />

            <EditText
                android:id="@+id/editTextTextPassword"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginBottom="44dp"
                android:ems="10"
                android:hint="Password"
                android:inputType="textPassword"
                android:textSize="22sp"
                android:padding="15dp" />

            <Button
                android:id="@+id/button"
                android:layout_width="234dp"
                android:layout_height="wrap_content"
                android:padding="15dp"
                android:text="Login"
                android:textSize="20sp" />

        </LinearLayout>

    </androidx.cardview.widget.CardView>

</androidx.constraintlayout.widget.ConstraintLayout>

```

res/layout/activity_logged_in.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"
xmlns:card_view="http://schemas.android.com/apk/res-auto"
android:id="@+id/layout"
android:background="#000">

<androidx.cardview.widget.CardView
    android:layout_margin="64dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    card_view:cardCornerRadius="8dp"
    card_view:cardElevation="8dp"
    android:background="#fff"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" >

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="25dp">

        <ImageView
            android:id="@+id/imageView"
            android:layout_width="124dp"
            android:layout_height="129dp"
            android:layout_gravity="center"
            app:srcCompat="@drawable/user" />

        <TextView
            android:id="@+id/textView"
            android:layout_width="216dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_marginBottom="44dp"
            android:ems="10"
            android:padding="15dp"
            android:text=""
            android:textSize="22sp" />

        <Button
            android:id="@+id/button"
            android:layout_width="234dp"
            android:layout_height="wrap_content"
            android:padding="15dp"
            android:text="Logout"
            android:textSize="20sp" />

    </LinearLayout>

</androidx.cardview.widget.CardView>

</androidx.constraintlayout.widget.ConstraintLayout>

```

src/MainActivity.java

```
package com.anshul.practical11;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

import com.google.android.material.snackbar.Snackbar;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        ConstraintLayout layout = (ConstraintLayout) findViewById(R.id.layout);
        EditText username = (EditText) findViewById(R.id.editTextTextPersonName);
        EditText password = (EditText) findViewById(R.id.editTextTextPassword);
        Button btn = (Button) findViewById(R.id.button);

        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(username.getText().toString().equals("admin") &&
                    password.getText().toString().equals("pass")){

                    String usernameTxt = username.getText().toString();
                    Intent intent = new Intent(MainActivity.this,
LoggedInActivity.class);
                    intent.putExtra("username", usernameTxt);
                    startActivity(intent);

                    password.setText("");
                }
                else{
                    Snackbar.make(layout,
                        "Wrong Credentials!", Snackbar.LENGTH_LONG).show();
                }
            }
        });
    }
}
```

src/LoggedInActivity.java

```
package com.anshul.practical11;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
```

```

import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import com.google.android.material.snackbar.Snackbar;

public class LoggedInActivity extends AppCompatActivity {

    private AlertDialog.Builder builder;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_logged_in);

        TextView textView = (TextView) findViewById(R.id.textView);
        ConstraintLayout layout = (ConstraintLayout) findViewById(R.id.layout);
        Button btn = (Button) findViewById(R.id.button);

        Intent intent = getIntent();
        String username = intent.getStringExtra("username");
        Snackbar.make(layout,
            "Welcome "+username+"!", Snackbar.LENGTH_SHORT).show();
        textView.setText("Welcome "+username+"!\nYou are logged in.");

        btn.setOnClickListener(new View.OnClickListener(){

            @Override
            public void onClick(View v) {
                logoutDialogBox();
            }
        });

        @Override
        public void onBackPressed(){
            logoutDialogBox();
        }

        public void logoutDialogBox(){
            builder = new AlertDialog.Builder(LoggedInActivity.this);
            builder.setMessage("Do you want to logout ?");
            builder.setTitle("Alert !");
            builder.setCancelable(false);

            builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {

                @Override
                public void onClick(DialogInterface dialog, int which)
                {
                    finish();
                }
            });
            builder.setNegativeButton("No", new DialogInterface.OnClickListener() {

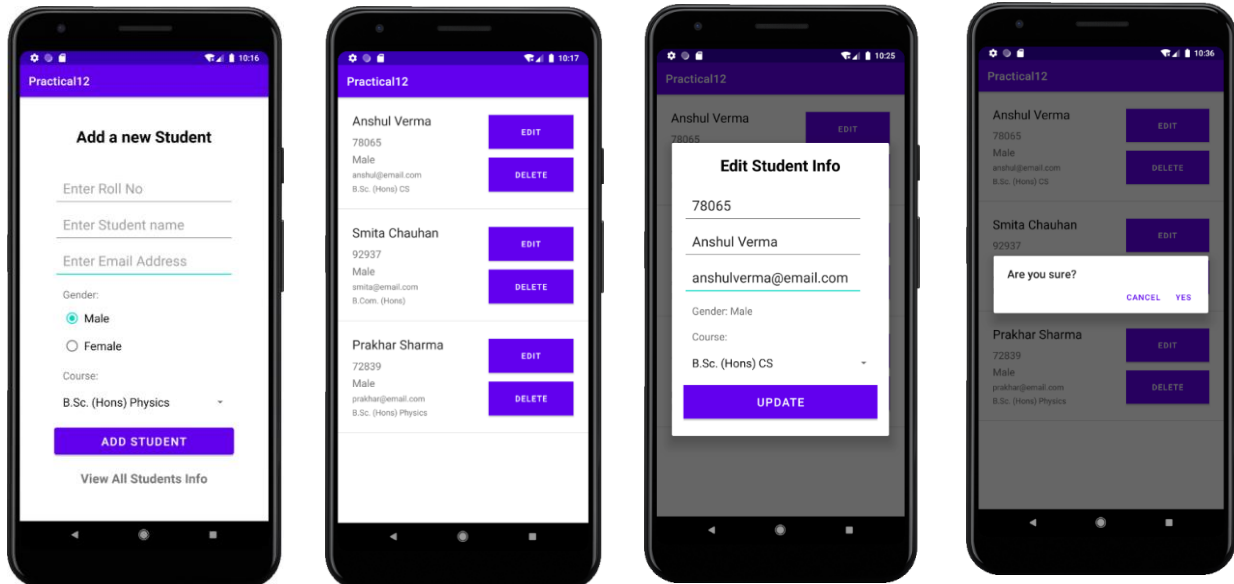
```

```
        @Override
        public void onClick(DialogInterface dialog, int which)
        {
            dialog.cancel();
        }
    });

    AlertDialog alertDialog = builder.create();
    alertDialog.show();
}
}
```

12

Create an application to Create, Insert, update and Delete operation on the database.



res/layout/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"
    android:id="@+id/parentLayout">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:orientation="vertical"
        android:padding="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="MissingConstraints">

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="40dp"
```



```

        android:text="Add a new Student"
        android:textAlignment="center"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:textSize="28sp" />

<EditText
    android:id="@+id/editTextRollNo"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="number"
    android:hint="Enter Roll No"
    android:textSize="24sp"
    android:padding="15dp" />

<EditText
    android:id="@+id/editTextName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="textPersonName"
    android:hint="Enter Student name"
    android:textSize="24sp"
    android:padding="15dp" />

<EditText
    android:id="@+id/editTextEmail"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="textEmailAddress"
    android:hint="Enter Email Address"
    android:textSize="24sp"
    android:padding="15dp" />

<RadioGroup
    android:id="@+id/radioGroupGender"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="15sp"
    android:checkedButton="@id/radioButtonMale">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Gender:"
        android:textSize="18sp"
        android:layout_marginBottom="5dp"/>
    <RadioButton
        android:id="@+id/radioButtonMale"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text=" Male"
        android:textColor="@color/black"
        android:textSize="20sp"/>
    <RadioButton
        android:id="@+id/radioButtonFemale"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

```

```

        android:text=" Female"
        android:textColor="@color/black"
        android:textSize="20sp"/>
    </RadioGroup>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Course:"
        android:textSize="18sp"
        android:layout_marginBottom="5dp"
        android:paddingLeft="15dp"/>
    <Spinner
        android:id="@+id/spinnerCourse"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:entries="@array/courses"/>

    <Button
        android:id="@+id/buttonAdd"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add Student"
        android:layout_marginTop="10sp"
        android:layout_marginBottom="10sp"
        android:padding="10sp"
        android:textSize="20sp"/>

    <TextView
        android:id="@+id/textViewViewAll"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View All Students Info"
        android:textStyle="bold"
        android:textAlignment="center"
        android:padding="10sp"
        android:textSize="22sp"/>

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

```

res/layout/activity_view_all.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=".ViewAllActivity"
    android:id="@+id/parentConstraintLayout">

    <ListView
        android:id="@+id/listViewStudents"
        android:layout_width="match_parent"
        android:layout_height="match_parent"

```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

res/layout/list_layout.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="horizontal"
    android:padding="15dp"
    android:id="@+id/studentLayout">

    <LinearLayout
        android:layout_width="235dp"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="10dp">

        <TextView
            android:id="@+id/textViewName"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="5dp"
            android:text="Name"
            android:textAppearance="@style/Base.TextAppearance.AppCompat.Large" />

        <TextView
            android:id="@+id/textViewRollNo"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="5dp"
            android:text="RollNo"
            android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"
        />

        <TextView
            android:id="@+id/textViewGender"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="5dp"
            android:text="Gender"
            android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"
        />

        <TextView
            android:id="@+id/textViewEmail"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="5dp"
            android:text="Email"
            android:textAppearance="@style/Base.TextAppearance.AppCompat.Small" />

        <TextView

```

```

        android:id="@+id/textViewCourse"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="5dp"
        android:text="Course"
        android:textAppearance="@style/Base.TextAppearance.AppCompat.Small"/>

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <Button
            android:id="@+id/buttonEditStudent"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:paddingVertical="14dp"
            android:layout_marginVertical="15dp"
            android:layout_marginHorizontal="10dp"
            android:background="@color/purple_200"
            android:text="Edit" />

        <Button
            android:id="@+id/buttonDeleteStudent"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:paddingVertical="14dp"
            android:layout_marginBottom="13dp"
            android:layout_marginHorizontal="10dp"
            android:background="@color/red"
            android:text="Delete" />

    </LinearLayout>

</LinearLayout>

```

res/layout/update_layout.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_centerVertical="true"
    android:orientation="vertical"
    android:layout_gravity="center"
    android:padding="20dp"
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/parentLayout">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginBottom="20dp"
        android:text="Edit Student Info"
        android:textAlignment="center"
        android:textStyle="bold"
        android:textColor="@color/black"

```

```

        android:textSize="28sp" />

<EditText
    android:id="@+id/editTextRollNo"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="number"
    android:hint="Enter Roll No"
    android:textSize="24sp"
    android:padding="15dp" />

<EditText
    android:id="@+id/editTextName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="textPersonName"
    android:hint="Enter Student name"
    android:textSize="24sp"
    android:padding="15dp" />

<EditText
    android:id="@+id/editTextEmail"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="11"
    android:inputType="textEmailAddress"
    android:hint="Enter Email Address"
    android:textSize="24sp"
    android:padding="15dp" />

<TextView
    android:id="@+id/tVGender"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Gender:"
    android:textSize="18sp"
    android:padding="15dp"
    android:layout_marginBottom="5dp"/>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Course:"
    android:textSize="18sp"
    android:layout_marginBottom="5dp"
    android:paddingLeft="15dp"/>

<Spinner
    android:id="@+id/spinnerCourse"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:entries="@array/courses"/>

<Button
    android:id="@+id/buttonUpdate"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Update"

```

```
        android:layout_marginTop="10sp"
        android:layout_marginBottom="10sp"
        android:padding="10sp"
        android:textSize="20sp"
        android:background="@color/gray"/>

</LinearLayout>
```

src/Student.java

```
package com.anshul.practical12;

public class Student {
    int rollno;
    String name, email, gender, course;

    public Student(int rollno, String name, String email, String gender, String
course) {
        this.rollno = rollno;
        this.name = name;
        this.email = email;
        this.gender = gender;
        this.course = course;
    }

    public int getRollNo() {
        return rollno;
    }

    public String getName() {
        return name;
    }

    public String getEmail() {
        return email;
    }

    public String getGender() {
        return gender;
    }

    public String getCourse() {
        return course;
    }
}
```

src/StudentAdapter.java

```
package com.anshul.practical12;

import android.content.Context;
import android.database.Cursor;
import android.view.View;
import android.content.DialogInterface;
import android.database.sqlite.SQLiteDatabase;
```

```

import android.view.LayoutInflater;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AlertDialog;
import androidx.constraintlayout.widget.ConstraintLayout;

import com.google.android.material.snackbar.Snackbar;

import java.util.List;

public class StudentAdapter extends ArrayAdapter<Student> {

    Context mContext;
    int listLayoutRes;
    List<Student> studentList;
    SQLiteDatabase studentDB;

    public StudentAdapter(Context mContext, int listLayoutRes, List<Student>
studentList, SQLiteDatabase studentDB) {
        super(mContext, listLayoutRes, studentList);

        this.mContext = mContext;
        this.listLayoutRes = listLayoutRes;
        this.studentList = studentList;
        this.studentDB = studentDB;
    }

    public void updateStudent(Student student){
        AlertDialog.Builder builder = new AlertDialog.Builder(mContext);

        LayoutInflater inflater = LayoutInflater.from(mContext);
        View view = inflater.inflate(R.layout.update_layout, null);
        builder.setView(view);

        EditText editTextRollNo = (EditText)
view.findViewById(R.id.editTextRollNo);
        EditText editTextName = (EditText) view.findViewById(R.id.editTextName);
        EditText editTextEmail = (EditText) view.findViewById(R.id.editTextEmail);
        Spinner spinnerCourses = (Spinner) view.findViewById(R.id.spinnerCourse);
        Button btnUpdate = (Button) view.findViewById(R.id.buttonUpdate);

        editTextName.setText(student.getName());
        editTextRollNo.setText(String.valueOf(student.getRollNo()));
        editTextEmail.setText(student.getEmail());
        TextView genderTV = view.findViewById(R.id.tvGender);
        genderTV.setText("Gender: "+student.getGender());
        ArrayAdapter adapter = ArrayAdapter.createFromResource(mContext,
            R.array.courses, R.layout.spinner_item);
        spinnerCourses.setAdapter(adapter);

        final AlertDialog dialog = builder.create();

```

```

        dialog.show();

        btnUpdate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String rollNo = editTextRollNo.getText().toString().trim();
                String name = editTextName.getText().toString().trim();
                String email = editTextEmail.getText().toString().trim();
                String course =
spinnerCourses.getSelectedItem().toString().trim();

                if (rollNo.isEmpty()) {
                    editTextRollNo.setError("Please enter a name");
                    editTextRollNo.requestFocus();
                }

                if (name.isEmpty()) {
                    editTextName.setError("Please enter a name");
                    editTextName.requestFocus();
                }

                if (email.isEmpty() || !email.contains("@")) {
                    editTextEmail.setError("Please enter an email.");
                    editTextEmail.requestFocus();
                }

                String sql = "UPDATE students \n" +
                    "SET id = " + rollNo + ", \n" +
                    "name = ?, \n" +
                    "email = ?, \n" +
                    "course = ? \n" +
                    "WHERE id = ?;\n";

                studentDB.execSQL(sql, new String[]{name, email, course,
String.valueOf(student.getRollNo())});

                Toast.makeText(mCtx, "Student Updated Successfully!",
Toast.LENGTH_SHORT).show();
                reloadStudentsFromDB();

                dialog.dismiss();
            }
        });
    }

    private void reloadStudentsFromDB() {
        Cursor cursorStudents = studentDB.rawQuery("SELECT * FROM students",
null);
        if (cursorStudents.moveToFirst()) {
            studentList.clear();
            do {
                studentList.add(new Student(
                    cursorStudents.getInt(0),
                    cursorStudents.getString(1),
                    cursorStudents.getString(2),
                    cursorStudents.getString(3),
                    cursorStudents.getString(4)
                ));
            } while (cursorStudents.moveToNext());
        }
    }
}

```



```

    }
    cursorStudents.close();
    notifyDataSetChanged();
}

@NonNull
@Override
public View getView(int position, @Nullable View convertView, @NonNull
ViewGroup parent) {
    LayoutInflater inflater = LayoutInflater.from(mCtx);
    View view = inflater.inflate(listLayoutRes, null);

    //getting student of the specified position
    Student student = studentList.get(position);

    //getting views
    TextView textViewName = view.findViewById(R.id.textViewName);
    TextView textViewRollNo = view.findViewById(R.id.textViewRollNo);
    TextView textViewGender = view.findViewById(R.id.textViewGender);
    TextView textViewEmail = view.findViewById(R.id.textViewEmail);
    TextView textViewCourse = view.findViewById(R.id.textViewCourse);

    //adding data to views
    textViewName.setText(student.getName());
    textViewRollNo.setText(String.valueOf(student.getRollNo()));
    textViewGender.setText(student.getGender());
    textViewEmail.setText(student.getEmail());
    textViewCourse.setText(student.getCourse());

    //we will use these buttons later for update and delete operation
    Button buttonDelete = view.findViewById(R.id.buttonDeleteStudent);
    Button buttonEdit = view.findViewById(R.id.buttonEditStudent);

    buttonEdit.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            updateStudent(student);
        }
    });

    buttonDelete.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            AlertDialog.Builder builder = new AlertDialog.Builder(mCtx);
            builder.setTitle("Are you sure?");
            builder.setCancelable(false);
            builder.setPositiveButton("Yes", new
DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialogInterface, int i) {
                    String sql = "DELETE FROM students WHERE id = ?";
                    studentDB.execSQL(sql, new
Integer[]{student.getRollNo()});
                    reloadStudentsFromDB();
                }
            });
            builder.setNegativeButton("Cancel", new
DialogInterface.OnClickListener() {
                @Override

```

```

        public void onClick(DialogInterface dialogInterface, int i) {
            dialogInterface.cancel();
        }
    });
    AlertDialog dialog = builder.create();
    dialog.show();
}
});
return view;
}
}

```

src/MainActivity.java

```

package com.anshul.practical12;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {

    public static final String DATABASE_NAME = "student_info";

    TextView textViewViewStudents;
    EditText editTextName, editTextEmail, editTextRollNo;
    Spinner spinnerCourses;
    RadioGroup rgGender;
    Button btnAdd;

    SQLiteDatabase studentsDB;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        textViewViewStudents = (TextView) findViewById(R.id.textViewViewAll);
        editTextRollNo = (EditText) findViewById(R.id.editTextRollNo);
        editTextName = (EditText) findViewById(R.id.editTextName);
        editTextEmail = (EditText) findViewById(R.id.editTextEmail);
        spinnerCourses = (Spinner) findViewById(R.id.spinnerCourse);
        rgGender = (RadioGroup) findViewById(R.id.radioGroupGender);
        btnAdd = (Button) findViewById(R.id.buttonAdd);
    }
}

```

```

        btnAdd.setOnClickListener(this);
        textViewViewStudents.setOnClickListener(this);
        ArrayAdapter adapter = ArrayAdapter.createFromResource(this,
            R.array.courses, R.layout.spinner_item);
        spinnerCourses.setAdapter(adapter);

        studentsDB = openOrCreateDatabase(DATABASE_NAME, MODE_PRIVATE, null);
    }

    private boolean validateInput(String rollNo, String name, String email) {

        if (rollNo.isEmpty()) {
            editTextRollNo.setError("Please enter a name");
            editTextRollNo.requestFocus();
            return false;
        }

        if (name.isEmpty()) {
            editTextName.setError("Please enter a name");
            editTextName.requestFocus();
            return false;
        }

        if (email.isEmpty() || !email.contains("@")) {
            editTextEmail.setError("Please enter an email.");
            editTextEmail.requestFocus();
            return false;
        }
        return true;
    }

    @Override
    public void onClick(View v) {
        switch (v.getId()) {
            case R.id.buttonAdd:
                addStudent();
                break;
            case R.id.textViewViewAll:
                startActivity(new Intent(this, ViewAllActivity.class));
                break;
        }
    }

    private void addStudent() {
        // Creating the table
        studentsDB.execSQL(
            "CREATE TABLE IF NOT EXISTS students (\n" +
            "id int NOT NULL CONSTRAINT students_pk PRIMARY KEY,\n" +
            "name varchar(200) NOT NULL,\n" +
            "email varchar(200) NOT NULL,\n" +
            "gender char(10) NOT NULL,\n" +
            "course varchar(200) NOT NULL\n" +
            ");"
        );
        // Adding data to table
        String rollNo = editTextRollNo.getText().toString().trim();
        String name = editTextName.getText().toString().trim();
        String email = editTextEmail.getText().toString().trim();
    }

```

```

        String course = spinnerCourses.getSelectedItem().toString().trim();

        int id = rgGender.getCheckedRadioButtonId();
        RadioButton radioBtn = (RadioButton) findViewById(id);
        String gender = radioBtn.getText().toString().trim();

        if (validateInput(rollNo, name, email)) {
            int rollNumber = Integer.parseInt(rollNo);
            String insertSQL = "INSERT INTO students \n" +
                               "(id, name, email, gender, course)\n" +
                               "VALUES \n" +
                               "("+rollNumber+", ?, ?, ?, ?)";
            studentsDB.execSQL(insertSQL, new String[]{name, email, gender,
course});
            Toast.makeText(this, "Student Added Successfully!",
Toast.LENGTH_SHORT).show();
            editTextRollNo.setText("");
            editTextName.setText("");
            editTextEmail.setText("");
        }
    }
}

```

src/ViewAllActivity.java

```

package com.anshul.practical12;

import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.widget.ListView;

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

public class ViewAllActivity extends AppCompatActivity {

    List<Student> studentList;
    SQLiteDatabase studentsDB;
    ListView listViewStudents;
    StudentAdapter adapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_view_all);

        listViewStudents = (ListView) findViewById(R.id.listViewStudents);
        studentList = new ArrayList<>();
        studentsDB = openOrCreateDatabase(MainActivity.DATABASE_NAME,
MODE_PRIVATE, null);

        Cursor cursorStudents = studentsDB.rawQuery("SELECT * FROM students",
null);

        //if the cursor has some data
        if (cursorStudents.moveToFirst()) {

```

```

        //looping through all the records
        do {
            //pushing each record in the list
            studentList.add(new Student(
                cursorStudents.getInt(0),
                cursorStudents.getString(1),
                cursorStudents.getString(2),
                cursorStudents.getString(3),
                cursorStudents.getString(4)
            ));
        } while (cursorStudents.moveToNext());
    }
    //closing the cursor
    cursorStudents.close();

    //creating the adapter object
    adapter = new StudentAdapter(this, R.layout.list_layout, studentList,
studentsDB);

    //adding the adapter to listview
    listViewStudents.setAdapter(adapter);
}
}

```