

ANDROID PROGRAMMING

PRACTICAL FILE



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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.
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.
5	Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.
6	Create a menu with 5 options and selected option should appear in text box in upper case.

Serial No.	Practical
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.
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.
9	<p>a) Create an application with three buttons (with different color names) vertically aligned, on selecting a button color of the screen will change.</p> <p>b) Create an application with three buttons horizontally aligned, on selecting a button color of the screen will change.</p>
10	Create a Login application (check username and password). On successful login, pop up the message. ("Welcome username")
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.
12	Create an application to Create, Insert, update and Delete operation on the database.

Practical 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.

Code:

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="50sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.project1;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

OUTPUT –



Hello World!



Practical 2: Create an application to display various android activity lifecycle phases.

Code:

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!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.program2;
```

```
import android.app.Activity;
import android.os.Bundle;
import android.util.Log;

public class MainActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d("lifecycle", "onCreate invoked");
    }

    @Override
    protected void onStart() {
        super.onStart();
        Log.d("lifecycle", "onStart invoked");
    }

    @Override
    protected void onResume() {
        super.onResume();
        Log.d("lifecycle", "onResume invoked");
    }

    @Override
    protected void onPause() {
        super.onPause();
        Log.d("lifecycle", "onPause invoked");
    }

    @Override
```

```
protected void onStop() {  
    super.onStop();  
    Log.d("lifecycle","onStop invoked");  
}  
  
@Override  
protected void onRestart() {  
    super.onRestart();  
    Log.d("lifecycle","onRestart invoked");  
}  
  
@Override  
protected void onDestroy() {  
    super.onDestroy();  
    Log.d("lifecycle","onDestroy invoked");  
}  
}
```

OUTPUT –



The screenshot shows the top portion of an Android emulator. At the very top is a status bar with icons for Wi-Fi, cellular signal, and battery, along with the time 12:05. Below the status bar is a dark blue title bar with the text **activity_life_cycle** in white, bold font.



LOGCAT –

2022-02-19 12:05:08.979 8956-8956/com.example.program2 D/lifecycle: onStart invoked

2022-02-19 12:05:08.984 8956-8956/com.example.program2 D/lifecycle: onResume invoked

2022-02-19 12:05:09.064 8956-8985/com.example.program2 D/EGL_emulation:
eglMakeCurrent: 0xdec85120: ver 2 0 (tinfo 0xdec83290)

2022-02-19 12:05:12.533 8956-8956/com.example.program2 D/lifecycle: onPause invoked

2022-02-19 12:05:12.552 8956-8985/com.example.program2 D/EGL_emulation:
eglMakeCurrent: 0xdec85120: ver 2 0 (tinfo 0xdec83290)

2022-02-19 12:05:12.555 8956-8956/com.example.program2 D/lifecycle: onStop invoked

2022-02-19 12:05:17.867 8956-8956/com.example.program2 D/lifecycle: onRestart invoked

2022-02-19 12:05:17.867 8956-8956/com.example.program2 D/lifecycle: onStart invoked

2022-02-19 12:05:17.869 8956-8956/com.example.program2 D/lifecycle: onResume invoked

2022-02-19 12:05:17.945 8956-8985/com.example.program2 D/EGL_emulation:
eglMakeCurrent: 0xdec85120: ver 2 0 (tinfo 0xdec83290)

2022-02-19 12:05:23.218 8956-8956/com.example.program2 D/lifecycle: onPause invoked

2022-02-19 12:05:23.232 8956-8985/com.example.program2 D/EGL_emulation:
eglMakeCurrent: 0xdec85120: ver 2 0 (tinfo 0xdec83290)

2022-02-19 12:05:23.236 8956-8956/com.example.program2 D/lifecycle: onStop invoked

2022-02-19 12:05:24.963 8956-8956/com.example.program2 D/lifecycle: onDestroy invoked

Practical 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.

Code:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout

    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText

        android:id="@+id/send_text_id"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="40dp"
        android:layout_marginTop="20dp"
        android:hint="Input"
        android:textSize="25dp"
        android:textStyle="bold" />

    <Button

        android:id="@+id/send_button_id"
        android:layout_width="wrap_content"
```

```
    android:layout_height="40dp"
    android:text="send"
    android:textStyle="bold"
    android:layout_marginTop="150dp"
    android:layout_marginLeft="150dp"/>
```

```
</RelativeLayout>
```

MainActivity.java

```
package com.example.program3;

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

public class MainActivity extends AppCompatActivity {

    Button send_button;

    EditText send_text;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        send_button = (Button)findViewById(R.id.send_button_id);
        send_text = (EditText)findViewById(R.id.send_text_id);
    }
}
```

```

send_button.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v)

    {

        String str = send_text.getText().toString();

        Intent intent = new Intent(getApplicationContext(), MainActivity2.class);

        intent.putExtra("message_key", str);

        startActivity(intent);

    }

});

}

}

```

activity_second.xml

```

<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity2">

    <TextView

        android:id="@+id/received_value_id"

        android:layout_width="300dp"

        android:layout_height="50dp"

        android:textStyle="bold"

        android:textSize="40dp"

        android:layout_marginTop="20dp"

```

```
android:layout_marginLeft="40dp"/>
```

```
</RelativeLayout>
```

SecondActivity.java

```
package com.example.program3;

import android.content.Intent;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {

    TextView receiver_msg;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

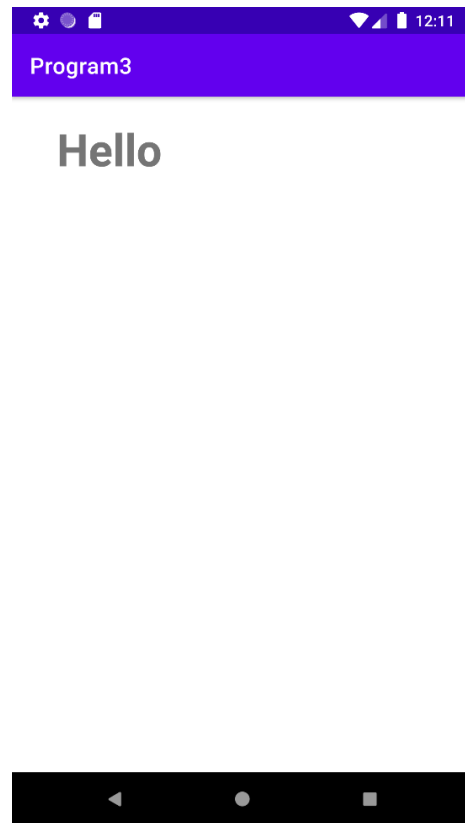
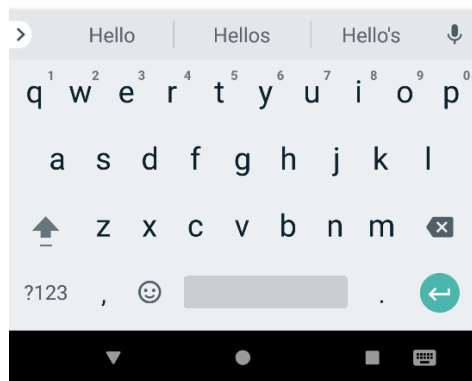
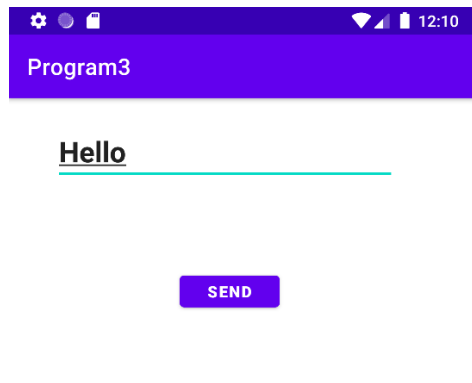
        receiver_msg = (TextView)findViewById(R.id.received_value_id);

        Intent intent = getIntent();

        String str = intent.getStringExtra("message_key");

        receiver_msg.setText(str);
    }
}
```

OUTPUT –



Practical 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 aSEND ACTION and let user select app from app chooser and navigate to that application.

Code:

activity_main.xml

```
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginRight="22dp"
        android:layout_marginTop="16dp"
    />
```

```
<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText1"
    android:layout_below="@+id/editText1"
    android:layout_marginTop="20dp"
    >
```

```
<requestFocus />
```

```
</EditText>
```

```
<EditText
    android:id="@+id/editText3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText2"
    android:layout_below="@+id/editText2"
    android:layout_marginTop="30dp"
    android:inputType="textMultiLine" />
```

```
<TextView
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/editText1"
    android:layout_alignBottom="@+id/editText1"
```



```
android:layout_alignParentLeft="true"  
android:text="To:" />
```

```
<TextView  
    android:id="@+id/textView2"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignBaseline="@+id/editText2"  
    android:layout_alignBottom="@+id/editText2"  
    android:layout_alignParentLeft="true"  
    android:text="Subject:" />
```

```
<TextView  
    android:id="@+id/textView3"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignBaseline="@+id/editText3"  
    android:layout_alignBottom="@+id/editText3"  
    android:layout_alignParentLeft="true"  
    android:text="Message:" />
```

```
<Button  
    android:id="@+id/button1"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignLeft="@+id/editText3"  
    android:layout_below="@+id/editText3"
```

```
        android:layout_marginLeft="70dp"
        android:layout_marginTop="25dp"
        android:text="Send" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.program4;

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

public class MainActivity extends Activity {

    EditText editTextTo,editTextSubject,editTextMessage;
    Button send;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editTextTo=(EditText)findViewById(R.id.editText1);
        editTextSubject=(EditText)findViewById(R.id.editText2);
        editTextMessage=(EditText)findViewById(R.id.editText3);
```

```

send=(Button)findViewById(R.id.button1);
send.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View arg0) {
        String to=editTextTo.getText().toString();
        String subject=editTextSubject.getText().toString();
        String message=editTextMessage.getText().toString();
        Intent email = new Intent(Intent.ACTION_SEND);
        email.putExtra(Intent.EXTRA_EMAIL, new String[]{ to});
        email.putExtra(Intent.EXTRA_SUBJECT, subject);
        email.putExtra(Intent.EXTRA_TEXT, message);
        email.setType("message/rfc822");
        startActivity(Intent.createChooser(email, "Choose an Email client :"));
    }
});
}

```

```

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

```

```

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    int id = item.getItemId();
    if (id == R.id.actions) {
        return true;
    }
}

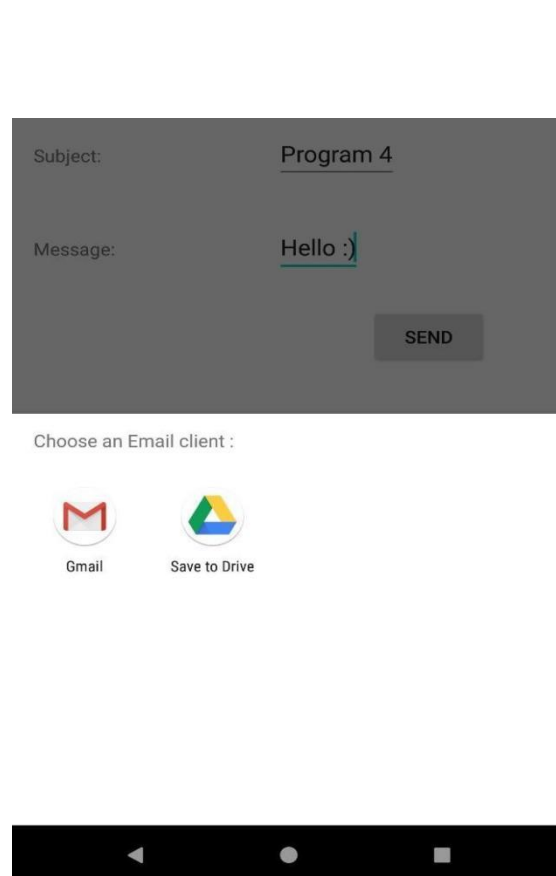
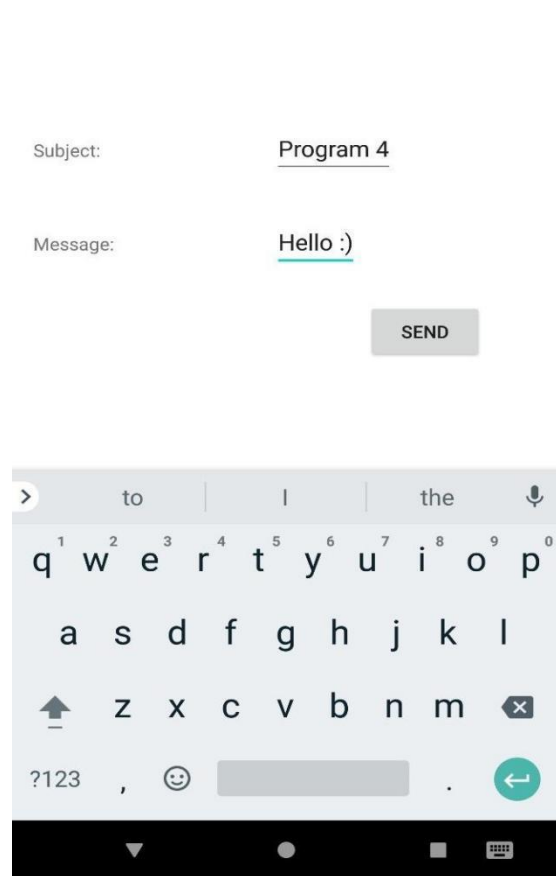
```

```

    }
    return super.onOptionsItemSelected(item);
}
}

```

OUTPUT –



Practical 5: Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.

Code:

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"> <Spinner
    android:id="@+id/spinner"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginLeft="8dp"
    android:layout_marginTop="16dp"
    android:layout_marginEnd="8dp"
    android:layout_marginRight="8dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" /><ImageView
    android:id="@+id/image"
    android:layout_width="332dp"
    android:layout_height="323dp"
```

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="@+id/spinner"
app:layout_constraintVertical_bias="0.479" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.p5;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle; import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.Spinner;

public class MainActivity extends AppCompatActivity { private Spinner spinner;
private ImageView image;

@Override

    protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    spinner=findViewById(R.id.spinner);
    image=findViewById(R.id.image);

    String [] birds={"Select One","s1","s2","s3","s4"};

    ArrayAdapter<String>adapter=new
ArrayAdapter<String>(this,android.R.layout.simple_spinner_dropdown_item,birds);

    spinner.setAdapter(adapter);

    spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {

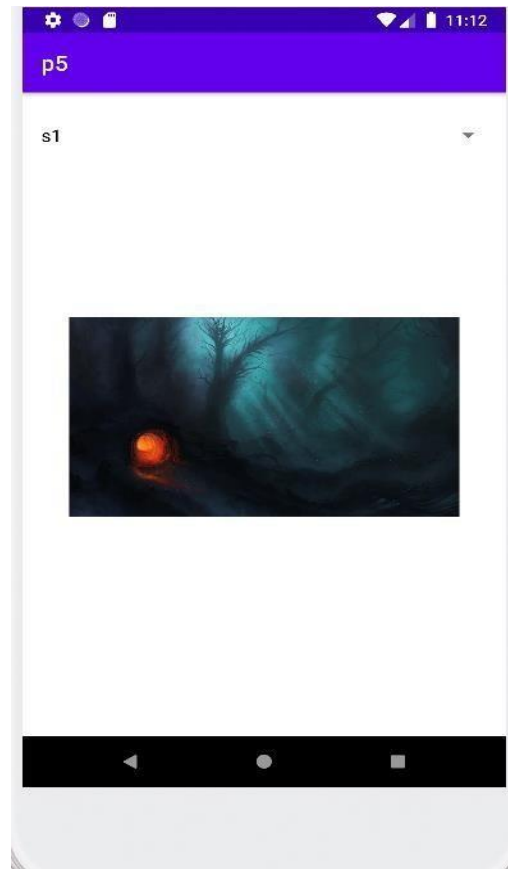
        @Override
```

```

    public void onItemSelected(AdapterView<?> parent, View view, int position, long id) { switch
(position){ case 1:
        image.setImageResource(R.drawable.a); break; case 2:
        image.setImageResource(R.drawable.b); break; case 3:
        image.setImageResource(R.drawable.c); break; case 4:
        image.setImageResource(R.drawable.d); break; } }
    @Override public void onNothingSelected(AdapterView<?> parent)
    { } });
}

```

Output –



Practical 6: Create a menu with 5 options and selected option should appear in text box in upper case.

Code:

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">

    <RelativeLayout android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_margin="80dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:id="@+id/etMenuItem"
            android:layout_centerInParent="true"
```



```
android:hint="Select an Option from the Menu"
android:textAlignment="center"
android:gravity="center_horizontal" />
</RelativeLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.p6;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater; import android.view.MenuItem; import
android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    private EditText etMenuIte

    @Override

    protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main); etMenuItem=(EditText) findViewById(R.id.etMenuItem);
    }

    @Override

    public boolean onCreateOptionsMenu(Menu menu){MenuInflater inflater=getMenuInflater();
    inflater.inflate(R.menu.main_menu,menu); return true;
    }

    @Override

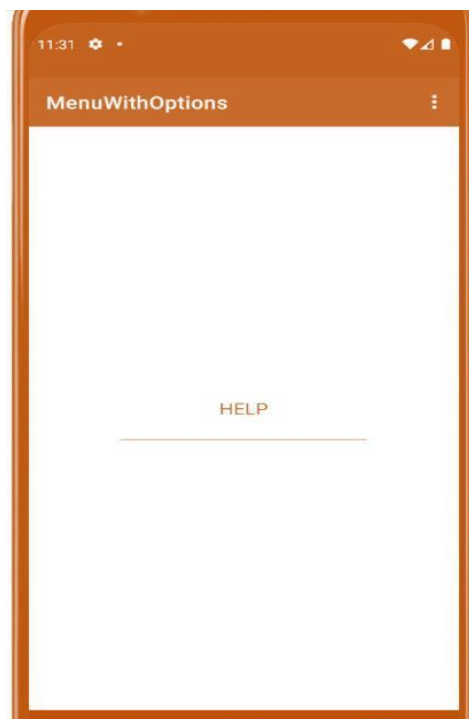
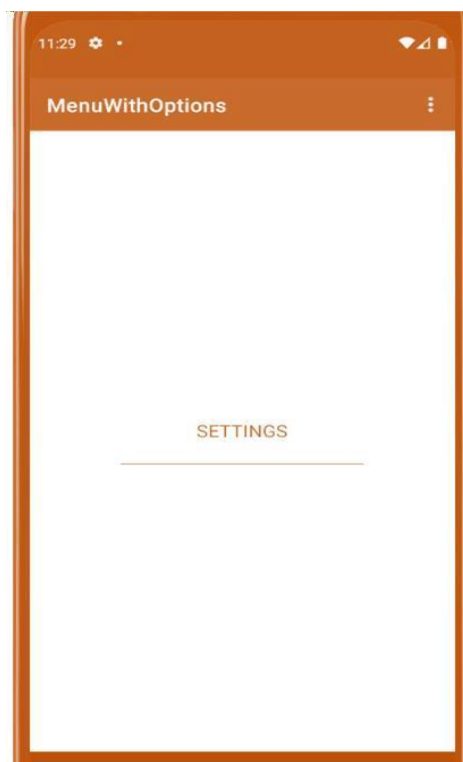
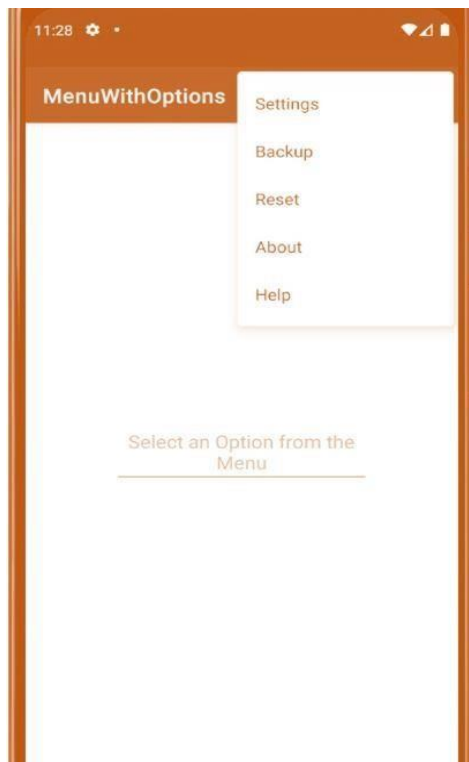
    public boolean onOptionsItemSelected(MenuItem item){
    etMenuItem.setText(item.getTitle().toString().toUpperCase());
```

```
return super.onOptionsItemSelected(item);  
}  
}
```

main_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android">  
  <item  
    android:id="@+id/miSettings" android:title="@string/settings" />  
  <item  
    android:id="@+id/miBackup" android:title="@string/backup" />  
  <item  
    android:id="@+id/miReset" android:title="@string/reset" />  
  <item  
    android:id="@+id/miAbout" android:title="@string/about" />  
  <item  
    android:id="@+id/miHelp" android:title="@string/help" />  
</menu>
```

Output -



Practical 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.

Code:

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">

    <RelativeLayout

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_margin="75dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" >

        <RadioGroup android:layout_width="match_parent"

            android:layout_height="wrap_content"

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

```
        android:layout_centerInParent="true">
    </RadioGroup>
</RelativeLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.p7;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.provider.MediaStore;
import android.widget.RadioGroup;
import android.widget.RadioButton;
import com.google.android.material.snackbar.Snackbar;
import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

    private RadioGroup rgCourses;

    private HashMap<String, String> coursesMap; @Override
    protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main); initCourses();
    }

    private void initCourses(){ rgCourses=(RadioGroup)findViewById(R.id.rgCourses);
    if (coursesMap==null){

        coursesMap=new HashMap<>();

        coursesMap.put("BSc(H) Computer Science"," Harsh Meena");
```

```
coursesMap.put("BCom(H)"," Tejas Gupta");
coursesMap.put("BA(H) Sociology"," Pandey Sir");
for (String course : coursesMap.keySet()){

    RadioButton rButton=new RadioButton(MainActivity.this);

    rButton.setText(course);

    rgCourses.addView(rButton);

}

rgCourses.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {

@Override

    public void onCheckedChanged(RadioGroup group, int checkedId) {

        int checkedRadioButtonId=rgCourses.getCheckedRadioButtonId();

        RadioButton rButton=(RadioButton) findViewById(checkedRadioButtonId);

        Snackbar.make(rgCourses,coursesMap.get(rButton.getText()),Snackbar.LENGTH_SHORT)

            .show();

    }

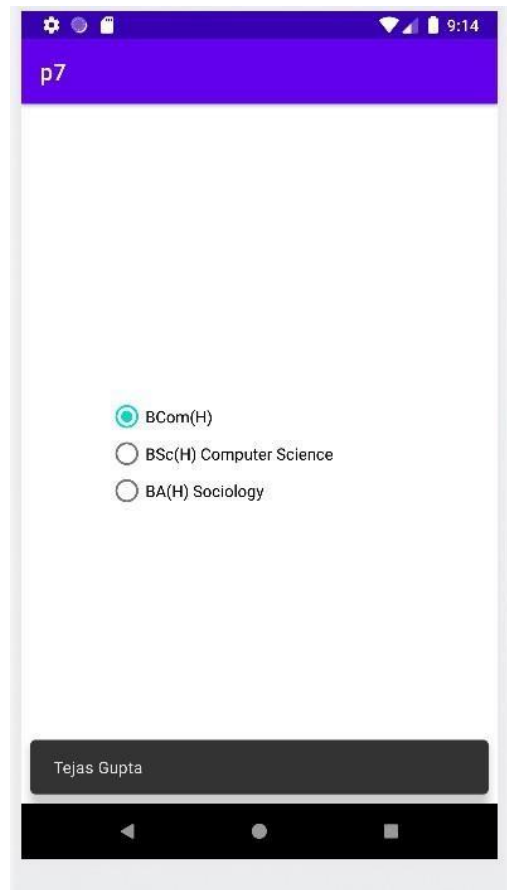
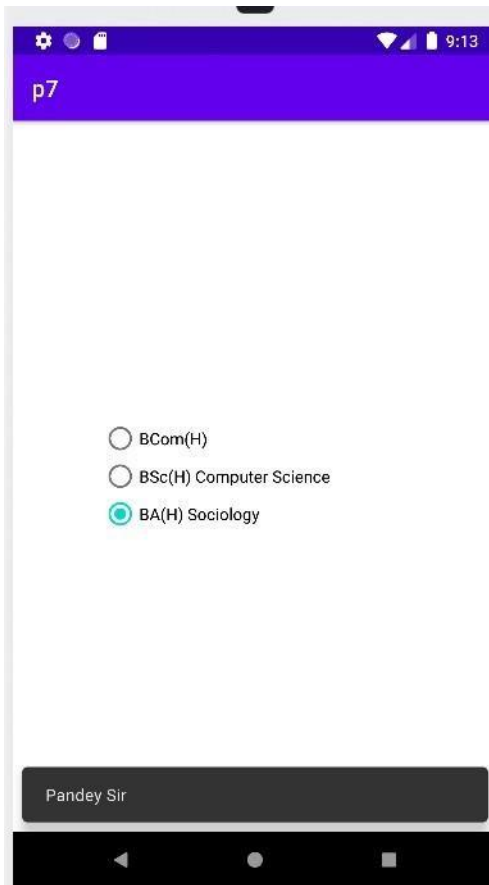
});

}

}

}
```

OUTPUT –



Practical 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.

Code:

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">

    <RelativeLayout

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_margin="90dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" >

        <RadioGroup android:layout_width="match_parent"
```



```
        android:layout_height="wrap_content"
        android:id="@+id/rgCourses"
        android:layout_centerInParent="true">
</RadioGroup>
</RelativeLayout>

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

MainActivity.java

```
package com.example.p8;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.provider.MediaStore;
import android.widget.RadioGroup;
import android.widget.RadioButton;
import com.google.android.material.snackbar.Snackbar;
import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

    private RadioGroup rgCourses;
    private HashMap<String, String> coursesMap; @Override
    protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main); initCourses();
    }

    private void initCourses(){ rgCourses=(RadioGroup)findViewById(R.id.rgCourses);
    if (coursesMap==null){
```

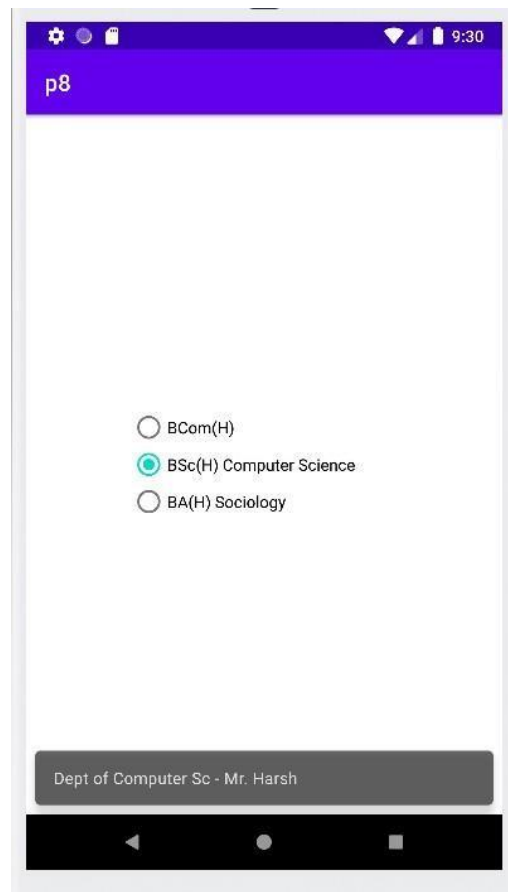
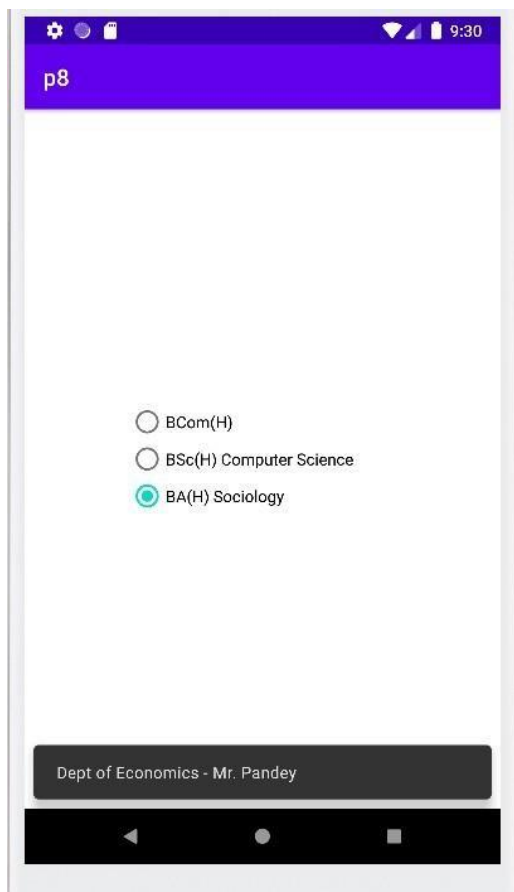
```

coursesMap=new HashMap<>();
coursesMap.put("BSc(H) Computer Science","Dept of Computer Sc - Mr. Harsh");
coursesMap.put("BCom(H)","Dept of Commerce - Mr. Tejas");
coursesMap.put("BA(H) Sociology"," Dept of Economics - Mr. Pandey");
for (String course : coursesMap.keySet()){
    RadioButton rButton=new RadioButton(MainActivity.this);
    rButton.setText(course);
    rgCourses.addView(rButton);
}
rgCourses.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
@Override
public void onCheckedChanged(RadioGroup group, int checkedId) {
    int checkedRadioButtonId=rgCourses.getCheckedRadioButtonId();
    RadioButton rButton=(RadioButton) findViewById(checkedRadioButtonId);

    Snackbar.make(rgCourses,coursesMap.get(rButton.getText()),Snackbar.LENGTH_SHORT)
        .show();
}
});
}
}
}
}

```

OUTPUT –



Practical 9

(a) : Create an application with three buttons (with different colornames) verticallyaligned, on selecting a button color of the screen will change.

Code:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout

    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/layoutSuperParent"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <LinearLayout android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <Button android:layout_width="150dp"
            android:layout_height="wrap_content"
            android:id="@+id/btnRed"
```

```

        android:layout_gravity="center"
        android:backgroundTint="@android:color/holo_red_dark"
        android:text="RED"/>
<Button android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnBlue"
        android:layout_gravity="center"
        android:backgroundTint="@android:color/holo_blue_light"
        android:text="BLUE"/>
<Button android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnGreen"
        android:gravity="center"
        android:backgroundTint="@android:color/holo_green_dark"
        android:text="GREEN"/>
<Button android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnReset"
        android:gravity="center"
        android:text="Reset"/>
</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```
package com.example.p9;
```

```
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.view.View;
import android.widget.Button;
import androidx.constraintlayout.widget.ConstraintLayout;
import android.os.Bundle;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    private Button btnRed;

    private Button btnBlue;

    private Button btnGreen;

    private Button btnReset;

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

        layoutSuperParent=(ConstraintLayout)findViewById(R.id.layoutSuperParent);

        btnRed=(Button)findViewById(R.id.btnRed);

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

        btnGreen=(Button)findViewById(R.id.btnGreen);

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

        btnRed.setOnClickListener(this);


        btnBlue.setOnClickListener(this);

        btnGreen.setOnClickListener(this);

        btnReset.setOnClickListener(this);
    }

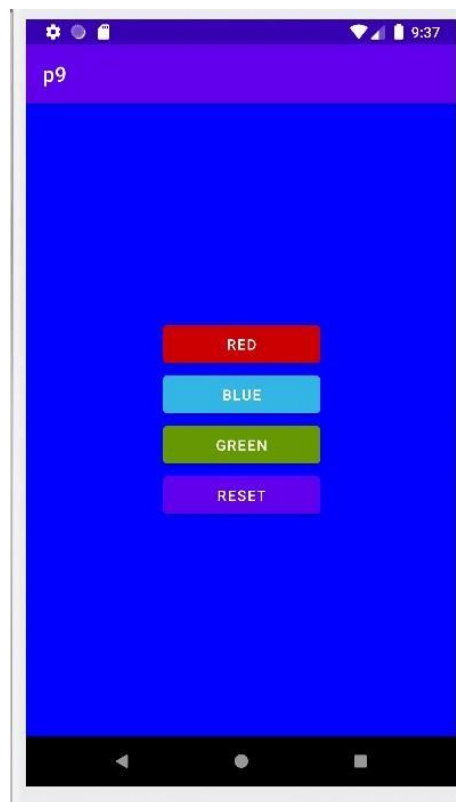
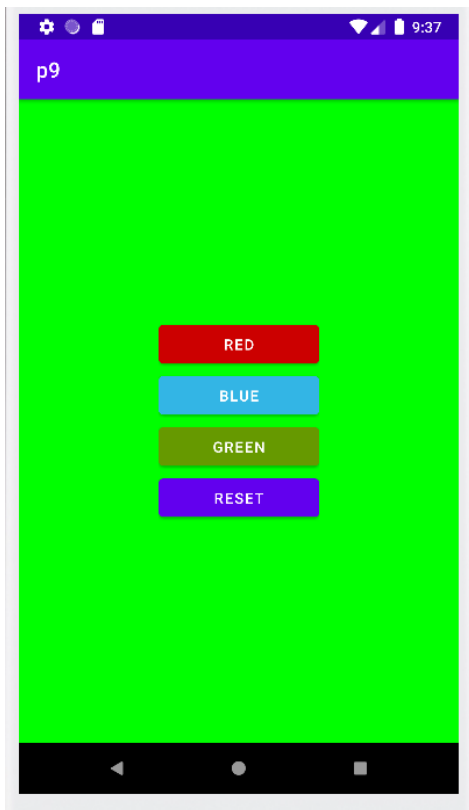
    @Override
```

```

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

```

OUTPUT –



Practical 9

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

Code:

activity_main.xml

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

    <LinearLayout android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <Button android:layout_width="75dp"
            android:layout_height="wrap_content"
            android:id="@+id/btnRed"
```



```

        android:layout_gravity="center"
        android:backgroundTint="@android:color/holo_red_dark"
        android:text="RED"/>
<Button android:layout_width="75dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnBlue"
        android:layout_gravity="center"
        android:backgroundTint="@android:color/holo_blue_light"
        android:text="BLUE"/>
<Button android:layout_width="75dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnGreen"
        android:gravity="center"
        android:backgroundTint="@android:color/holo_green_dark"
        android:text="GREEN"/>
<Button android:layout_width="75dp"
        android:layout_height="wrap_content"
        android:id="@+id/btnReset"
        android:gravity="center"
        android:text="Reset"/>
</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```
package com.example.p9;
```

```
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.view.View;
import android.widget.Button;
import androidx.constraintlayout.widget.ConstraintLayout;
import android.os.Bundle;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    private Button btnRed;

    private Button btnBlue;

    private Button btnGreen;

    private Button btnReset;

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

        layoutSuperParent=(ConstraintLayout)findViewById(R.id.layoutSuperParent);

        btnRed=(Button)findViewById(R.id.btnRed);

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

        btnGreen=(Button)findViewById(R.id.btnGreen);

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

        btnRed.setOnClickListener(this);


        btnBlue.setOnClickListener(this);

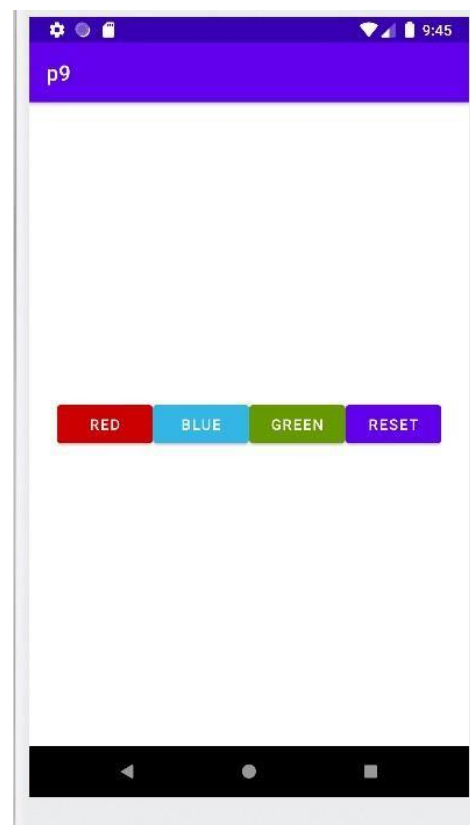
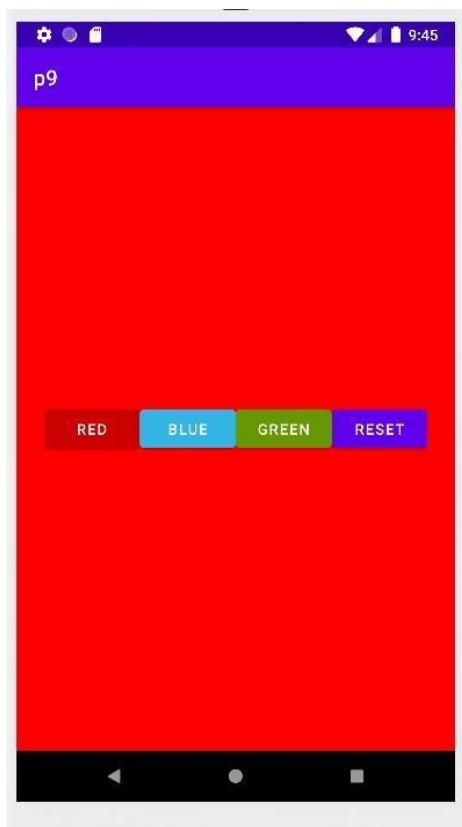
        btnGreen.setOnClickListener(this);

        btnReset.setOnClickListener(this);
    }

    @Override
```

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

OUTPUT –



**Practical 10: Create a Login application (check username and password).
Onsuccessful login, pop up the message. ("Welcome username")**

Code:

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/etEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="240dp"
        android:autofillHints="false"
        android:ems="10"
        android:hint="@string/e_mail_id"
        android:inputType="textEmailAddress"
        app:layout_constraintBottom_toTopOf="@id/etPassword"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
```

<EditText

```
    android:id="@+id/etPassword"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:autofillHints="false"
    android:ems="10"
    android:hint="@string/password"
    android:inputType="textPassword"
    app:layout_constraintBottom_toTopOf="@id/btnLogin"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/etEmail" />
```

<Button

```
    android:id="@+id/btnLogin"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:text="@string/login"
    app:layout_constraintBottom_toTopOf="@id/btnRegister"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/etPassword" />
```

<Button

```
        android:id="@+id/btnRegister"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="250dp"
        android:text="@string/register"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/btnLogin" />

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

MainActivity.java

```
package com.example.prac10;

import android.database.sqlite.SQLiteConstraintException;
import android.os.Bundle;
import android.util.Log;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac10.models.User;
import com.example.prac10.services.UserService;
```

```
public class MainActivity extends AppCompatActivity {  
    private EditText etEmail;  
    private EditText etPassword;  
    private Button btnLogin;  
    private Button btnRegister;  
    private UserService userService;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
  
        userService = UserService.getInstance();  
        UserService.initDatabase(this);  
  
        etEmail = (EditText) findViewById(R.id.etEmail);  
        etPassword = (EditText) findViewById(R.id.etPassword);  
        btnLogin = (Button) findViewById(R.id.btnLogin);  
        btnRegister = (Button) findViewById(R.id.btnRegister);  
  
        btnLogin.setOnClickListener(v -> {  
            User user = validateCredentials();  
            if (user != null) {  
                try {  
                    userService.login(user);  
                    Toast.makeText(this, "Welcome " + userService.getUser().email,  
                        Toast.LENGTH_SHORT).show();  
                }  
            }  
        })  
    }  
}
```

```

    } catch (IllegalStateException illegalStateException) {
        Toast.makeText(this, "Invalid E-mail/Password", Toast.LENGTH_SHORT).show();
    } catch (Exception e) {
        Log.d("TAG", e.getMessage());
        Toast.makeText(this, "Error", Toast.LENGTH_SHORT).show();
    }
}

});

```

```

btnRegister.setOnClickListener(v -> {
    User user = validateCredentials();
    if (user != null) {
        try {
            userService.register(user);
            Toast.makeText(this, "Registered", Toast.LENGTH_SHORT).show();
        } catch (SQLiteConstraintException sqLiteConstraintException) {
            Toast.makeText(this, "E-mail Already Used", Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            Toast.makeText(this, "Error", Toast.LENGTH_SHORT).show();
        }
    }
});
}

```

```

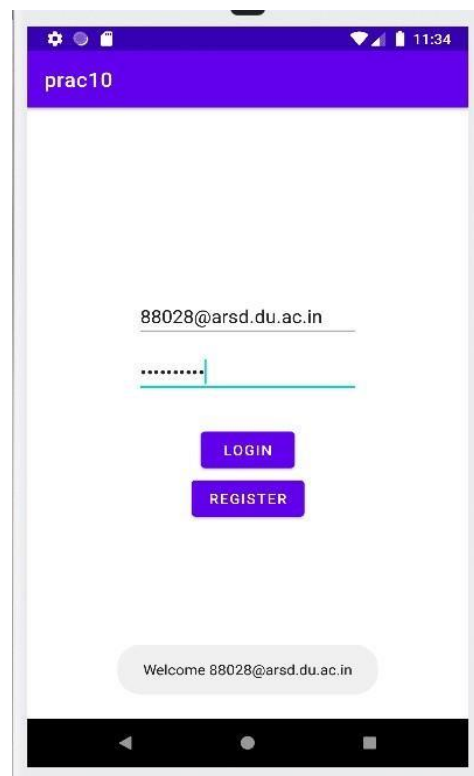
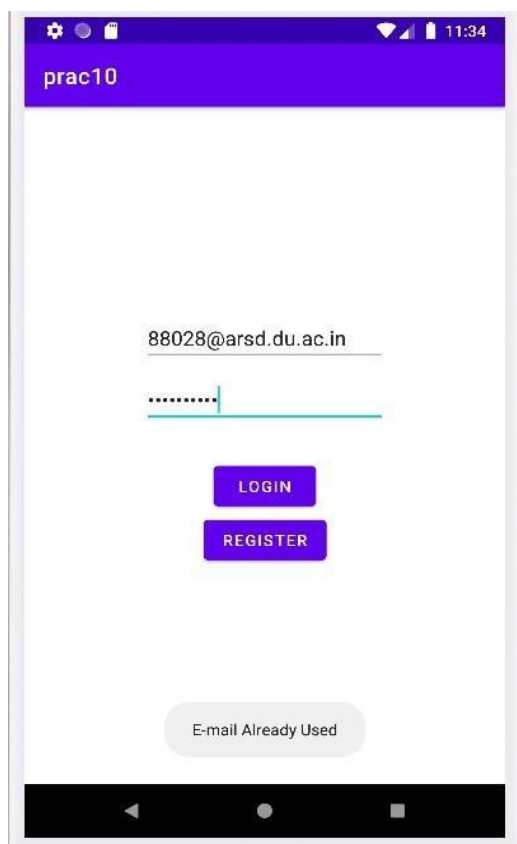
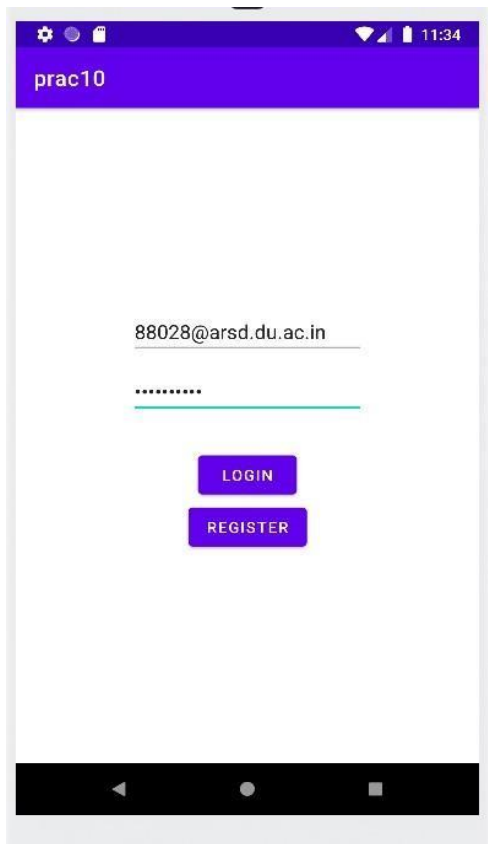
private User validateCredentials() {
    String email = etEmail.getText().toString().trim();
    String password = etPassword.getText().toString().trim();
}

```



```
if (email.length() == 0) {  
    etEmail.setError("Enter your e-mail address");  
    return null;  
}  
  
if (password.length() == 0) {  
    etPassword.setError("Enter your password");  
    return null;  
}  
  
return new User(email, password);  
}  
}
```

OUTPUT –



Practical 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.

Code:

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/etEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="240dp"
        android:autofillHints="false"
        android:ems="10"
        android:hint="@string/e_mail_id"
        android:inputType="textEmailAddress"
        app:layout_constraintBottom_toTopOf="@id/etPassword"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/etPassword"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:autofillHints="false"
        android:ems="10"
```

```
android:hint="@string/password"
android:inputType="textPassword"
app:layout_constraintBottom_toTopOf="@id/btnLogin"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@id/etEmail" />
```

```
<Button
    android:id="@+id/btnLogin"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:text="@string/login"
    app:layout_constraintBottom_toTopOf="@id/btnRegister"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/etPassword" />
```

```
<Button
    android:id="@+id/btnRegister"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="250dp"
    android:text="@string/register"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/btnLogin" />
```

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

Activity_member_module.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=".MemberModule">
```

```
<TextView
    android:id="@+id/tvWelcome"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/welcome"
    android:textAppearance="@style/TextAppearance.AppCompat.Display1"
    app:layout_constraintBottom_toTopOf="@id/tvEmail"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
    android:id="@+id/tvEmail"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text=""
    app:layout_constraintBottom_toTopOf="@id/btnLogout"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/tvWelcome" />
```

```
<Button
    android:id="@+id/btnLogout"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/log_out"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/tvEmail" />
```

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

MainActivity.java

```
package com.example.prac11;
```

```
import android.content.Intent;
```

```
import android.database.sqlite.SQLiteConstraintException;
```

```

import android.os.Bundle;
import android.util.Log;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac11.models.User;
import com.example.prac11.services.UserService;

public class MainActivity extends AppCompatActivity {
    private EditText etEmail;
    private EditText etPassword;
    private Button btnLogin;
    private Button btnRegister;
    private UserService userService;

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

        userService = UserService.getInstance();
        UserService.initDatabase(this);

        etEmail = (EditText) findViewById(R.id.etEmail);
        etPassword = (EditText) findViewById(R.id.etPassword);
        btnLogin = (Button) findViewById(R.id.btnLogin);
        btnRegister = (Button) findViewById(R.id.btnRegister);

        btnLogin.setOnClickListener(v -> {
            User user = validateCredentials();
            if (user != null) {
                try {
                    userService.login(user);
                    Toast.makeText(this, "Logged In", Toast.LENGTH_SHORT).show();
                    startActivity(new Intent(this, MemberModule.class));
                } catch (IllegalStateException illegalStateException) {
                    Toast.makeText(this, "Invalid E-mail/Password", Toast.LENGTH_SHORT).show();
                } catch (Exception e) {

```

```

        Log.d("TAG", e.getMessage());
        Toast.makeText(this, "Error", Toast.LENGTH_SHORT).show();
    }
}
});

btnRegister.setOnClickListener(v -> {
    User user = validateCredentials();
    if (user != null) {
        try {
            userService.register(user);
            Toast.makeText(this, "Registered", Toast.LENGTH_SHORT).show();
            startActivity(new Intent(this, MemberModule.class));
        } catch (SQLiteConstraintException sqLiteConstraintException) {
            Toast.makeText(this, "E-mail Already Used", Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            Toast.makeText(this, "Error", Toast.LENGTH_SHORT).show();
        }
    }
});
}

private User validateCredentials() {
    String email = etEmail.getText().toString().trim();
    String password = etPassword.getText().toString().trim();

    if (email.length() == 0) {
        etEmail.setError("Enter your e-mail address");
        return null;
    }

    if (password.length() == 0) {
        etPassword.setError("Enter your password");
        return null;
    }

    return new User(email, password);
}
}

```

MemberModule.java

```
package com.example.prac11;

import android.app.AlertDialog;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac11.models.User;
import com.example.prac11.services.UserService;

public class MemberModule extends AppCompatActivity {
    private User user;
    private UserService userService;
    private TextView tvEmail;
    private TextView btnLogout;

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

        userService = UserService.getInstance();
        user = userService.getUser();

        tvEmail = (TextView) findViewById(R.id.tvEmail);
        btnLogout = (TextView) findViewById(R.id.btnLogout);

        if (user == null) {
            super.finish();
        } else {
            tvEmail.setText(user.email);
        }

        btnLogout.setOnClickListener(v -> {
            new AlertDialog.Builder(this)
                .setTitle("Logout")
                .setMessage("Are you sure you want to log out?")
```

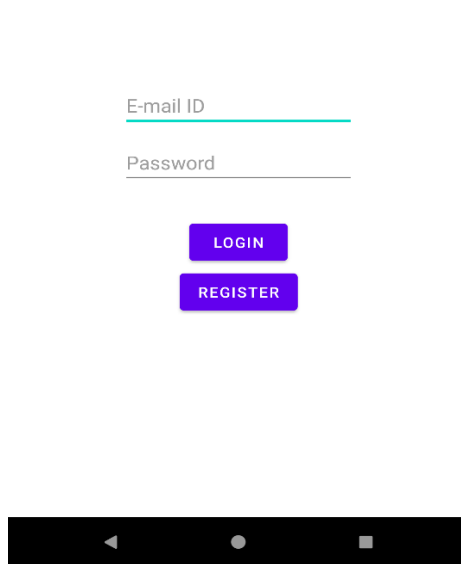


```

        .setPositiveButton(android.R.string.ok, (dialog, which) -> logoutUser())
        .setNegativeButton(android.R.string.cancel, null)
        .setIcon(android.R.drawable.ic_dialog_alert)
        .show();
    });
}
private void logoutUser() {
    userService.logout();
    Toast.makeText(this, "Logged Out", Toast.LENGTH_SHORT).show();
    super.finish();
}
}

```

OUTPUT –





E-mail ID !

Enter your e-mail address

88028@arsd.du.ac.in

REGISTER

88028@arsd.du.ac.in

Password !

Enter your password

LOGIN

REGISTER



Practical 12: Create an application to Create, Insert, update andDelete operation on the database.

Code:

activity_main.xml

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

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

```
<androidx.swiperefreshlayout.widget.SwipeRefreshLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/swipeLayout"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent">
```

```
<androidx.recyclerview.widget.RecyclerView
    android:id="@+id/rvTodos"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />
```

```
</androidx.swiperefreshlayout.widget.SwipeRefreshLayout>
```

```
<com.google.android.material.floatingactionbutton.FloatingActionButton
    android:id="@+id/fabAdd"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="end|bottom"
    android:layout_margin="16dp"
    android:src="@drawable/ic_add"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
```

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

Todo_item.xml

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<com.google.android.material.card.MaterialCardView
```

```
    xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    xmlns:app="http://schemas.android.com/apk/res-auto"
```

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

```
    android:layout_width="match_parent"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginHorizontal="@dimen/card_margin"
```

```
    android:layout_marginTop="@dimen/card_margin"
```

```
    app:cardCornerRadius="@dimen/cardview_default_radius"
```

```
    app:cardElevation="@dimen/cardview_default_elevation">
```

```
<RelativeLayout
```

```
    android:layout_width="match_parent"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_margin="@dimen/default_card_content_margin">
```

```
<TextView
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:visibility="invisible" />
```

```
<TextView
    android:id="@+id/tvTodoContent"
    style="@style/TextAppearance.MaterialComponents.Headline6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/default_todo_content" />
```

```
<TextView
    android:id="@+id/tvTodoAddedAt"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/tvTodoContent"
    android:layout_marginVertical="5dp"
    android:text="@string/default_todo_added_at" />
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/tvTodoAddedAt"
    android:orientation="horizontal">
```

```
<Button
    android:id="@+id/btnTodoAction"
    style="@style/Widget.MaterialComponents.Button.OutlinedButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/default_todo_action" />
```

```

        <Button
            android:id="@+id/btnTodoDelete"
            style="@style/Widget.MaterialComponents.Button.OutlinedButton"
            android:textColor="@android:color/holo_red_dark"
            android:layout_marginStart="10dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/default_todo_delete" />
    </LinearLayout>
</RelativeLayout>
</com.google.android.material.card.MaterialCardView>

```

Dialog_layout.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:paddingHorizontal="20dp"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <EditText
        android:id="@+id/etNewContent"
        android:inputType="text"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Content" />
</LinearLayout>

```

MainActivity.java

```
package com.example.prac12;

import android.app.AlertDialog;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import androidx.swiperefreshlayout.widget.SwipeRefreshLayout;

import com.google.android.material.floatingactionbutton.FloatingActionButton;

import com.example.prac12.adapters.RVAdapter;
import com.example.prac12.repos.TODORepository;

public class MainActivity extends AppCompatActivity implements
SwipeRefreshLayout.OnRefreshListener {
    private TODORepository todoRepository;
    private RecyclerView rvTodos;
    private RVAdapter todosAdapter;
    private SwipeRefreshLayout swipeLayout;

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

        todoRepository = new TODORepository(this);

        todosAdapter = new RVAdapter(this, todoRepository);

        swipeLayout = (SwipeRefreshLayout) findViewById(R.id.swipeLayout);
```

```

swipeLayout.setOnRefreshListener(this);

rvTodos = (RecyclerView) findViewById(R.id.rvTodos);
rvTodos.setAdapter(todosAdapter);
rvTodos.setLayoutManager(new LinearLayoutManager(this));

FloatingActionButton fabAdd = (FloatingActionButton) findViewById(R.id.fabAdd);
fabAdd.setOnClickListener(v -> {
    View layout = getLayoutInflater().inflate(R.layout.dialog_layout, null);
    EditText etNewContent = (EditText) layout.findViewById(R.id.etNewContent);
    AlertDialog dialog = new AlertDialog.Builder(this)
        .setView(layout)
        .setTitle("Add New Todo")
        .setPositiveButton("Save", (_dialog, which) -> {
            String content = etNewContent.getText().toString().trim();
            if (content.length() == 0) {
                Toast.makeText(this, "No Text Entered", Toast.LENGTH_SHORT).show();
            } else {
                todoRepository.create(content);
                loadTodos();
            }
        })
        .setNegativeButton("Cancel", (_dialog, which) -> _dialog.dismiss())
        .create();
    dialog.show();
});

loadTodos();
}

@Override
public void onRefresh() {
    loadTodos();
}

private void loadTodos() {
    swipeLayout.setRefreshing(true);
    todosAdapter.setTodos(todoRepository.getAll());
    swipeLayout.setRefreshing(false);
}
}

```


OUTPUT –

