

PRACTICAL: 1

Practical: 1

Aim: Design Login activity and implement control events: Use EditText, Checkbox and Buttons.

Program:

xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <LinearLayout
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:orientation="vertical"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        tools:ignore="UselessParent">
        <EditText
            android:id="@+id/edt1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginVertical="25dp"
            android:layout_marginLeft="25dp"
            android:layout_marginRight="40dp" android:autofillHints=""
            android:drawableStart="@drawable/ic_baseline_person_24"
            android:ems="10"
            android:hint="Username"
            android:inputType="textPersonName"
            android:textColorHint="#757575" />
        <EditText
            android:id="@+id/pass1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="20dp"
            android:layout_marginLeft="25dp"
            android:layout_marginRight="40dp"
            android:drawableStart="@drawable/ic_baseline_lock_24"
            android:drawableEnd="@drawable/ic_baseline_remove_red_eye_24"
            android:ems="10"
            android:hint="Password"
            android:inputType="textPassword"
            android:minHeight="48dp"
            android:autofillHints=""
```

```

        android:textColorHint="#757575" />

<CheckBox
    android:id="@+id/cb1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginHorizontal="25dp"
    android:text="IT" />
<CheckBox
    android:id="@+id/cb2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginHorizontal="25dp"
    android:text="CSE" />
<Button
    android:id="@+id/btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="Login" />
</LinearLayout>
</LinearLayout>

```

java file:

```

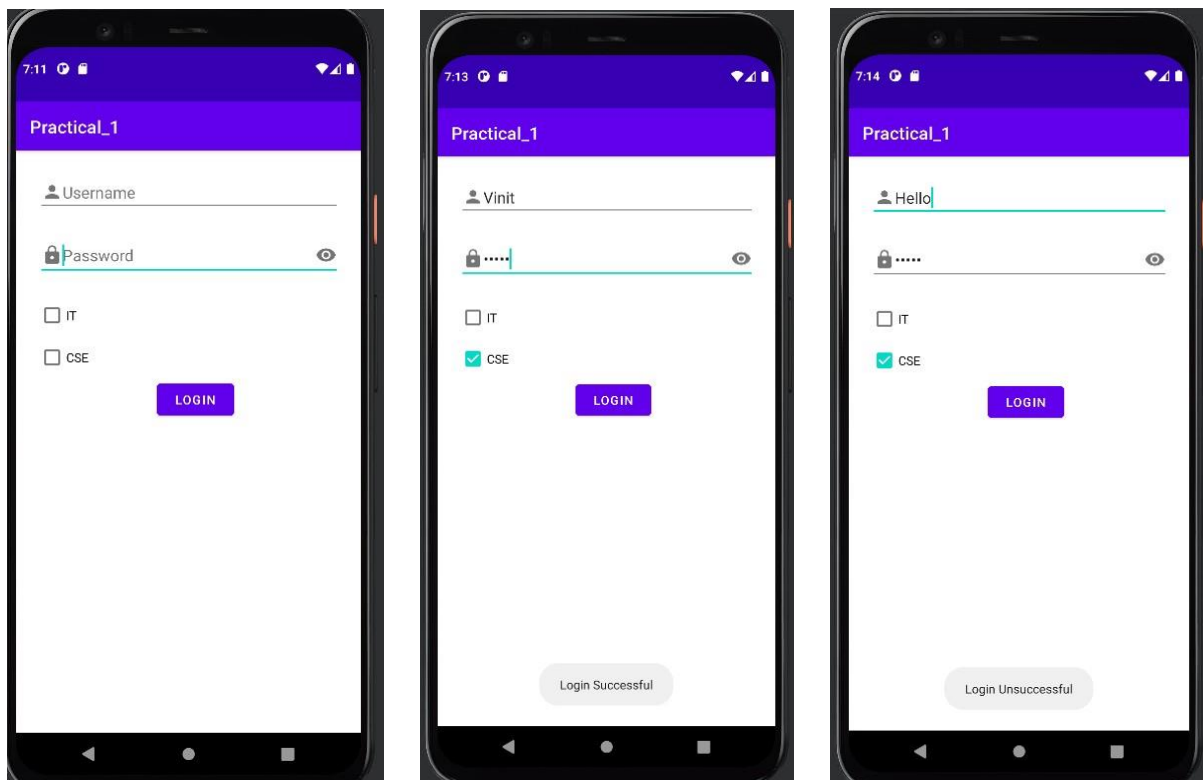
package com.example.practical_1;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button btn=(Button) findViewById(R.id.btn1); EditText
        edt=(EditText) findViewById(R.id.edt1); EditText
        pass=(EditText) findViewById(R.id.pass1);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(edt.getText().toString().equals("Vinit") &&
                    pass.getText().toString().equals("hello"))
                {
                    Toast.makeText(MainActivity.this, "Login Successful",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}

```

```
        else
        {
            Toast.makeText(MainActivity.this, "Login Unsuccessful",
Toast.LENGTH_SHORT).show();
        }
    }
});
}
}
```

Output:



PRACTICAL: 2

Practical: 2

Aim: Implement Practical 1 using the following layouts:

1. Linear Layout

Program:

xml file:

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

    <LinearLayout
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:orientation="vertical"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        tools:ignore="UselessParent">

        <EditText
            android:id="@+id/edt1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginVertical="25dp"
            android:layout_marginLeft="25dp"
            android:layout_marginRight="40dp" android:autofillHints=""
            android:drawableStart="@drawable/ic_baseline_person_24"
            android:ems="10"
            android:hint="Username"
            android:inputType="textPersonName"
            android:textColorHint="#757575" />

        <EditText
            android:id="@+id/pass1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="20dp"
            android:layout_marginLeft="25dp"
            android:layout_marginRight="40dp"
            android:drawableStart="@drawable/ic_baseline_lock_24"
            android:drawableEnd="@drawable/ic_baseline_remove_red_eye_24"
            android:ems="10"
```

```

    android:hint="Password"
    android:inputType="textPassword"
    android:minHeight="48dp"
    android:autofillHints=""
    android:textColorHint="#757575" />

```

```

<CheckBox
    android:id="@+id/cb1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginHorizontal="25dp"
    android:text="IT" />

```

```

<CheckBox
    android:id="@+id/cb2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginHorizontal="25dp"
    android:text="CSE" />

```

```

<Button
    android:id="@+id/btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="Login" />

```

```

</LinearLayout>

```

```

</LinearLayout>

```

java file:

```

package com.example.practical_1;

```

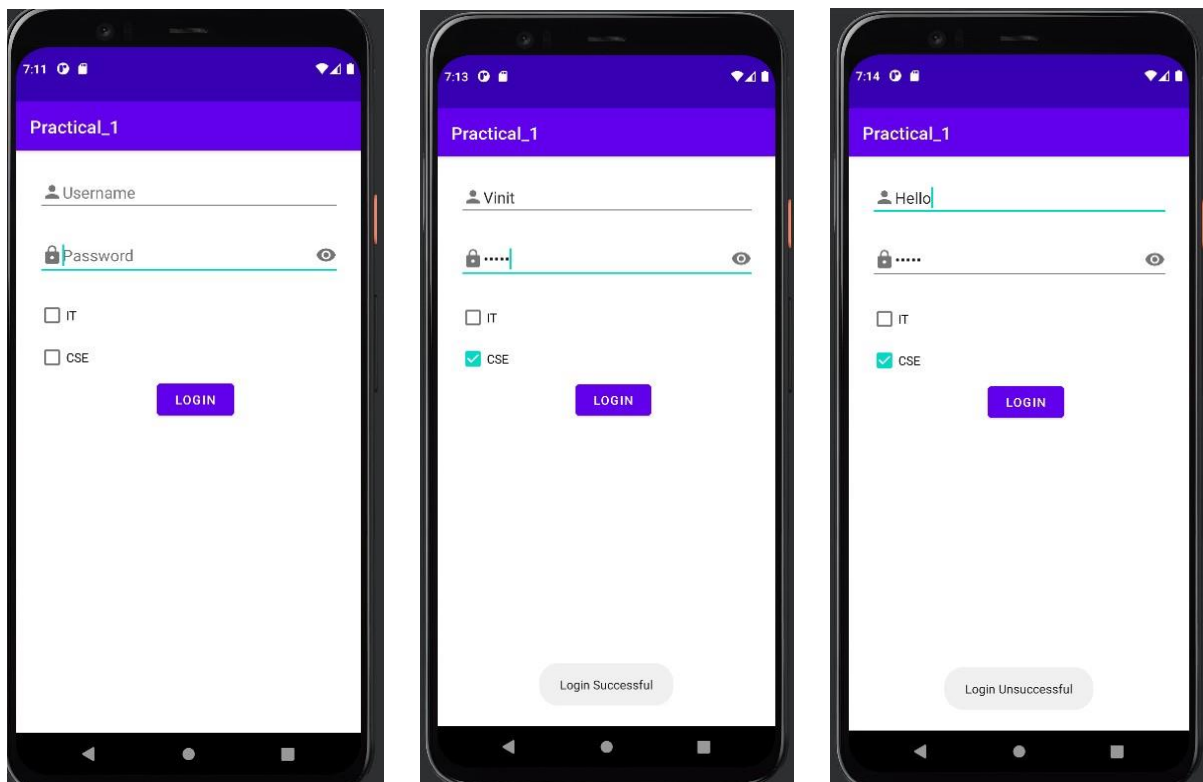
```

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button btn=(Button) findViewById(R.id.btn1); EditText
        edt=(EditText) findViewById(R.id.edt1); EditText
        pass=(EditText) findViewById(R.id.pass1);
        btn.setOnClickListener(new View.OnClickListener() {

```

```
@Override
public void onClick(View view) {
    if(edt.getText().toString().equals("Vinit") &&
        pass.getText().toString().equals("hello"))
    {
        Toast.makeText(MainActivity.this, "Login Successful",
Toast.LENGTH_SHORT).show();
    }
    else
    {
        Toast.makeText(MainActivity.this, "Login Unsuccessful",
Toast.LENGTH_SHORT).show();
    }
}
});
}
```

Output:



2. Relative Layout

Program:

xml file:

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

    <TextView android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="25dp"
        android:textColor="@color/black"
        android:textSize="35sp"
        android:textAllCaps="true"
        android:textStyle="bold"/>

    <EditText
        android:id="@+id/edt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:autofillHints=""
        android:ems="10"
        android:inputType="textPersonName"
        android:textColorHint="#757575"
        android:drawableStart="@drawable/ic_baseline_person_24"
        android:minHeight="48dp"
        android:hint="Username"
        tools:ignore="LabelFor,DuplicateSpeakableTextCheck"
        android:textSize="20sp"
        android:textColor="@color/black"/>

    <EditText
        android:id="@+id/edt2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
```

```

        android:layout_marginTop="155dp"
        android:textSize="20sp"
        android:drawableStart="@drawable/ic_baseline_lock_24"
        android:drawableEnd="@drawable/ic_baseline_remove_red_eye_24"
        android:ems="10"
        android:hint="Password"
        android:inputType="textPassword"
        android:minHeight="48dp"
        android:textColorHint="#757575"
        tools:ignore="Autofill,HardcodedText"
        android:textColor="@color/black"/>

<CheckBox
    android:id="@+id/cb"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="220dp"
    android:text="Proceed"
    android:textSize="15sp"
    android:textColor="@color/black" />

<Button
    android:id="@+id/btn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="290dp"
    android:textSize="30sp"
    android:text="Login"
    tools:ignore="HardcodedText,DuplicateSpeakableTextCheck"
    android:textStyle="bold" />

</RelativeLayout>

```

java file:

```

package com.example.relativelayout;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {

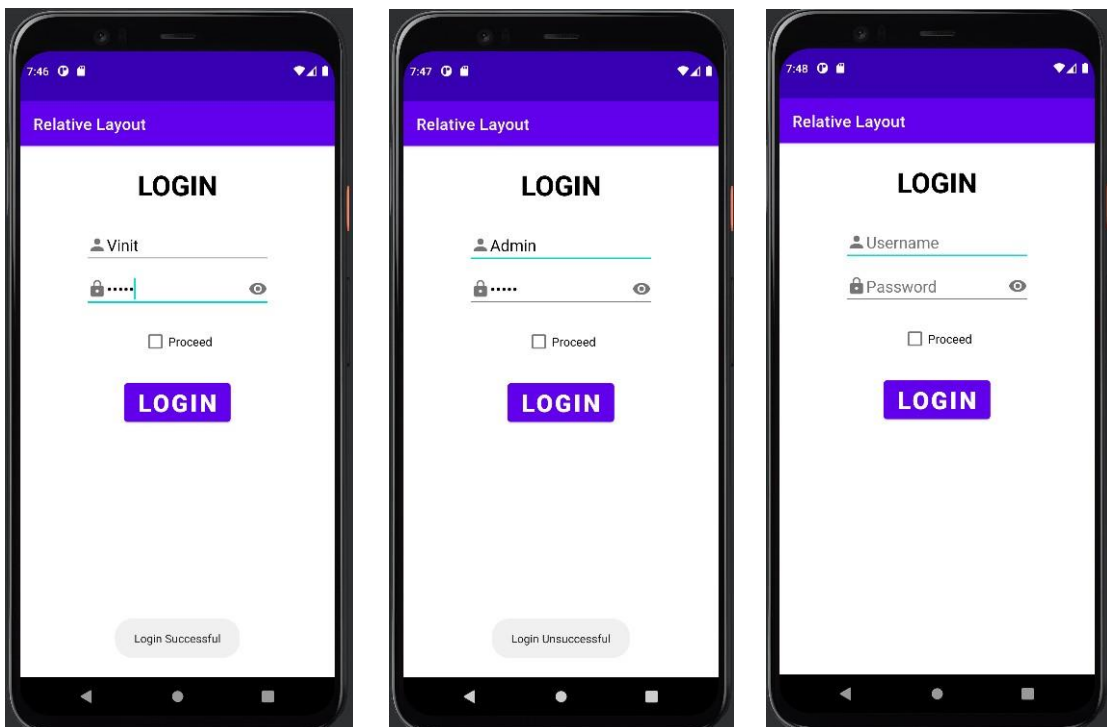
```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Button btn=(Button) findViewById(R.id.btn);
EditText edt=(EditText) findViewById(R.id.edt1);
EditText pass=(EditText) findViewById(R.id.edt2);
btn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(edt.getText().toString().equals("Vinit") &&
            pass.getText().toString().equals("hello"))
        {
            Toast.makeText(MainActivity.this, "Login Successful",
Toast.LENGTH_SHORT).show();
        }
        else
        {
            Toast.makeText(MainActivity.this, "Login Unsuccessful",
Toast.LENGTH_SHORT).show();
        }
    }
});
}
}

```

Output:



3. Table Layout

Program:

xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout 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/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20sp"
        android:text="Login"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="40sp"
        android:textStyle="bold" />

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="20sp"
        android:layout_gravity="center">

        <TextView
            android:id="@+id/tv2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Name"
            android:textColor="@color/black"
            android:textSize="20sp"
            android:layout_marginStart="30sp" />

        <EditText
            android:id="@+id/ed1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginStart="10sp"
            android:hint="Username"
            android:autofillHints=""
            android:ems="10"
            android:inputType="textPersonName"
```

```
android:textColorHint="#757575"
tools:ignore="TouchTargetSizeCheck,DuplicateSpeakableTextCheck"
android:drawableStart="@drawable/ic_baseline_person_24"
android:textSize="20sp"
android:textColor="@color/black"/>
```

```
</TableRow>
```

```
<TableRow
```

```
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginTop="20sp"
    android:layout_gravity="center">
```

```
    <TextView
```

```
        android:id="@+id/tv3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Password"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:layout_marginStart="30sp" />
```

```
    <EditText
```

```
        android:id="@+id/ed2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Password"
        android:inputType="textPassword"
        android:textColorHint="#757575"
        tools:ignore="TouchTargetSizeCheck,DuplicateSpeakableTextCheck"
        android:autofillHints=""
        android:layout_marginStart="10sp"
        android:drawableEnd="@drawable/ic_baseline_remove_red_eye_24"
        android:drawableStart="@drawable/ic_baseline_lock_24"
        android:textSize="20sp"
        android:textColor="@color/black"/>
```

```
</TableRow>
```

```
<CheckBox
```

```
    android:id="@+id/cb"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20sp"
    android:text="Proceed"
    android:textSize="15sp"
    android:textColor="@color/black"
    android:layout_marginStart="30sp" />
```

```

<Button
    android:id="@+id/btn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Login"
    android:textSize="25sp"
    android:textStyle="bold"
    android:layout_marginStart="80sp"
    android:layout_marginEnd="80sp"
    tools:ignore="DuplicateSpeakableTextCheck" />

```

```

</TableLayout>

```

java file:

```

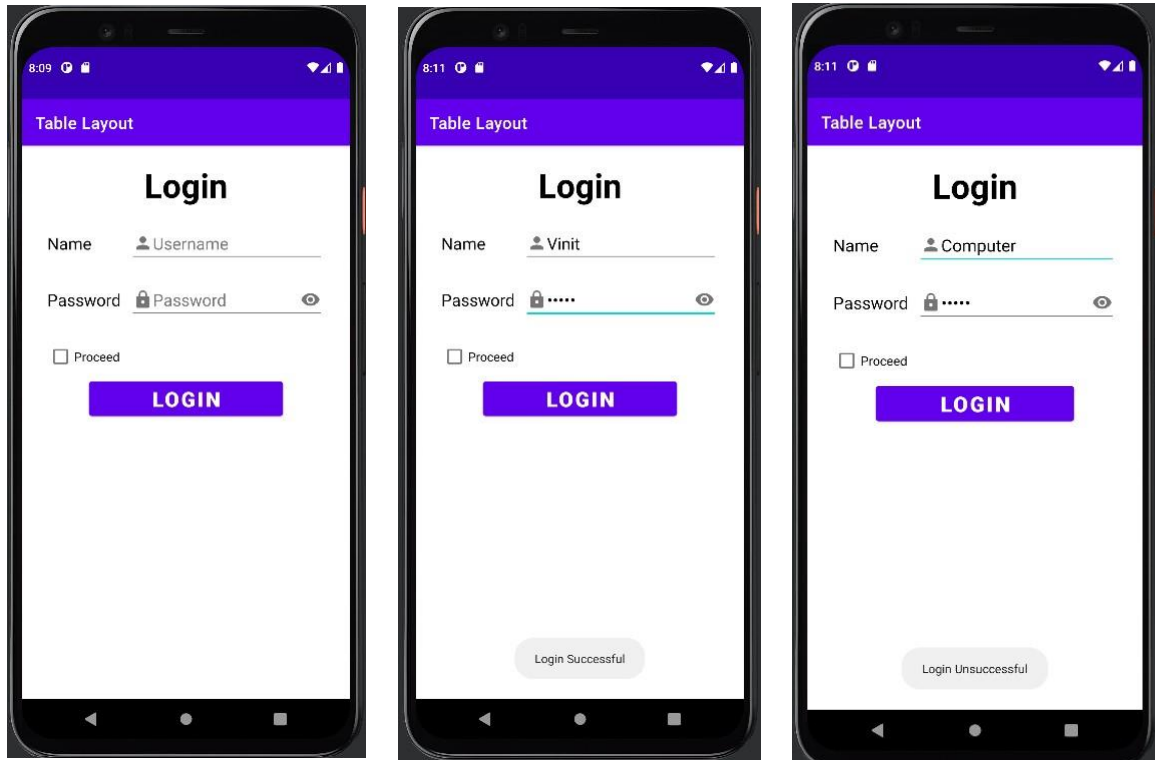
package com.example.tablelayout;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main); Button
        btn = (Button) findViewById(R.id.btn);
        EditText edt = (EditText) findViewById(R.id.ed1);
        EditText pass = (EditText) findViewById(R.id.ed2);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(edt.getText().toString().equals("Vinit") &&
                    pass.getText().toString().equals("hello"))
                {
                    Toast.makeText(MainActivity.this, "Login Successful",
Toast.LENGTH_SHORT).show();
                }
                else
                {
                    Toast.makeText(MainActivity.this, "Login Unsuccessful",
Toast.LENGTH_SHORT).show();
                }
            }
        }
    }
}

```

```
}  
});  
}  
}
```

Output:

PRACTICAL: 3

Practical: 3

Aim: Create Activity and perform following:

1. **Implicit Intent**
2. **Explicit Intent**
3. **Start Activity for result**

Program:

Activity_main.xml file:

```
<?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="32dp"
        android:text="Practical-3"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.058"
        />

    <Button
```

```
android:id="@+id/button"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="120dp"  
android:layout_marginTop="32dp"  
android:text="implicit intent"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toBottomOf="@+id/textView" />
```

<Button

```
android:id="@+id/button2"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="120dp"  
android:layout_marginTop="32dp" android:text="Explicit  
INTENT" app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toBottomOf="@+id/button" />
```

<Button

```
android:id="@+id/button3"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="70dp"  
android:layout_marginTop="32dp"  
android:text="Start Activity For Result"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toBottomOf="@+id/button2" />
```

<TextView

```
android:id="@+id/textView2"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_marginStart="140dp"
```

```
        android:layout_marginTop="32dp"
        android:text="DEFAULT MESSAGE"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button3" />

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

MainActivity.java file:

```
package com.example.practical_3;

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

public class MainActivity extends AppCompatActivity {
    TextView textView2;

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

        Button implicit = findViewById(R.id.button);
        Button explicit = findViewById(R.id.button2);

        Button StartActivityResultButton = findViewById(R.id.button3);
        textView2=(TextView)findViewById(R.id.textView2);
        implicit.setOnClickListener(new View.OnClickListener() {
            public void onClick(View view) {

                Intent intent=new Intent(Intent.ACTION_VIEW);
                intent.setData(Uri.parse("http://www.google.com"));
                startActivity(intent);
            }
        });
    }
}
```

```

    }}

);

explicit.setOnClickListener(new View.OnClickListener() {

    public void onClick(View view) {

        Intent i = new Intent(getApplicationContext(),
            Explicit.class);

        startActivity(i);}

    }

});

StartActivityForResultButton.setOnClickListener(new View.OnClickListener()

{

    public void onClick(View view) { Intent i = new Intent(getApplicationContext(),
        StartActivityForResult.class);

        startActivityForResult(i, 2);}

    }

});

}

@Override

protected void onActivityResult(int requestCode, int resultCode, Intent data)

{

    super.onActivityResult(requestCode, resultCode, data);

    // check if the request code is same as what is passed here it is 2 if(requestCode==2)

    {

        String message=data.getStringExtra("MESSAGE"); textView2.setText(message);

    }

}

}

```

Activity_explicit.xml file:

```

<?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=".Explicit">

<TextView android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Explicit intent"
    android:textAppearance="@style/TextAppearance.AppCompat.Display1"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

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

Explicit.java file:

```
package com.example.practical_3;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;

public class Explicit extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_explicit);
    }
}
```

Activity_start_activity_for_result.xml file:

```
<?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=".StartActivityForResult">
```

```
    <TextView android:id="@+id/textView3"
```

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

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

```
        android:text="Enter a message!"
```

```
        android:textAppearance="@style/TextAppearance.AppCompat.Display2"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintHorizontal_bias="0.492"
```

```
        app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.259"
```

```
    />
```

```
    <EditText android:id="@+id/editTextTextPersonName"
```

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

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

```
        android:ems="10"
```

```
        android:inputType="textPersonName"
```

```
        android:text="Enter the message here"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintHorizontal_bias="0.497"
```

```
        app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/textView3"
app:layout_constraintVertical_bias="0.168" />

<Button

    android:id="@+id/button4"

    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Send"

    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
    app:layout_constraintVertical_bias="0.167" />

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

StartActivityForResult.java file:

```
package com.example.practical_3;

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

public class StartActivityForResult extends AppCompatActivity {

    EditText editText1;

    Button button1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
```

```

setContentView(R.layout.activity_start_activity_for_result);

editText1=(EditText)findViewById(R.id.editTextTextPersonName);

button1=(Button)findViewById(R.id.button4);

button1.setOnClickListener(new View.OnClickListener() {

```

@Override

```

public void onClick(View arg0) {

    String message=editText1.getText().toString();

    Intent intent=new Intent();

    intent.putExtra("MESSAGE",message);

    setResult(2,intent);

    finish();//finishing activity

}

});}

}

```

Output:

main activity:

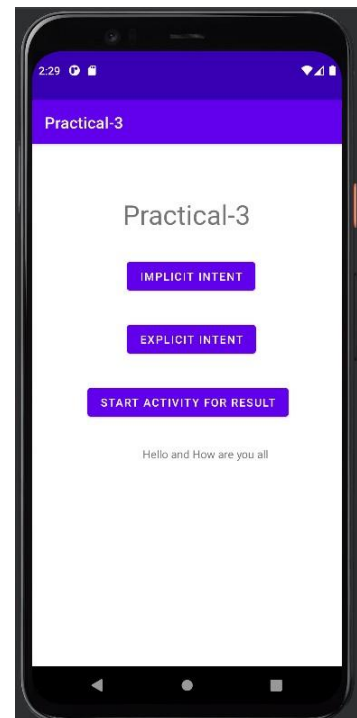


Implicit:



Explicit:



Start activity for result:

PRACTICAL: 4

Practical: 4

Aim: Implement activity Lifecycle and State Callbacks

Program:

MainActivity.java

```
package com.example.practical4;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.util.Log;

public class MainActivity extends AppCompatActivity

    { @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");
}
}

```

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/txt
        1"

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Practical 4"
        android:textSize="34sp"
        android:textColor="@color/black"

```

```

        app:layout_constraintBottom_toBottomOf="paren
t"app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.201"/>

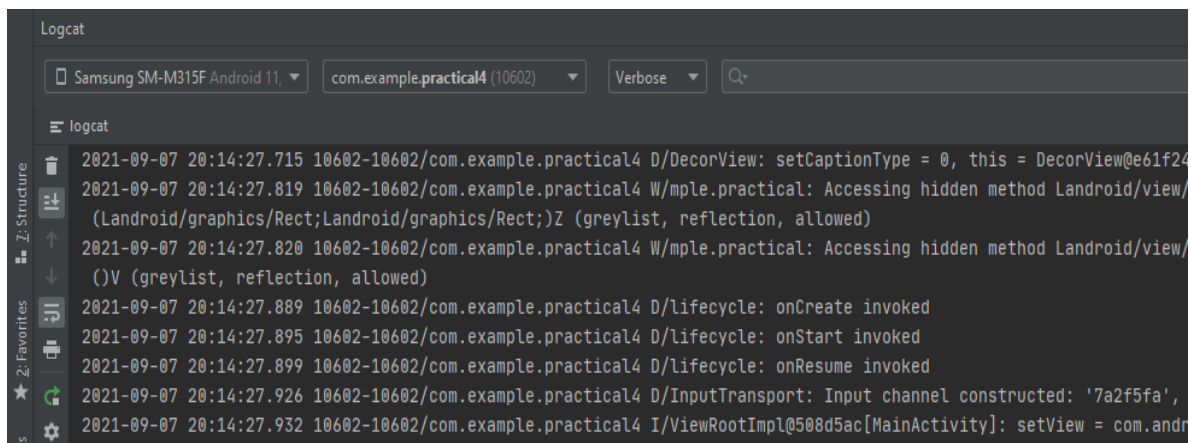
<TextView
    android:layout_width="wrap_content
    "
    android:layout_height="wrap_conten
t"android:text="Activity Lifecycle"
    android:textColor="@color/black"
    android:textSize="34sp"
    app:layout_constraintBottom_toBottomOf="paren
t"app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt
1"app:layout_constraintVertical_bias="0.378"/>

</androidx.constraintlayout.widget.ConstraintLayout>

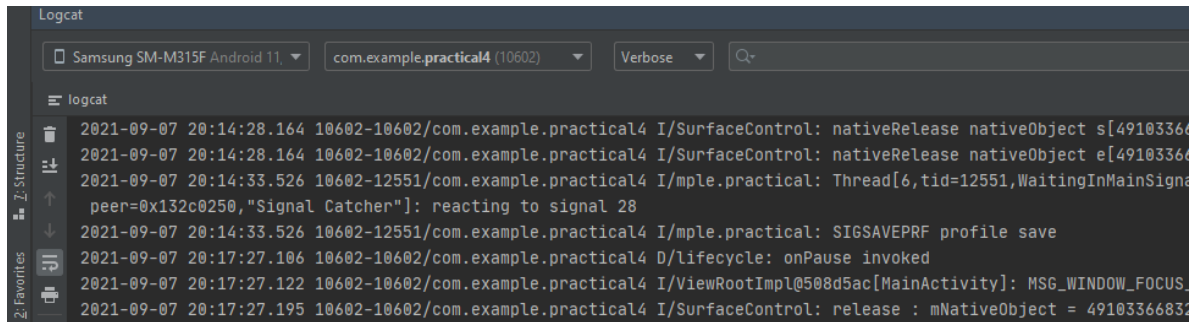
```

Output:

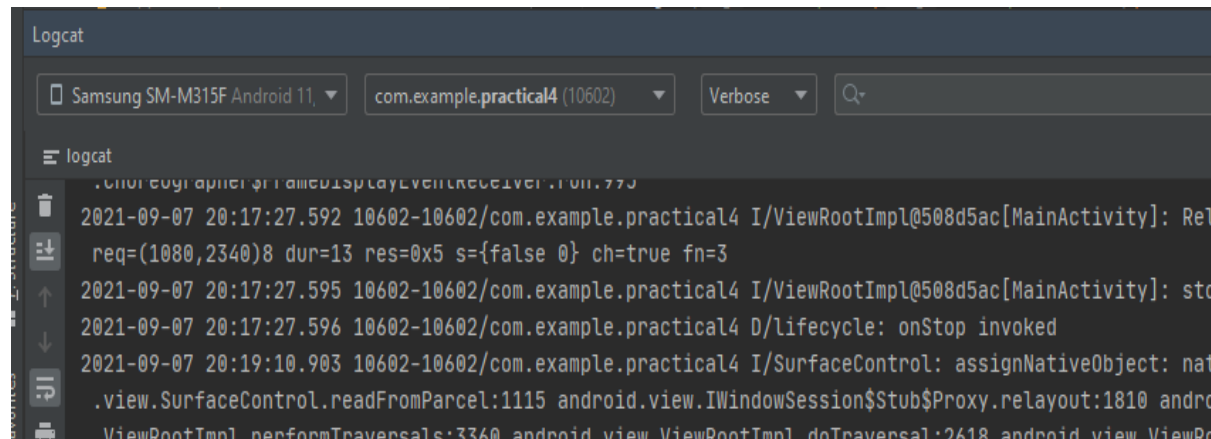
onCreate(), onStart(), onResume()



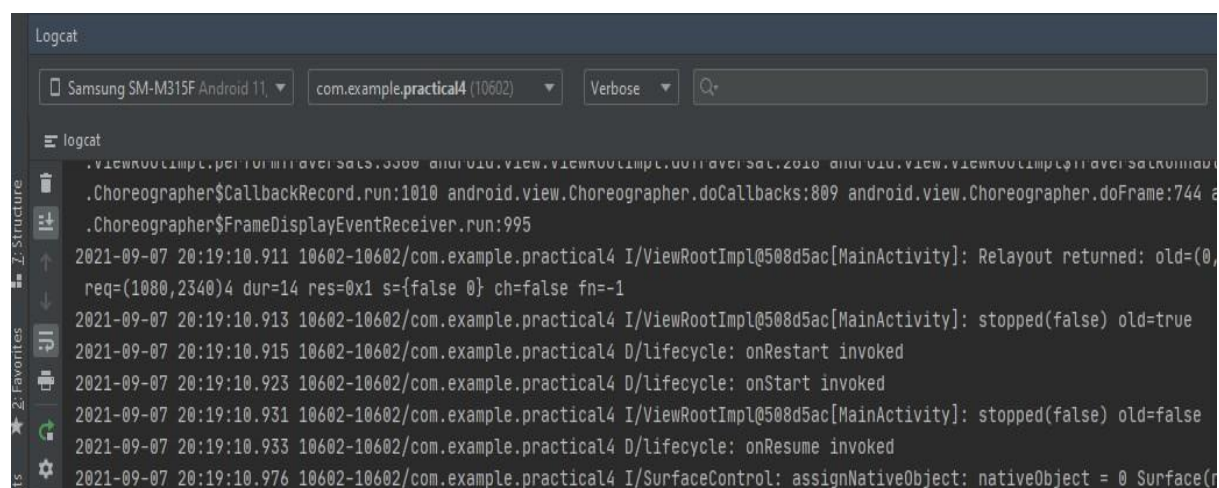
onPause()



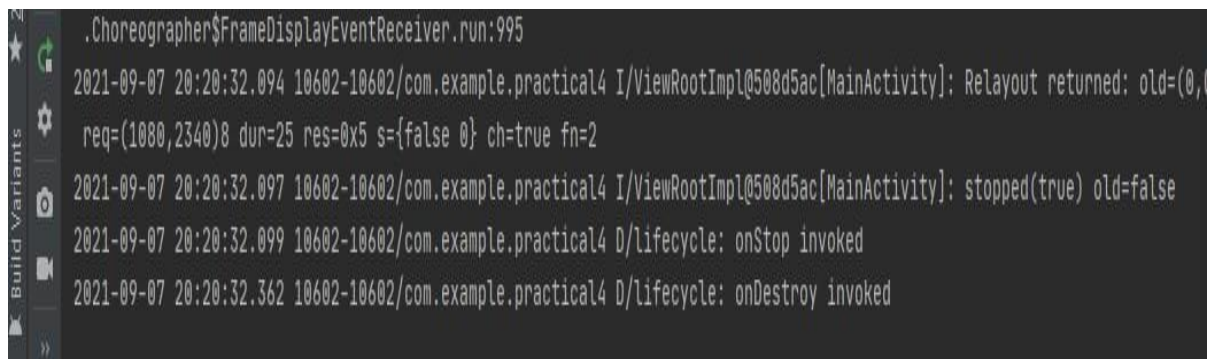
onStop()



onRestart(), onStart(), onResume()



onDestroy()

A screenshot of the Android Studio logcat window. The window has a dark background with a vertical toolbar on the left containing icons for 'Build Variants', 'Logcat', 'Performance', 'Network', 'Crash', and 'Debug'. The logcat text shows the following sequence of events:

```
.Choreographer$FrameDisplayEventReceiver.run:995
2021-09-07 20:20:32.094 10602-10602/com.example.practical4 I/ViewRootImpl@508d5ac[MainActivity]: Relayout returned: old=(0,0) new=(1080,2340)8 dur=25 res=0x5 s={false 0} ch=true fn=2
2021-09-07 20:20:32.097 10602-10602/com.example.practical4 I/ViewRootImpl@508d5ac[MainActivity]: stopped(true) old=false
2021-09-07 20:20:32.099 10602-10602/com.example.practical4 D/lifecycle: onStop invoked
2021-09-07 20:20:32.362 10602-10602/com.example.practical4 D/lifecycle: onDestroy invoked
```

PRACTICAL: 5

Practical: 5

Aim: Use an Options Menu.

Program:

MainActivity.java

```
package com.example.practical5;

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

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.Toast;

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) {
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.option_menu, menu); return
        true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {switch(item.getItemId()){
        case R.id.item1:
            Toast.makeText(this, "Item 1 is selected", Toast.LENGTH_SHORT).show();
        case R.id.item2:
            Toast.makeText(this, "Item 2 is selected", Toast.LENGTH_SHORT).show();
        case R.id.item3:
            Toast.makeText(this, "Item 3 is selected", Toast.LENGTH_SHORT).show();
        case R.id.subitem1:
            Toast.makeText(this, "Sub Item 1 is selected", Toast.LENGTH_SHORT).show();
        case R.id.subitem2:
            Toast.makeText(this, "Sub Item 2 is selected", Toast.LENGTH_SHORT).show();
        default:
            return super.onOptionsItemSelected(item);
    }
```

```

    }
}
}

```

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"
    android:background="#8357E3"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Practical 5" android:textSize="34sp"
        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.201" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Option Menu"
        android:textSize="34sp"
        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"

```

```
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt1"
    app:layout_constraintVertical_bias="0.378" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

option_menu.xml

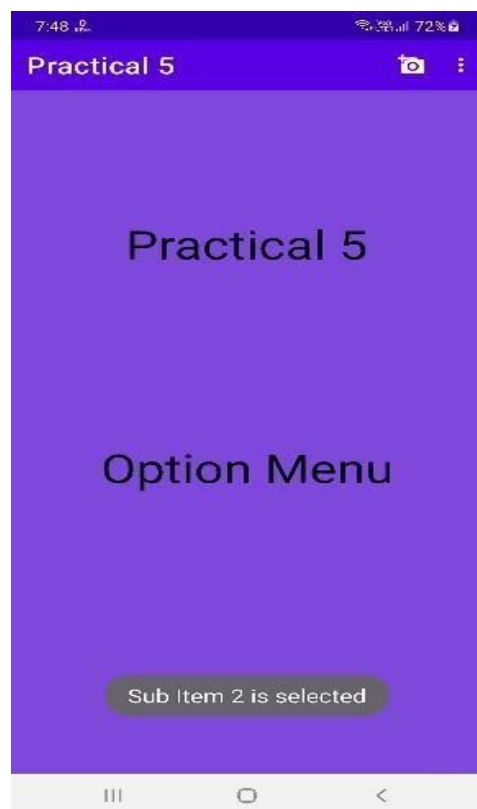
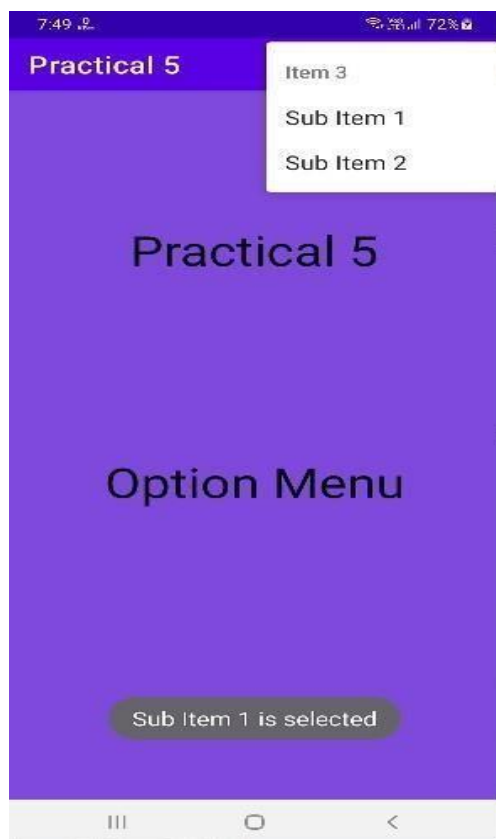
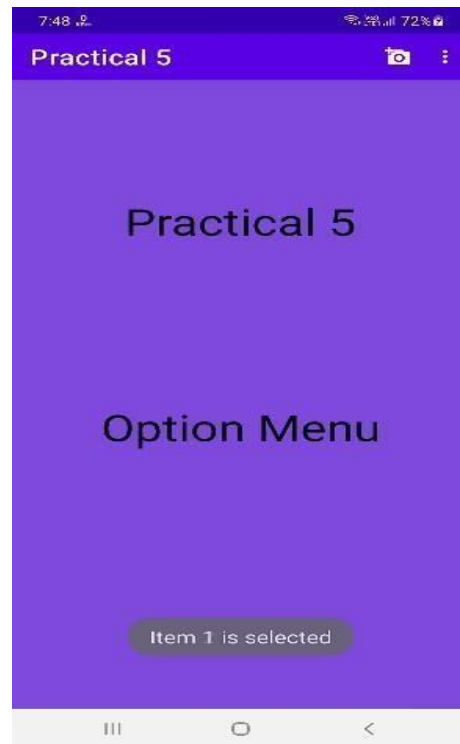
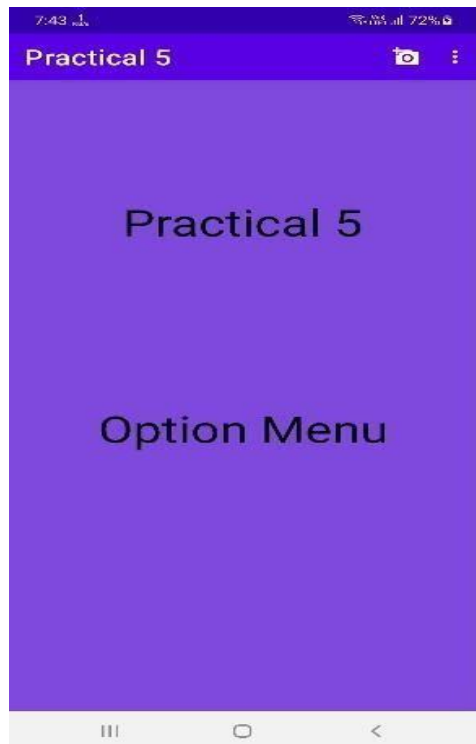
```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">

    <item
        android:id="@+id/item1"
        android:icon="@drawable/ic_icon"
        android:title="Item 1"
        app:showAsAction="ifRoom"/>
    <item
        android:id="@+id/item2"
        android:title="Item 2"
        app:showAsAction="never"/>
    <item
        android:id="@+id/item3"
        android:title="Item 3"
        app:showAsAction="never">
        <menu>
            <item
                android:id="@+id/subitem1"
                android:title="Sub Item 1"/>
            <item
                android:id="@+id/subitem2"
                android:title="Sub Item 2"/>

        </menu>
    </item>>
</menu>
```

Output:

Home Screen

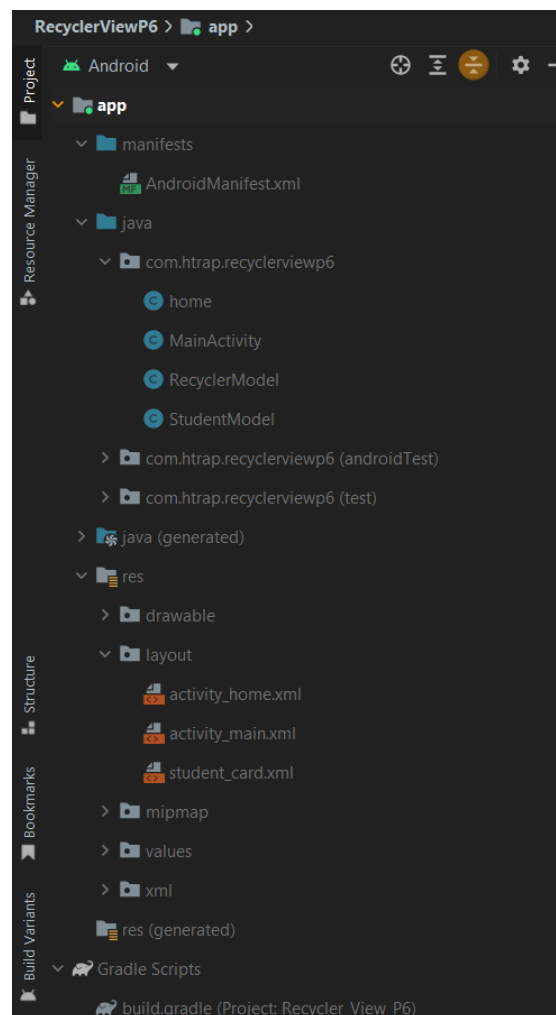


PRACTICAL: 6

Practical: 6

Aim: Create a Recycler View and list the details of student using following fields:

- 1. Name**
- 2. Address**
- 3. Photo (Image)**
- 4. Delete (Button Operation)**



Program

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:gravity="center"
    tools:context=".MainActivity"
    android:orientation="vertical">
    <androidx.cardview.widget.CardView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:cardCornerRadius="100dp"
        app:cardBackgroundColor="@color/black">
        <ImageView
            android:padding="30dp"
            android:layout_width="200dp"
            android:layout_height="200dp"
            android:src="@drawable/image_app_icon"
        />
    </androidx.cardview.widget.CardView>
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Practical - 6"
        android:textAlignment="center"
        android:textSize="36sp"
        android:textStyle="bold"
```

```
        android:textColor="@color/black"
        android:layout_marginTop="10dp"
    />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="14dp"
    android:orientation="horizontal"
    >
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Aim:"
        android:textSize="24sp"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:layout_marginTop="10dp"
    />

    <TextView
        android:layout_marginLeft="15dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Create a Recycler View and list the details of student"
        android:textSize="24sp"
        android:textColor="@color/black"
        android:layout_marginTop="10dp"
    />
</LinearLayout>

<Button
```



```
        android:id="@+id/next"
        android:layout_marginTop="30dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next"
        android:textAllCaps="false"
        android:drawableLeft="@drawable/ic_baseline_arrow_right_alt_24"
        android:textColor="@color/white"
        android:theme="@style/Animation.Design.BottomSheetDialog"
    />
</LinearLayout>
```

activity_home.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=".home">

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

</RelativeLayout>
```

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

```
android:layout_margin="8dp">
<androidx.cardview.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    app:cardElevation="2dp"
    app:cardCornerRadius="5dp"
>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

<LinearLayout
    android:layout_marginLeft="10dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
>
<ImageView
    android:padding="2dp"
    android:layout_width="100dp"
    android:layout_height="100dp"
    android:id="@+id/imgbtn"
    android:src="@drawable/ic_launcher_foreground"/>
</LinearLayout>
<LinearLayout
    android:layout_marginLeft="10dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">
<TextView
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
```

```
        android:text="@string/parth_bhatia"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:textSize="25dp"/>
    <TextView
        android:layout_marginTop="5dp"
        android:id="@+id/address"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/parth_add"
        android:textColor="@color/black"
        android:textSize="15dp"/>
    <Button
        android:id="@+id/delButton"
        android:layout_marginTop="5dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:drawableLeft="@drawable/ic_baseline_delete_24"
        android:text="Delete"
        android:textAllCaps="false"
    />
</LinearLayout>
</LinearLayout>
</androidx.cardview.widget.CardView>
</LinearLayout>
```

MainActivity.java

```
package com.httrap.recyclerviewp6;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
```

```
import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {

    Button next_btn;
    int flag=0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        next_btn = findViewById(R.id.next);
        Intent intent = new Intent(MainActivity.this,home.class);

        new Handler().postDelayed(new Runnable() {
            @Override
            public void run() {
                if(flag==0) {
                    startActivity(intent);
                    finish();
                }
            }
        },2000);
        next_btn.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                flag=1;
                startActivity(intent);
                finish();
            }
        });
    }
}
```

home.java

```
package com.httrap.recyclerviewp6;

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

import android.os.Bundle;
import java.util.ArrayList;

public class home extends AppCompatActivity

RecyclerView recyclerView; ArrayList<StudentModel>
list = new ArrayList<>();RecyclerViewModel adapter;

@Override

protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_home);

    recyclerView = findViewById(R.id.recycleview);
    recyclerView.setLayoutManager(new LinearLayoutManager(this));

    list.add(new
StudentModel(R.drawable.a,getString(R.string.parth_bhatia),getString(R.string.parth_add)));

    list.add(new
StudentModel(R.drawable.b,getString(R.string.keertan_bhatt),getString(R.string.keertan_add
)));

    list.add(new
StudentModel(R.drawable.c,getString(R.string.mustafa),getString(R.string.mustafa_add)));
```

```
list.add(new
StudentModel(R.drawable.d,getString(R.string.vedant),getString(R.string.vedant_add)));

list.add(new
StudentModel(R.drawable.e,getString(R.string.meet),getString(R.string.meet_add)));

list.add(new
StudentModel(R.drawable.f,getString(R.string.rakesh),getString(R.string.rakesh_add
)));

list.add(new
StudentModel(R.drawable.g,getString(R.string.ruchit),getString(R.string.ruchit_add
)));

list.add(new
StudentModel(R.drawable.a,getString(R.string.parth_bhatia),getString(R.string.parth_add)));

list.add(new
StudentModel(R.drawable.b,getString(R.string.keertan_bhatt),getString(R.string.keertan_add
)));

list.add(new
StudentModel(R.drawable.c,getString(R.string.mustafa),getString(R.string.mustafa_add)));

list.add(new
StudentModel(R.drawable.d,getString(R.string.vedant),getString(R.string.vedant_add)));

list.add(new
StudentModel(R.drawable.e,getString(R.string.meet),getString(R.string.meet_add)));

list.add(new
StudentModel(R.drawable.f,getString(R.string.rakesh),getString(R.string.rakesh_add
)));

list.add(new
StudentModel(R.drawable.g,getString(R.string.ruchit),getString(R.string.ruchit_add)));

list.add(new
StudentModel(R.drawable.a,getString(R.string.parth_bhatia),getString(R.string.parth_add
)));

list.add(new
StudentModel(R.drawable.b,getString(R.string.keertan_bhatt),getString(R.string.keertan_add
)));

list.add(new
StudentModel(R.drawable.c,getString(R.string.mustafa),getString(R.string.mustafa_add
)));

list.add(new
StudentModel(R.drawable.d,getString(R.string.vedant),getString(R.string.vedant_add)));

list.add(new
```

```
list.add(new
StudentModel(R.drawable.f,getString(R.string.rakesh),getString(R.string.rakesh_
add)));

list.add(new
StudentModel(R.drawable.g,getString(R.string.ruchit),getString(R.string.ruchit_add)));

list.add(new
StudentModel(R.drawable.a,getString(R.string.parth_bhatia),getString(R.string.parth_add
)));

list.add(new
StudentModel(R.drawable.b,getString(R.string.keertan_bhatt),getString(R.string.keertan_add
)));

list.add(new
StudentModel(R.drawable.c,getString(R.string.mustafa),getString(R.string.mustafa_add
)));

list.add(new
StudentModel(R.drawable.d,getString(R.string.vedant),getString(R.string.vedant_add)));

list.add(new
StudentModel(R.drawable.e,getString(R.string.meet),getString(R.string.meet_add)));

list.add(new
StudentModel(R.drawable.f,getString(R.string.rakesh),getString(R.string.rakesh_add)));

list.add(new
StudentModel(R.drawable.g,getString(R.string.ruchit),getString(R.string.ruchit_add)));

list.add(new
StudentModel(R.drawable.a,getString(R.string.parth_bhatia),getString(R.string.parth_add
)));

list.add(new
StudentModel(R.drawable.b,getString(R.string.keertan_bhatt),getString(R.string.keertan_add
)));

list.add(new
StudentModel(R.drawable.c,getString(R.string.mustafa),getString(R.string.mustafa_add
)));

list.add(new
StudentModel(R.drawable.d,getString(R.string.vedant),getString(R.string.vedant_add)));

list.add(new
StudentModel(R.drawable.e,getString(R.string.meet),getString(R.string.meet_add)));

list.add(new
StudentModel(R.drawable.f,getString(R.string.rakesh),getString(R.string.rakesh_add
)));

list.add(new
```

```
StudentModel(R.drawable.g.getString(R.string.ruchit),getString(R.string.ruchit_add)))
;
adapter =new
    RecyclerViewModel(this,list);
recyclerView.setAdapter(adapter);
}
}
```

StudentModel.java

```
package com.htrap.recyclerviewp6;

public class StudentModel {

    public String name,
    Address;public int img;

    public StudentModel(int img,String name, String address) {
        this.name      =
        name; Address =
        address; this.img
        = img;
    }

    public String getName()
    {return name;
    }

    public void setName(String name)
    {this.name = name;
    }

    public String getAddress()
    {return Address;
    }

    public void setAddress(String address)
    {Address = address;
    }
}
```



```
public int getImg()
{
    return img;
}

public void setImg(int img)
{
    this.img = img;
}
}
```

RecyclerModel.java

```
package com.httrap.recyclerviewp6;

import
android.annotation.SuppressLint;
import android.content.Context;

import
android.content.DialogInterface;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import
android.widget.ImageButton;
import
android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AlertDialog;
import androidx.recyclerview.widget.RecyclerView;

import java.util.ArrayList;
```

```
public class RecyclerModel extends RecyclerView.Adapter<RecyclerModel.ViewHolder> {

    private final Context context;

    private final ArrayList<StudentModel> studentModelArrayList;

    public RecyclerModel(Context context, ArrayList<StudentModel> studentModels)
    {
        this.context = context;
        this.studentModelArrayList = studentModels;
    }

    @NonNull
    @Override
    public ViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType)
    {
        View v = LayoutInflater.from(context).inflate(R.layout.student_card, parent, false);
        return new ViewHolder(v);
    }

    @Override
    public void onBindViewHolder(@NonNull ViewHolder holder, @SuppressWarnings("RecyclerView") int position) {
        holder.name.setText(studentModelArrayList.get(position).name);
        holder.address.setText(studentModelArrayList.get(position).Address);
        holder.img.setImageResource(studentModelArrayList.get(position).img);

        holder.delBtn.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v) {
                AlertDialog.Builder builder = new AlertDialog.Builder(context)
                    .setTitle("Delete Student")
                    .setMessage("Are you sure want to Delete ?")
                    .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
                        @Override
                        public void onClick(DialogInterface dialog, int which) {
                            studentModelArrayList.remove(position);
                            notifyDataSetChanged();
                        }
                    })
                    .setNegativeButton("No", null)
                    .create();
                builder.show();
            }
        });
    }
}
```

```

        .setIcon(R.drawable.ic_baseline_delete_24)
        .setPositiveButton("yes", new DialogInterface.OnClickListener()
            { @Override
                public void onClick(DialogInterface dialog, int which)
                    { studentModelArrayList.remove(position);
                      notifyItemRemoved(position);
                    }
            })
        .setNegativeButton("No", new DialogInterface.OnClickListener()
            { @Override
                public void onClick(DialogInterface dialog, int which) {
                    Toast.makeText(context, "Data is not
Deleted!", Toast.LENGTH_SHORT).show();
                }
            });

        builder.show();
    }
});
}

@Override

public int getItemCount() {return studentModelArrayList.size();}
public class ViewHolder extends RecyclerView.ViewHolder{

    TextView name;
    TextView
    address;
    ImageView img;
    Button delBtn;

    public ViewHolder(@NonNull View itemView)
        { super(itemView);

```

```

        address = itemView.findViewById(R.id.address);

        img = itemView.findViewById(R.id.imgbtn);

        delBtn =
            itemView.findViewById(R.id.delButton);

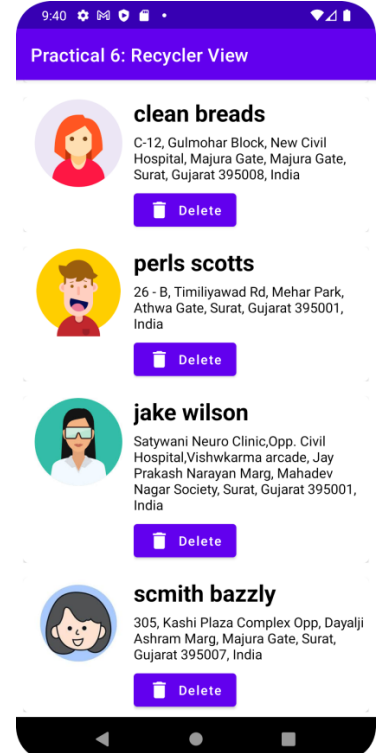
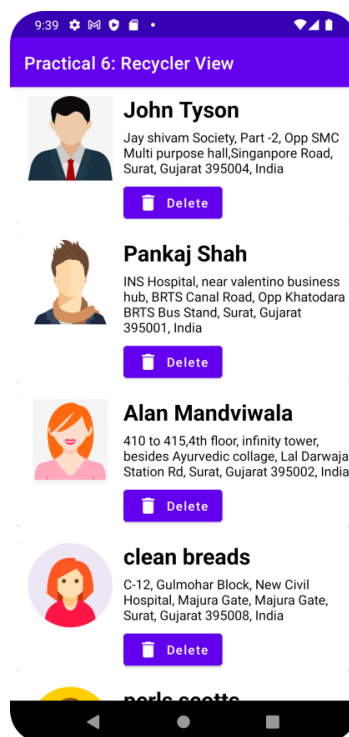
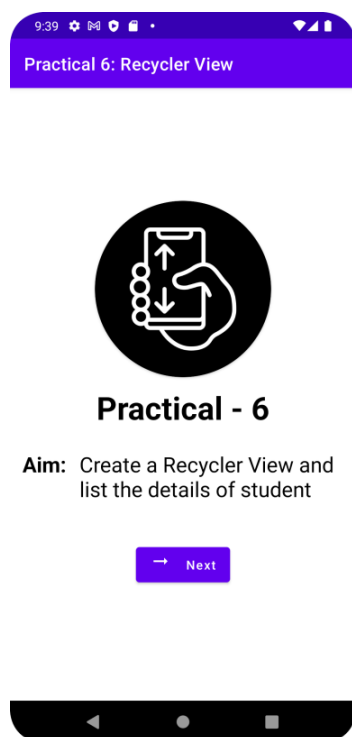
    }

}

}

```

Output:



PRACTICAL: 7

Practical: 7

Aim: Theme, Custom Styles, Drawables

Program:

MainActivity.java

```
package com.example.mydesign;

import
android.app.Activity;
import android.os.Bundle;
import
android.view.View;
import
android.widget.Toast;

public class MainActivity extends

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

    public void drawable_image(View view) {
        Toast.makeText(this, "Flower Image Button Clicked...",
        Toast.LENGTH_SHORT).show();
    }
}
```

activity_main.xml

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

```
tools:context=".MainActivity">
```

```
<ImageView
```

```
    android:id="@+id/arrowUp1"
    android:src="@drawable/arrow_up"
    android:layout_width="34dp"
    android:layout_height="0dp"
    android:layout_marginTop="10dp"
    android:layout_marginBottom="2dp"
    app:layout_constraintBottom_toTopOf="@+id/textView1"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
```

```
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="9dp"
    android:layout_marginLeft="9dp"
    android:layout_marginBottom="25dp"
    android:text="Theme Example"
    android:textColor="#E91E63"
    android:textSize="16sp"
    app:layout_constraintBottom_toTopOf="@+id/drawable"
    app:layout_constraintStart_toStartOf="@+id/drawable"
    app:layout_constraintTop_toBottomOf="@+id/arrowUp1" />
```

```
<TextView
```

```
    android:id="@+id/drawable"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />
```

```

android:layout_height="wrap_co
ntent"
android:layout_marginBottom="
2dp" android:text="Drawable

```

Example"

```

android:textColor="#E91E63"
android:textSize="16sp"
app:layout_constraintBottom_toTopOf="@+id/arrD
own1" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/them
e" />

```

<ImageView

```

android:id="@+id/arrD
own1"
android:src="@drawable/arrow_downward"
android:layout_width="34dp"
android:layout_height="0dp"
app:layout_constraintBottom_toTopOf="@+id/im
g_on"
app:layout_constraintEnd_toEndOf="@+id/img_
on"
app:layout_constraintStart_toStartOf="@+id/img
_on"
app:layout_constraintTop_toBottomOf="@+id/drawable" />

```

<ImageButton

```

android:id="@+id/img_on
"
android:layout_width="31
7dp"
android:layout_height="15
0dp"
android:src="@drawable/fl
ower"
android:scaleType="fitCen
ter"
android:background="@color/material_on_background_dis
abled" android:onClick="drawable_image"
android:layout_marginBottom="14dp"
app:layout_constraintBottom_toTopOf="@+id/button1"
app:layout_constraintEnd_toEndOf="parent"

```



```
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/arrDown1"
/>
```

```
<ImageView
    android:id="@+id/arrUp2"
    android:src="@drawable/arrow_upward"
    android:layout_width="34dp"
    android:layout_height="0dp"
    android:layout_marginBottom="22dp"
    app:layout_constraintBottom_toTopOf="@+id/arrDown2"
    app:layout_constraintEnd_toEndOf="@+id/button1"
    app:layout_constraintStart_toStartOf="@+id/button1"
    app:layout_constraintTop_toBottomOf="@+id/button1" />
```

```
<TextView
    android:id="@+id/style"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="1dp"
    android:text="Style Example"
    android:textColor="#E91E63"
    android:textSize="16sp"
    app:layout_constraintEnd_toEndOf="@+id/button1"
    app:layout_constraintStart_toStartOf="@+id/button1"
    app:layout_constraintTop_toBottomOf="@+id/arrUp2" />
```

```
<ImageView
    android:id="@+id/arrDown2"
    android:src="@drawable/arrow_downward" android:layout_width="34dp"
    android:layout_height="0dp" app:layout_constraintBottom_toTopOf="@+id/button2"
```

```
<ImageView
    android:id="@+id/arrDown2"
    android:src="@drawable/arrow_downward"
    android:layout_width="34dp"
    android:layout_height="0dp"
    app:layout_constraintBottom_toTopOf="@+id/
```

```

        button2"
        app:layout_constraintEnd_toEndOf="@+id/style"
        app:layout_constraintStart_toStartOf="@+id/style"
app:layout_constraintTop_toBottomOf="@+id/arrUp2" />

<Button
    android:id="@+id/button1"
    android:text="Button 1"
    style="@style/button_design"
    app:backgroundTint="@drawable/mygradient"
    app:layout_constraintBottom_toTopOf="@+id/arrUp2"
    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/img_on" />

<Button
    android:id="@+id/button2"
    android:text="Button 2"
    style="@style/button_design"
    android:layout_marginBottom="105dp"
    app:backgroundTint="@drawable/mygradient"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/arrDown2"
/>

</androidx.constraintlayout.widget.ConstraintLayout>

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest
    xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mydesign">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"

```

```

    android:roundIcon="@mipmap/ic_launcher_r
    ound"android:supportsRtl="true"
    android:theme="@style/app_theme_2">
    <activity android:name=".MainActivity">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>
</manifest>

```

themes.xml

```

<resources xmlns:tools="http://schemas.android.com/tools">

    <style name="app_theme_2"
    parent="android:Theme.Holo.Light.DarkActionBar"></style>

    <style name="button_design">
        <item name="android:textSize">20sp</item>
        <item name="android:layout_width">wrap_content</item>
        <item name="android:layout_height">wrap_content</item>
        <item name="android:background">@drawable/mygradient</item>
        <item name="android:paddingLeft">100dp</item>
        <item name="android:paddingRight">100dp</item>
        <item name="android:paddingTop">25dp</item>
        <item name="android:paddingBottom">25dp</item>
    </style>

</resources>

```

mygradient.xml

```

<?xml version="1.0" encoding="utf-8"?>
<shape
    xmlns:android="http://schemas.android.com/apk/res/android
    "android:shape="rectangle">

    <corners
        android:radius="40dp"></cor
        ners>

    <gradient

```

```
android:startColor="#0099cc"
```

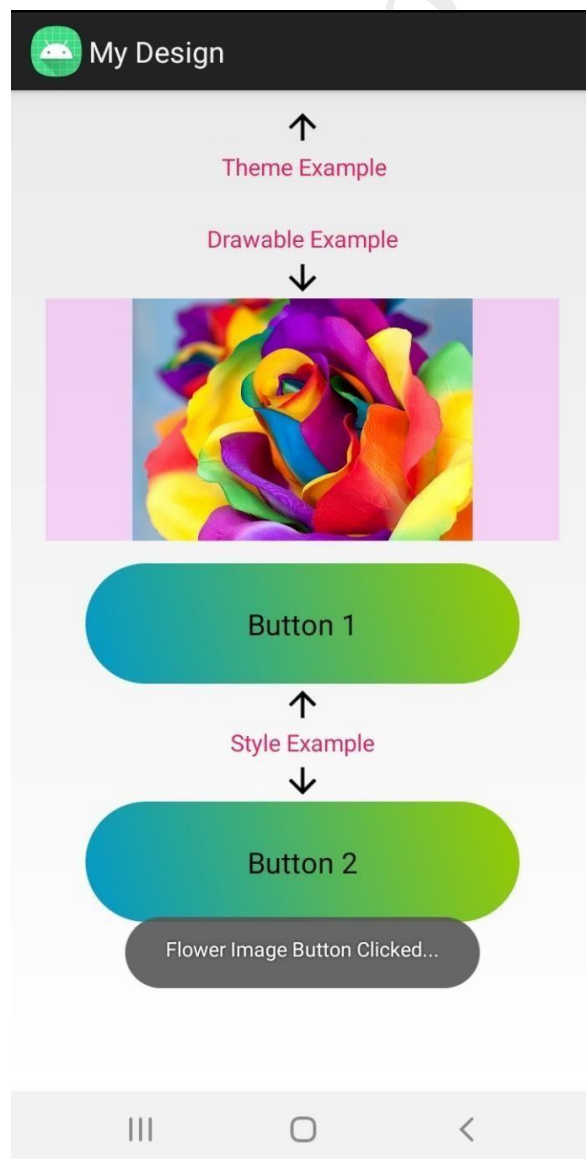
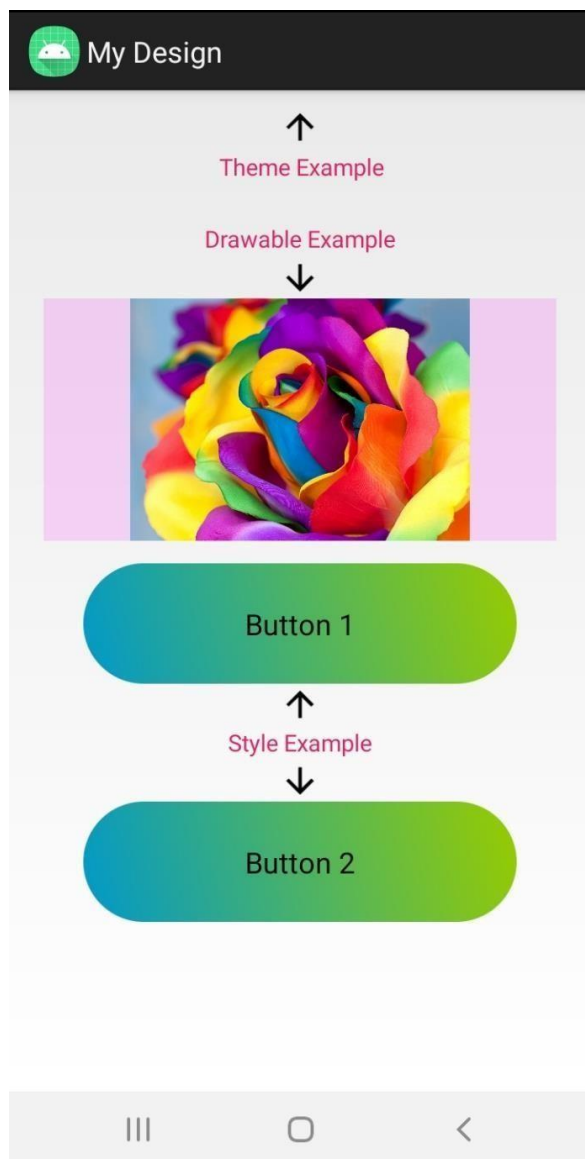
```
android:endColor="#99cc00"
```

```
android:angle="45"
```

```
android:type="linear"></gradient>
```

```
</shape>
```

Output:



PRACTICAL: 8

Practical: 8

Aim: Save user data in a database

Program:

DataModel.java

```
package com.example.storedatabase;
```

```
public class
```

```
    DataModel {int id;
```

```
        String name; String number;
```

```
    }
```

MyDBHelper.java

```
package com.example.storedatabase;
```

```
import
```

```
    android.content.ContentValues;
```

```
import    android.content.Context;
```

```
import android.database.Cursor;
```

```
import android.database.sqlite.SQLiteDatabase;
```

```
import
```

```
    android.database.sqlite.SQLiteOpenHelper;
```

```
import android.util.Log;
```

```
import androidx.annotation.Nullable;
```

```
import java.util.ArrayList;
```

```
public class MyDBHelper extends SQLiteOpenHelper {
```

```
    private static final String
```

```
        DATABASE_NAME="UserDB";private static final int
```

```
        DATABASE_VERSION=1;
```

```
    private static final String
```

```
TABLE_Data="Users";private static final
String KEY_ID="id";
private static final String KEY_NAME="name";

private static final String KEY_Email="email";

public MyDBHelper(Context context) {
    super(context, DATABASE_NAME, null, DATABASE_VERSION);
}

@Override
public void onCreate(SQLiteDatabase db) {
    db.execSQL("CREATE TABLE "+TABLE_Data+"("+KEY_ID+" INTEGER
PRIMARY KEY AUTOINCREMENT, " + KEY_NAME + " TEXT,"+ KEY_Email
+"TEXT"+")");
}

@Override
public void onUpgrade(SQLiteDatabase db, int i, int i1) {
    db.execSQL("DROP TABLE IF EXISTS
"+TABLE_Data);
    onCreate(db);
}

public void addDetails(String name,String
email){ SQLiteDatabase
db=this.getWritableDatabase();ContentValues
values=new ContentValues();
values.put(KEY_NAME,name);
values.put(KEY_Email,email);
try {
    db.insert(TABLE_Data, null, values);
} catch (Exception e){
```

```
Log.e("inser",e.toString(
));
}
}

public ArrayList<DataModel> fetchuser(){

    SQLiteDatabase db=this.getReadableDatabase();
    Cursor cursor=db.rawQuery("SELECT * FROM
    "+TABLE_Data,null);ArrayList<DataModel>arrdata=new
    ArrayList<>(); while(cursor.moveToNext()){
        DataModel model=new
        DataModel();
        model.id=cursor.getInt(0);
        model.name=cursor.getString(1);
        model.number=cursor.getString(2);
        arrdata.add(model);
    }
    return arrdata;
}
}
```

UserAdapter.java

```
package com.example.storedatabase;

import
android.content.Context;
import android.util.Log;
import
android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import
android.widget.ArrayAdapter;
```



```
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;

import java.util.ArrayList;

public class UserAdapter extends ArrayAdapter<DataModel> {
    private ArrayList<DataModel>
    list;private Context mcontext;
    int mresource;

    public UserAdapter(@NonNull Context context, int resource, ArrayList<DataModel>
    list)

    {
        super(context,
        resource,list);this.list=list;
        mcontext=context;
        mresource=resource;
    }

    @NonNull
    @Override
    public View getView(int position, @Nullable View convertView, @NonNull
    ViewGroup parent) {

        if (convertView==null){
            convertView=LayoutInflater.from(mcontext).inflate(mresource,parent,false);

        }
        TextView
        name=convertView.findViewById(R.id.namelist);
        TextView
        email=convertView.findViewById(R.id.emaillist);
```

```
name.setText(list.get(position).name);  
email.setText(list.get(position).numbe  
r);return convertView;  
}  
}
```

MainActivity.java

```
package com.example.storedatabase;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
  
import android.os.Bundle;  
  
import android.util.Log;  
  
import android.view.View;  
  
import android.widget.Button;  
  
import android.widget.EditText;  
  
import java.util.ArrayList;  
  
public class MainActivity extends AppCompatActivity {  
  
    @Override  
    protected void onCreate(Bundle  
        savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
  
        MyDBHelper db=new MyDBHelper(this);  
        ArrayList<DataModel> arr=db.fetchuser();  
  
        Button  
        btndata=findViewById(R.id.shwdata);  
  
        EditText  
        edname=findViewById(R.id.ename);  
  
        EditText
```

```
edemail=findViewById(R.id.edemail);Button
btn=findViewById(R.id.btnsub);
btn.setOnClickListener(new
    View.OnClickListener() { @Override
        public void onClick(View view) {
            String
                name=edname.getText().toString();
            String
                email=edemail.getText().toString();
            if(!name.equals("")&&
                !email.equals("")) {
                db.addDetails(name,email);
                Intent i = new Intent(getApplicationContext(),
                    DisplayData.class);startActivity(i);
            }
        }
    });
btndata.setOnClickListener(new
    View.OnClickListener() { @Override

        public void onClick(View view) {
            Intent i = new Intent(getApplicationContext(),
                DisplayData.class);startActivity(i);
        }
    });
}
```

DisplayData.java

```
package com.example.storedatabase;

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

```
import android.os.Bundle;

import android.util.Log;

import android.widget.ArrayAdapter;
import android.widget.ListView;

import java.util.ArrayList;

public class DisplayData extends AppCompatActivity {

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

        MyDBHelper db=new
        MyDBHelper(this);
        ArrayList<DataModel>
        list=db.fetchuser();

        try {

            UserAdapter adapter = new UserAdapter(this, R.layout.list_item, list);

            ListView listView = findViewById(R.id.listview);

            listView.setAdapter(adapter);

        } catch (Exception e){
            Log.e("MyError",e.toString(
            ));
        }
    }
}
```

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:background="@color/teal_200">

<TextView android:id="@+id/tname"

    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginTop="104dp"
    android:text="User Name"
    android:textSize="30sp"
    app:layout_constraintStart_toStartOf="parent
"
    app:layout_constraintTop_toTopOf="parent"
/>

<EditText

    android:id="@+id/ename"
    android:layout_width="350d
p"
    android:layout_height="wrap_content"
    android:backgroundTint="@color/white"
    android:layout_marginTop="160dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.327"

    app:layout_constraintStart_toStartOf="parent"
    <TextView

        android:id="@+id/tema
        il"
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="4dp"
android:layout_marginTop="40dp"
android:text="User Email"
```

```
android:inputType="textEmailAddress"
android:textSize="30sp"
app:layout_constraintStart_toStartOf="@+id/tnam
e"
app:layout_constraintTop_toBottomOf="@+id/ename" />
```

<EditText

```
android:id="@+id/email"
android:layout_width="350d
p"
android:layout_height="wrap_content"
android:layout_marginTop="284dp"
app:layout_constraintEnd_toEndOf="parent"
android:backgroundTint="@color/white"
app:layout_constraintStart_toStartOf="@+id/ename"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/btnsub"
android:layout_width="wrap_conten
t"
android:layout_height="wrap_conte
nt"
android:layout_marginTop="60dp"
android:text="Submit"
app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/eeemail"

/>
```

```
<Button

    android:id="@+id/shwdata"

    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/btnsu
    b"android:text="Show Data"/>

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

Activity_display_data.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=".DisplayData"
    android:background="@color/teal_200"

">

<ListView

    android:id="@+id/listvie

    w"

    android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
    }
    android:layout_marginTop="0dp"/>
</RelativeLayout>
```

List_item.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    ">

    <TextView
        android:id="@+id/name_list"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Mustafa
        Dahodwala"
        android:textSize="20sp"
        android:layout_marginTop="10dp"
        android:layout_marginLeft="10dp"/
    >

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

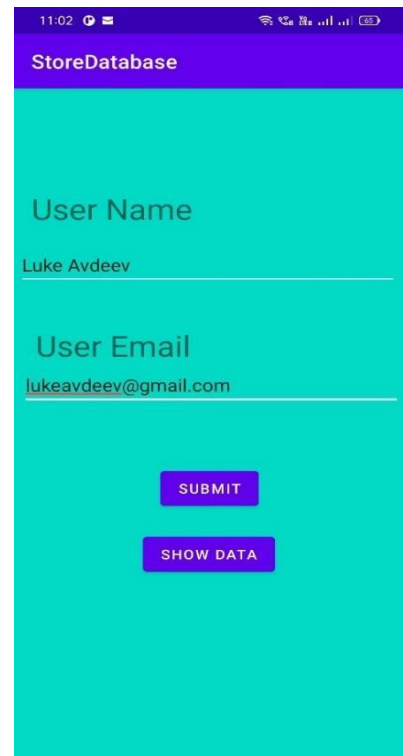
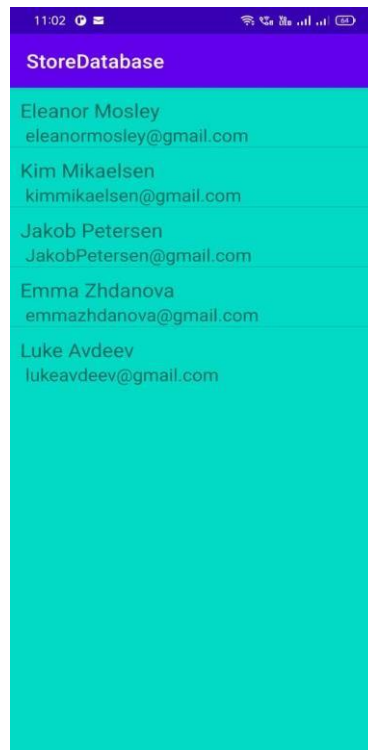
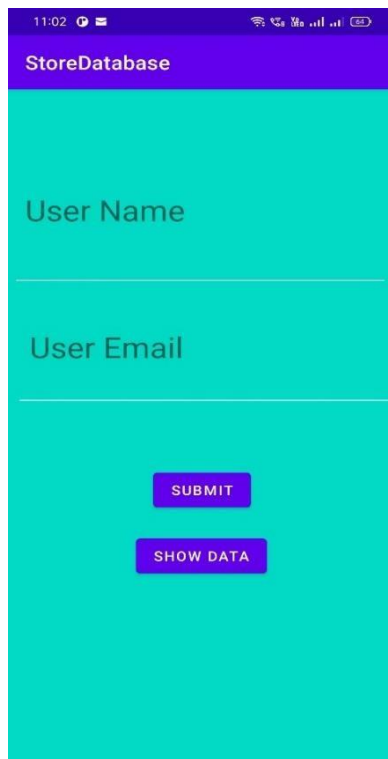

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```
android:text="mustafamandviwala45@gmail.co  
m"android:textSize="18sp"  
android:layout_marginLeft="15dp"/>
```

</LinearLayout>

Output:



PRACTICAL: 9

Practical: 9

Aim: Use an AsyncTask to access remote database (make a use of simple PHP Web service)

Program:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout_height="match_parent">
<ListView android:id="@+id/listView"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:layout_alignParentLeft="true"
android:layout_alignParentStart="true"
android:layout_alignParentTop="true" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.prac9;
import androidx.appcompat.app.AppCompatActivity; import
android.os.AsyncTask;import android.os.Bundle;
import android.widget.ArrayAdapter; import android.widget.ListView;
import android.widget.Toast;
import org.json.JSONArray; import org.json.JSONException; import
org.json.JSONObject;import java.io.BufferedReader; import java.io.InputStreamReader;
import java.net.HttpURLConnection; import java.net.URL;

public class MainActivity extends AppCompatActivity { ListView
listView;@Override
protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
listView = (ListView) findViewById(R.id.listView); getJSON();

}
private void getJSON() {
class GetJSON extends AsyncTask<Void, Void, String> { @Override
protected void onPreExecute() { super.onPreExecute();
}
@Override
```

```

protected void onPostExecute(String s) { super.onPostExecute(s);

Toast.makeText(getApplicationContext(), s, Toast.LENGTH_SHORT).show();
try {loadIntoListView(s);

} catch (JSONException e) { e.printStackTrace();
}
}
@Override
protected String doInBackground(Void... voids) { try {
URL url = new URL("http://192.168.1.202/home.php"); HttpURLConnection con
= (HttpURLConnection) url.openConnection(); StringBuilder sb = new
StringBuilder();BufferedReader bufferedReader = new BufferedReader(new
InputStreamReader(con.getInputStream()));
String json;
while ((json = bufferedReader.readLine()) != null) { sb.append(json + "\n");
}
return sb.toString().trim();
} catch (Exception e) { return null;
}
}
}
}
GetJSON getJSON = new GetJSON(); getJSON.execute();
}

private void loadIntoListView(String json) throws JSONException { JSONArray jsonArray
=new JSONArray(json);
String[] lists = new String[jsonArray.length()]; for (int i = 0; i < jsonArray.length();
i++) { JSONObject obj = jsonArray.getJSONObject(i); lists[i] = obj.getString("name");

}
ArrayAdapter<String> arrayAdapter = new
ArrayAdapter<String>(this,android.R.layout.simple_list_item_1,
lists); listView.setAdapter(arrayAdapter);

}
}

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.prac9">
<uses-permission android:name="android.permission.INTERNET" />

```

```
<application android:allowBackup="true"

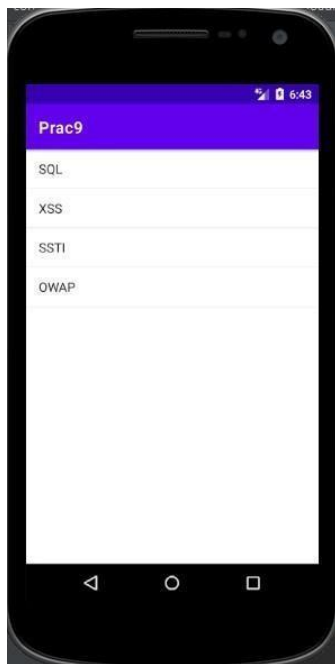
android:icon="@mipmap/ic_launcher" android:label="@string/app_name"

android:roundIcon="@mipmap/ic_launcher_round"

android:supportRtl="true" android:theme="@style/Theme.Prac9">

<activity android:name=".MainActivity">
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>
</manifest>
```

Output:



PRACTICAL: 10

Practical: 10

Aim: Use Retrofit to access remote database (make a use of simple PHP Web service)

Source Code(MainActivity.java):

```
package com.example.practical10;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;
import java.util.List;
import retrofit2.Call;
import retrofit2.Callback;
import
retrofit2.Response;
import retrofit2.Retrofit;
import retrofit2.converter.gson.GsonConverterFactory;
public class MainActivity extends AppCompatActivity
{
    ListView
    listView;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        listView = (ListView)
        findViewById(R.id.listViewHeroes);getHeroes();
    }
    private void getHeroes() {
        Retrofit retrofit = new Retrofit.Builder()
            .baseUrl(Api.BASE_URL)
```

.addConverterFactory(GsonConverterFactory.create()) //Here we are using theGsonConverterFactory to directly convert json data to object

```

        .build();
        Api api = retrofit.create(Api.class);
        Call<List<Hero>> call = api.getHeroes();
        call.enqueue(new Callback<List<Hero>>() {
            @Override
            public void onResponse(Call<List<Hero>> call, Response<List<Hero>> response)
            {
                List<Hero> heroList = response.body();
                String[] heroes = new
                String[heroList.size()];for (int i = 0; i <
                heroList.size(); i++) {
                    heroes[i] = heroList.get(i).getName();
                }
                listView.setAdapter(new
                ArrayAdapter<String>(getApplicationContext(),
                android.R.layout.simple_list_item_1, heroes));
            }
            @Override
            public void onFailure(Call<List<Hero>> call, Throwable t)
            {
                Toast.makeText(getApplicationContext(),
                t.getMessage(),
                Toast.LENGTH_SHORT).show();
            }
        });
    }
}

```

Source Code(Api.java):

```

package
com.example.practical10;import
java.util.List;
import retrofit2.Call;

```



```
import retrofit2.http.GET;

public interface Api {

    String BASE_URL =

    "https://simplifiedcoding.net/demos/"; @GET("marvel")

    Call<List<Hero>> getHeroes();

}
```

Source Code(Hero.java):

```
package net.simplifiedlearning.retrofitexample;

import

com.google.gson.annotations.SerializedName; public

class Hero {

    @SerializedName("name"

    ) private String name;

    private String realname;

    public Hero(String name, String

    realname){ this.name = name;

    this.realname = realname;

}

    public String getName()

    { return name;

    }

    public String getRealname()

    { return realname;

    }

}
```

Source 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">
```

```
<ListView
```

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

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

```
    android:layout_height="match_parent"
```

```
</RelativeLayout>
```

Source Code(AndroidManifest.xml):

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

```
<manifest
```

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

```
    package="com.example.practical10">
```

```
    <!-- the internet permission -->
```

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

```
    <application
```

```
        android:allowBackup="true"
```

```
        android:icon="@mipmap/ic_launcher
```

```
        android:label="@string/app_name"
```

```
        android:roundIcon="@mipmap/ic_launcher_round
```

```
        android:supportsRtl="true"
```

```
        android:theme="@style/AppTheme">
```

```
        <activity android:name=".MainActivity">
```

```
            <intent-filter>
```

```
                <action android:name="android.intent.action.MAIN" />
```

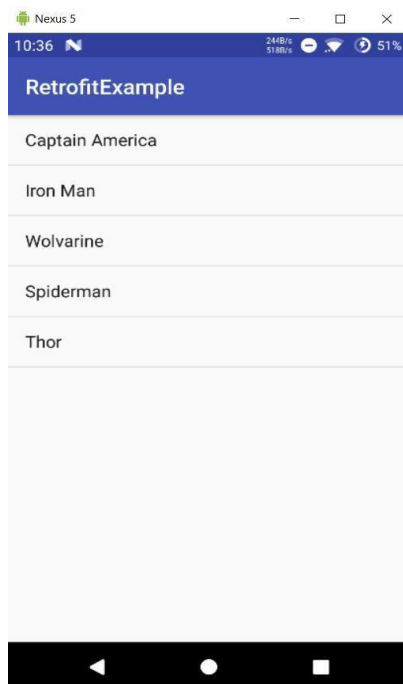
```
                <category android:name="android.intent.category.LAUNCHER" />
```

```
            </intent-filter>
```

```
        </activity>
```

```
    </application>
```

```
</manifest>
```

Output:

PRACTICAL: 11

Practical: 11

Aim: Use Firebase to perform CRUD operation

Program:

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">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/rv"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp" />

    <com.google.android.material.floatingactionbutton.FloatingActionButton
        android:id="@+id/fBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#00BCD4"
        android:clickable="true"
        app:layout_constraintBottom_toBottomOf="parent
        " app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.961"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```

```
app:layout_constraintVertical_bias="0.961"
app:srcCompat="@drawable/ic_baseline_add_24"
/>
```

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

activity_add.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="vertical"
    android:gravity="center"
    >

    <TextView
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:text="Add new Records"
        android:background="@color/purple_500"
        android:textSize="25dp"
        android:gravity="center"
        android:textColor="#FFFFFF"/>

    <TextView
        android:layout_width="match_parent"
        "
        android:layout_height="wrap_content"
        t"android:gravity="center"
        android:textSize="20sp"
        android:layout_marginTop="15dp"
        android:layout_marginBottom="5dp"
        " android:text="Enrollment:"/>
```

```
<EditText
```

```
    android:layout_width="match_parent"
    android:layout_height="45dp"
    android:layout_marginLeft="10dp"
    android:layout_marginRight="10dp"
    android:background="@drawable/rounded"
    "android:gravity="center"
    android:id="@+id/addTxtEnroll"/>
```

```
<TextView
```

```
    android:layout_width="match_parent"
    "
    android:layout_height="wrap_conten
    t"android:gravity="center"
    android:textSize="20sp"
    android:layout_marginTop="15dp"
    android:layout_marginBottom="5dp
    " android:text="Name:"/>
```

```
<EditText
```

```
    android:layout_width="match_parent"
    android:layout_height="45dp"
    android:layout_marginLeft="10dp"
    android:layout_marginRight="10dp"
    android:background="@drawable/rounded"
    "android:gravity="center"
    android:id="@+id/addTxtName"/>
```

```
<TextView
```

```
    android:layout_width="match_parent"
    "
    android:layout_height="wrap_conten
    t"android:gravity="center"
```

```
android:textSize="20sp"
```

```
android:layout_marginTop="15dp"
```

```
android:layout_marginBottom="5d
```

```
p"android:text="Email:"/>
```

```
<EditText
```

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

```
    android:layout_height="45dp"
```

```
    android:layout_marginLeft="10dp"
```

```
    android:layout_marginRight="10dp"
```

```
    android:background="@drawable/rounde
```

```
d"android:gravity="center"
```

```
    android:id="@+id/addTxtEmail"/>
```

```
<TextView
```

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

```
"
```

```
    android:layout_height="wrap_conten
```

```
t"android:gravity="center"
```

```
    android:textSize="20sp"
```

```
    android:layout_marginTop="15dp"
```

```
    android:layout_marginBottom="5dp
```

```
" android:text="Photo URL:"/>
```

```
<EditText
```

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

```
    android:layout_height="45dp"
```

```
    android:layout_marginLeft="10dp"
```

```
    android:layout_marginRight="10dp"
```

```
    android:background="@drawable/rounded
```

```
"android:gravity="center"
```

```
    android:id="@+id/addTxtUrl"/>
```

```
<Button
```



```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Add"
android:layout_marginLeft="25dp"
android:layout_marginRight="25dp"

android:layout_marginTop="10dp"
android:textAllCaps="false"
android:textSize="21dp"
android:background="@drawable/rounded"
android:gravity="center"
android:id="@+id/addBtnUpdate"

/>
```

<Button

```
android:layout_width="200dp"
android:layout_height="wrap_content"
android:text="Back"
android:layout_marginLeft="25dp"
android:layout_marginRight="25dp"
android:layout_marginTop="10dp"
android:textAllCaps="false"
android:textSize="21dp"
android:backgroundTint="#E91E63"
android:background="@drawable/rounded"
android:gravity="center"
android:id="@+id/addBtnBack"

/>
```

</LinearLayout>

main_item.xml

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

<androidx.cardview.widget.CardView
xmlns:android="http://schemas.android.com/apk/res/android"
```

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
xmlns:app="http://schemas.android.com/apk/res-
auto"app:cardCornerRadius="6dp"
android:elevation="6dp"
app:cardUseCompatPadding="true"
android:id="@+id/card">
<RelativeLayout
    android:layout_width="match_parent
    "
    android:layout_height="wrap_conten
    t"android:padding="15dp"
    android:id="@+id/rel">
    <de.hdodenhof.circleimageview.CircleImageView
        android:id="@+id/img1"
        android:layout_width="95dp"
        android:layout_height="95dp"
        android:src="@mipmap/ic_launcher_round"
        app:civ_border_color="#2196F3"
        app:civ_border_width="2dp" />
    <TextView
        android:layout_width="wrap_content
        "
        android:layout_height="wrap_conten
        t"android:id="@+id/enroltxt"
        android:text="190840131004"
        android:textSize="14sp" android:textStyle="bold"
        android:textColor="@color/black"
        android:layout_below="@+id/img1"
        android:layout_marginTop="30dp"
        />
    <TextView
```

```
android:layout_marginTop="5dp"
```

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

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

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

```
    android:text="Parth Bhatia"
```

```
    android:textSize="20sp"
```

```
    android:textColor="@color/black"
```

```
android:layout_toRightOf="@+id/img1"
```

```
    android:layout_marginLeft="10dp"
```

```
<TextView
```

```
    android:layout_marginTop="5dp"
```

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

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

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

```
    android:text="bhatiaparth119@gmail.co  
m"android:textSize="18sp"
```

```
    android:textColor="@color/black"
```

```
    android:layout_toRightOf="@+id/img1"
```

```
    android:layout_below="@+id/nametxt"
```

```
    android:layout_marginLeft="10dp"
```

```
<LinearLayout
```

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

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

```
    android:layout_below="@+id/emailtxt  
"
```

```
    android:layout_toRightOf="@+id/img  
1"android:padding="5dp"
```

```
    android:layout_marginTop="20dp"
```

```
android:gravity="left">
<Button
    android:id="@+id/updateBtn"
    android:layout_marginLeft="10dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:drawableTop="@drawable/ic_baseline_update_24"
    android:text="Update"
    android:textAllCaps="false"/>
<Button
    android:id="@+id/deleteBtn"
    android:layout_marginLeft="20dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:drawableTop="@drawable/ic_baseline_delete_24"
    android:text="Delete"
    android:textAllCaps="false"/>
</LinearLayout>
</RelativeLayout>
```

```
</androidx.cardview.widget.CardView>
```

update_popup.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.cardview.widget.CardView
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    xmlns:app="http://schemas.android.com/apk/res-
auto" app:cardCornerRadius="6dp"
    android:elevation="6dp"
    app:cardUseCompatPadding="true"
    android:id="@+id/card">
```

<RelativeLayout

android:layout_width="match_parent"
"

android:layout_height="wrap_content"
t"android:padding="15dp"

android:id="@+id/rel">

<de.hdodenhof.circleimageview.CircleImageView

android:id="@+id/img1"

android:layout_width="95dp"

android:layout_height="95dp"

android:src="@mipmap/ic_launcher_round"

app:civ_border_color="#2196F3"

app:civ_border_width="2dp" />

<TextView

android:layout_width="wrap_content"
"

android:layout_height="wrap_content"

t"android:id="@+id/enroltxt"

android:text="190840131004"

android:textSize="14sp"

android:textStyle="bold"

android:textColor="@color/black"

android:layout_below="@+id/img1"

android:layout_marginTop="30dp"

/>

<TextView

android:layout_marginTop="5dp"

android:layout_width="match_parent"

android:layout_height="wrap_content"

android:id="@+id/nametxt"

android:text="Parth Bhatia"

android:textSize="20sp"

android:textColor="@color/black"

```
android:layout_toRightOf="@+id/img1"
    android:layout_marginLeft="10dp"
/>
<TextView
    android:layout_marginTop="5dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/emailtxt"
    android:text="bhatiaparth119@gmail.co
m"android:textSize="18sp"
    android:textColor="@color/black"
    android:layout_toRightOf="@+id/img1"
    android:layout_below="@+id/nametxt"
    android:layout_marginLeft="10dp"
/>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/emailtxt
"
    android:layout_toRightOf="@+id/img
1"android:padding="5dp"
    android:layout_marginTop="20dp"
    android:gravity="left">
    <Button
        android:id="@+id/updateBtn"
        android:layout_marginLeft="10dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:drawableTop="@drawable/ic_baseline_update_24"
        android:text="Update"
        android:textAllCaps="false"/>
    <Button
```

```
        android:id="@+id/deleteBtn"
        android:layout_marginLeft="20dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:drawableTop="@drawable/ic_baseline_delete_2
4" android:text="Delete"
        android:textAllCaps="false"/>
    </LinearLayout>
</RelativeLayout>

</androidx.cardview.widget.CardView>
```

MainActivity.java

```
package com.htrap.firebaseio11;

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

import
android.annotation.SuppressLint;
import android.content.Intent;
import
android.os.Bundle;
import
android.view.Menu;

import
android.view.MenuItem;
import android.view.View;
import android.widget.SearchView;
```

```
import com.firebase.ui.database.FirebaseRecyclerOptions;
import
com.google.android.material.floatingactionbutton.FloatingActionButton;
import com.google.firebase.database.FirebaseDatabase;

public class MainActivity extends AppCompatActivity {

    RecyclerView
    recyclerView;MainAdapter
    mainAdapter;

    FloatingActionButton floatingActionButton;

    @SuppressWarnings("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        recyclerView = findViewById(R.id.rv);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));

        FirebaseRecyclerOptions<MainModel> options =
            new FirebaseRecyclerOptions.Builder<MainModel>()
                .setQuery(FirebaseDatabase.getInstance().getReference().child("students"),MainModel.class
                )
                .build();

        mainAdapter = new
        MainAdapter(options);
        recyclerView.setAdapter(mainAdapter);

        floatingActionButton =findViewById(R.id.fBtn);
        floatingActionButton.setOnClickListener(new View.OnClickListener()
        {
```



```
@Override  
public void onClick(View v) {  
    startActivity(new Intent(getApplicationContext(),AddActivity.class));  
}  
});  
}
```

```
@Override  
protected void onStart() {  
    super.onStart();  
    mainAdapter.startListening  
    ();  
}
```

```
@Override  
protected void onStop() {  
    super.onStop();  
    mainAdapter.stopListening  
    ();  
}
```

```
@Override  
public boolean onCreateOptionsMenu(Menu menu) {  
  
    getMenuInflater().inflate(R.menu.search,menu);  
    MenuItem item = menu.findItem(R.id.search);  
    SearchView searchView = (SearchView) item.getActionView();  
  
    searchView.setOnQueryTextListener(new SearchView.OnQueryTextListener()  
    { @Override  
        public boolean onQueryTextSubmit(String query)
```

```
{txtSearch(query);
    return false;
}

@Override
public boolean onQueryTextChange(String query)
{txtSearch(query);
    return false;
}
});

return super.onCreateOptionsMenu(menu);
}

private void txtSearch(String str){

    FirebaseRecyclerOptions<MainModel> options =
        new FirebaseRecyclerOptions.Builder<MainModel>()

.setQuery(FirebaseDatabase.getInstance().getReference().child("students").orderByChild("name").startAt(str).endAt(str+"~"),MainModel.class)

        .build();

    mainAdapter = new
    MainAdapter(options);
    mainAdapter.startListening();
    recyclerView.setAdapter(mainAdapter);
}
}
```

MainModel.java

```
package com.htrap.firebaseio11;

public class MainModel {
    String enroll,name,email,surl;

    MainModel(){}
```

```
public MainModel(String enroll, String name, String email, String surl)
{
    this.enroll = enroll;
    this.name =
    name; this.email
    = email; this.surl
    = surl;
}

public String getEnroll()
{
    return enroll;
}

public void setEnroll(String enroll)
{
    this.enroll = enroll;
}

public String getName()
{
    return name;
}

public void setName(String name)
{
    this.name = name;
}

public String getEmail()
{
    return email;
}

public void setEmail(String email)
{
    this.email = email;
}

public String getSurl()
{
    return surl;
}

public void setSurl(String surl)
```

```
{  
  
    this.surl = surl;  
  
}  
}
```

StudentModel.java

```
package com.htrap.recyclerviewp6;  
  
public class StudentModel {  
  
    public String name,  
    Address;public int img;  
  
    public StudentModel(int img,String name, String address)  
    {this.name = name;  
    Address = address;  
    this.img = img;  
    }  
    public String getName()  
    {return name;  
    }  
    public void setName(String name)  
    {this.name = name;  
    }  
    public String getAddress()  
    {return Address;  
    }  
    public void setAddress(String address)  
    {Address = address;  
    }  
    public int getImg()  
    {return img;  
    }  
}
```

```
public void setImg(int img)
{
    this.img = img;
}
}
```

AddActivity.java

```
package com.htrap.firebasecrud11;

import androidx.appcompat.app.AppCompatActivity;

import
android.annotation.SuppressLint;
import android.os.Bundle;

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

import com.google.firebase.database.FirebaseDatabase;

import
java.util.HashMap;
import java.util.Map;

public class AddActivity extends AppCompatActivity {

    EditText enroll,name,email,surl;
    Button add,cancel;
    @SuppressWarnings("MissingInflatedId"
    )@Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_add);

        enroll =
```

```
findViewById(R.id.addTxtEnroll);name = findViewById(R.id.addTxtName);
email = findViewById(R.id.addTxtEmail); surl =
findViewById(R.id.addTxtUrl);

add = findViewById(R.id.addBtnUpdate); cancel =
findViewById(R.id.addBtnBack);

add.setOnClickListener(new View.OnClickListener()
    { @Override
        public void onClick(View v)
            {insertData();

        }
    });
cancel.setOnClickListener(new View.OnClickListener() {
    @Override
        public void onClick(View v)
            { finish();
        }
    });
}
private void insertData(){
    Map<String,Object> map = new
    HashMap<>();
    map.put("enroll",enroll.getText().toString());
    map.put("name",name.getText().toString());
    map.put("email",email.getText().toString());
    map.put("surl",email.getText().toString());

    FirebaseDatabase.getInstance().getReference().child("students").push()
        .setValue(map)
```

```
.addOnSuccessListener(succ->{
    finish();

    Toast.makeText(this, "Data Inserted
Successfully!!",Toast.LENGTH_SHORT).show();
}).addOnFailureListener(err->{
    finish();

    Toast.makeText(this, "Error
:"+err.getMessage(),Toast.LENGTH_SHORT).show();
});
}
}
```

MainAdapter.java

```
package com.htrap.firebaseio11;

import
android.annotation.SuppressLint;
import android.app.AlertDialog;
import
android.content.DialogInterface;
import android.view.LayoutInflater;
import android.view.View;
import
android.view.ViewGroup;
import android.widget.Button;
import
android.widget.EditText;
import
android.widget.TextView;
import android.widget.Toast;

import androidx.annotation.NonNull;
```

```
import androidx.recyclerview.widget.RecyclerView;

import com.bumptech.glide.Glide;

import
com.firebase.ui.database.FirebaseRecyclerAdapter;

import
com.firebase.ui.database.FirebaseRecyclerOptions;

import
com.google.android.gms.tasks.OnSuccessListener;

import com.google.firebase.database.FirebaseDatabase;

import com.orhanobut.dialogplus.DialogPlus;

import com.orhanobut.dialogplus.ViewHolder;


import
java.util.HashMap;

import java.util.Map;

import de.hdodenhof.circleimageview.CircleImageView;


public class MainAdapter extends
FirebaseRecyclerAdapter<MainModel,MainAdapter.myViewHolder> {

    /**
     * Initialize a { @link RecyclerView.Adapter } that listens to a Firebase query. See
     * { @link FirebaseRecyclerOptions } for configuration options.
     *
     * @param options
     */
    public MainAdapter(@NonNull FirebaseRecyclerOptions<MainModel> options)
    {
        super(options);
    }

    @Override
```



```
protected void onBindViewHolder(@NonNull myViewHolder holder,
@SuppressLint("RecyclerView") int position, @NonNull MainModel model)
{
    holder.enroll.setText(model.getEnroll());
    holder.name.setText(model.getName());
    holder.email.setText(model.getEmail());

    Glide.with(holder.img.getContext())
        .load(model.surl)

        .placeholder(com.firebase.ui.database.R.drawable.common_google_signin_btn_icon_dark)
        .circleCrop()

        .error(com.firebase.ui.database.R.drawable.common_google_signin_btn_icon_dark_normal)
        .into(holder.img);
    holder.btnEdit.setOnClickListener(new View.OnClickListener()
    { @Override

    public void onClick(View v) {
        final DialogPlus dialogPlus = DialogPlus.newDialog(holder.img.getContext())
            .setContextHolder(new ViewHolder((R.layout.update_popup)))
            .setExpanded(true, 1200)
            .create();

        View view = dialogPlus.getHolderView();
        EditText enroll =
        view.findViewById(R.id.txtEnroll); EditText name
        = view.findViewById(R.id.txtName); EditText
        email = view.findViewById(R.id.txtEmail);
        EditText surl = view.findViewById(R.id.txtUrl);

        Button btnUpdate = view.findViewById(R.id.btnUpdate);

        enroll.setText(model.getEnroll(
```

```

));
name.setText(model.getName());
email.setText(model.getEmail());
surl.setText(model.getSurl());

btnUpdate.setOnClickListener(new View.OnClickListener()
{ @Override
public void onClick(View v) {
    Map<String, Object> map = new
    HashMap<>();map.put("enroll",
    enroll.getText().toString()); map.put("name",
    name.getText().toString()); map.put("email",
    email.getText().toString()); map.put("surl",
    surl.getText().toString());

    FirebaseDatabase.getInstance().getReference().child("students
    ")
    .child(getRef(position).getKey()).updateChildren(map)
    .addOnSuccessListener(new OnSuccessListener<Void>() {
        @Override
        public void onSuccess(Void unused) {
            Toast.makeText(holder.name.getContext(), "Data
UpdatedSuccessfully!", Toast.LENGTH_SHORT).show();

            dialogPlus.dismiss();
        }
    }).addOnFailureListener(err -> {
        Toast.makeText(holder.name.getContext(), "Error :" +
err.getMessage(), Toast.LENGTH_SHORT).show();

        dialogPlus.dismiss();
    });
}
});

```

```
}  
});  
holder.btnDelete.setOnClickListener(new View.OnClickListener()  
{ @Override  
public void onClick(View v) {  
    AlertDialog.Builder builder = new  
    AlertDialog.Builder(holder.name.getContext());builder.setTitle("Are you  
    sure?");  
    builder.setMessage("Deleted Data Can't be undo");  
    builder.setPositiveButton("Delete", new DialogInterface.OnClickListener()  
    {  
        @Override  
        public void onClick(DialogInterface dialog, int which) {  
            FirebaseDatabase.getInstance().getReference().child("students  
                ")  
                .child(getRef(position).getKey()).removeValue();  
            Toast.makeText(holder.name.getContext(), "Data  
                Deleted!",  
                Toast.LENGTH_SHORT).show();  
        }  
    });  
    builder.setNegativeButton("Cancel", new DialogInterface.OnClickListener()  
    { @Override  
        public void onClick(DialogInterface dialog, int which) {  
            Toast.makeText(holder.name.getContext(), "Data is  
            Safe!",Toast.LENGTH_SHORT).show();  
        }  
    });  
    builder.show();  
}  
});
```

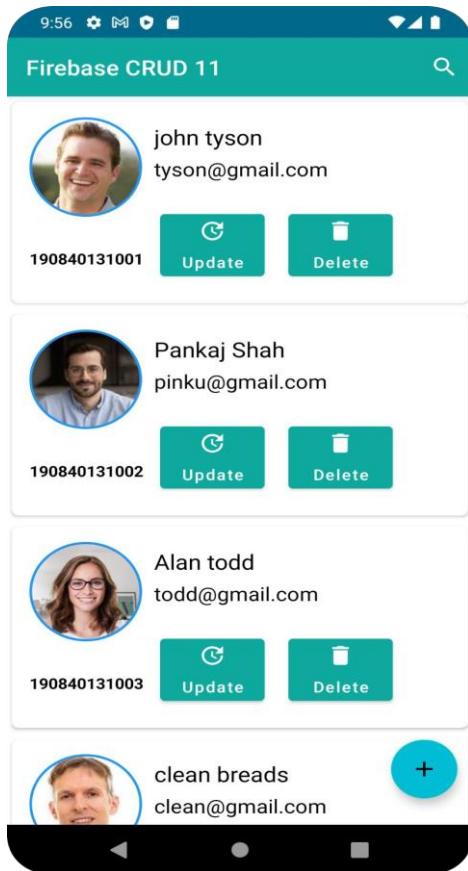
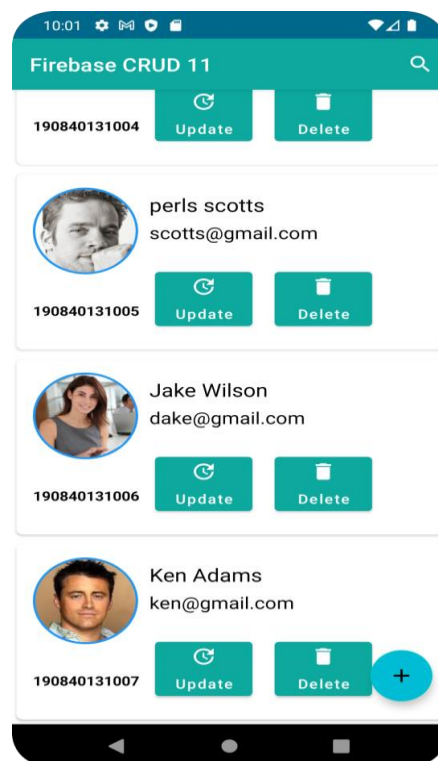
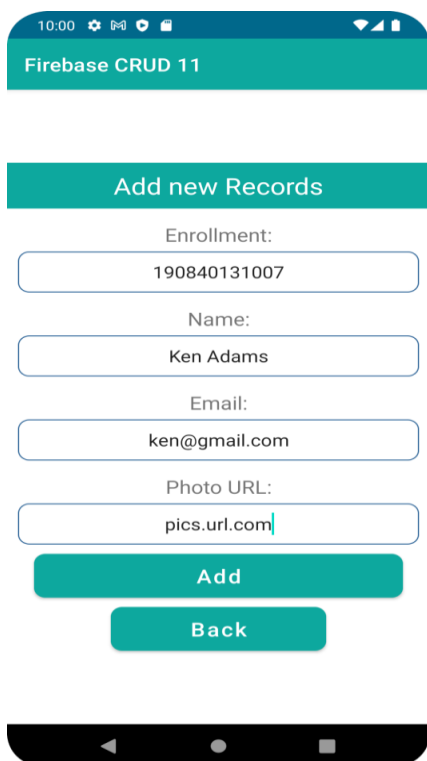
```
}
@NonN
ull
@Override
de
public myViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int
viewType)
{
    View v = LayoutInflater.from(parent.getContext()).inflate(R.layout.main_item, parent,
false);
    return new myViewHolder(v);
}

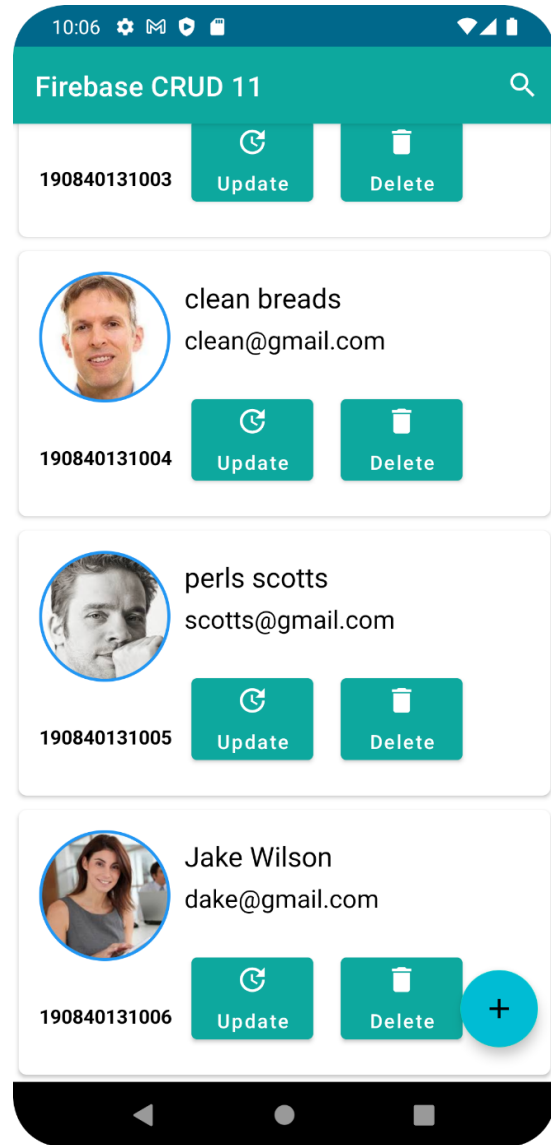
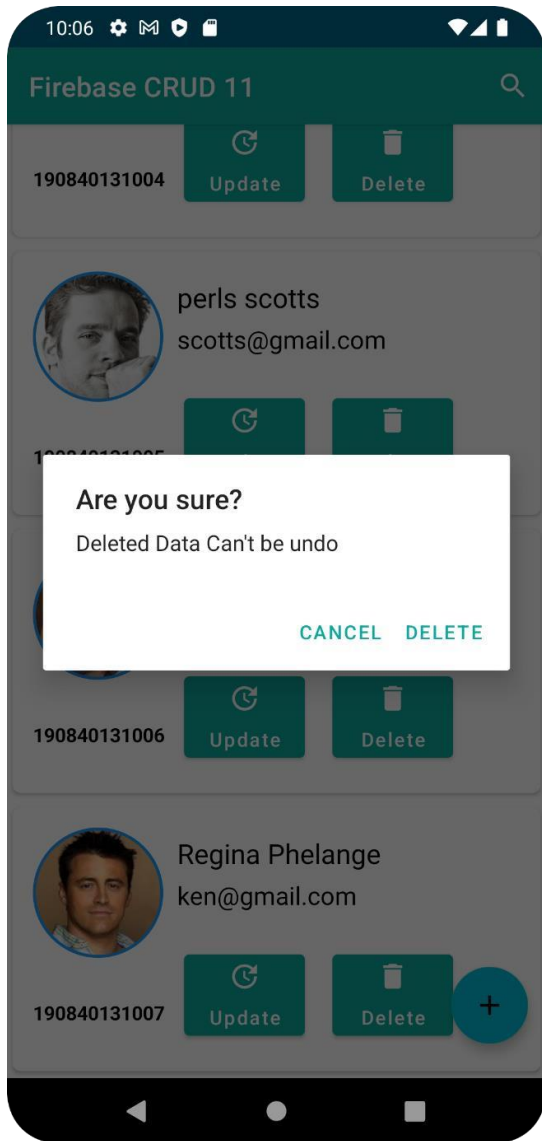
class myViewHolder extends RecyclerView.ViewHolder
{
    CircleImageView img;
    TextView enroll, name, email;
    Button btnEdit, btnDelete;

    public myViewHolder(@NonNull View itemView) {
        super(itemView);
        img = (CircleImageView)
itemView.findViewById(R.id.img1);enroll = (TextView)
itemView.findViewById(R.id.enroltxt); name = (TextView)
itemView.findViewById(R.id.nametxt); email = (TextView)
itemView.findViewById(R.id.emailtxt);

        btnDelete = (Button)
itemView.findViewById(R.id.deleteBtn);btnEdit = (Button)
itemView.findViewById(R.id.updateBtn);

    }
}
}
```

Output:**MainActivity(READ):****(INSERT):**

(DELETE):

PRACTICAL: 12

Practical: 12

Aim: BroadcastReceiver

Program:

Broadcast Sender

app:

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">

    <Button
    android:id="@+id/butto
    n"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Send Broadcast Message"
    android:onClick="onBroadcastSendBtnClicked"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java


```
package com.example.broadcastsenderapp;

import
androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import
android.os.Bundle;

import
android.view.View;

public class MainActivity extends AppCompatActivity {

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

    public void onBroadcastSendBtnClicked(View v) {

        Intent intent = new Intent();
        intent.setAction("com.mad_practical.myBroadcastMessage");
        intent.setFlags(Intent.FLAG_INCLUDE_STOPPED_PACKAGES);
        sendBroadcast(intent);
    }
}
```

AndroidManifest.xml

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

```
<application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportRtl="true"
    android:theme="@style/Theme.BroadcastSenderApp">

    <activity
        android:name=".MainActivity"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>
</manifest>
```

Broadcast receiver

app:AndroidManifest.xml

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher
```

```
android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportsRtl="true"
    android:theme="@style/Theme.BroadcastReceiverApp">
    <receiver
        android:name=".MyBroadcastReceiver"
        android:enabled="true"
        android:exported="true">
        <intent-filter>
            <action android:name="com.mad_practical.myBroadcastMessage">
            </action>
        </intent-filter>
    </receiver>

    <activity
        android:name=".MainActivity"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

MainActivity.java

```
package com.example.broadcastreceiverapp;
import
androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
```

```
import
```

```
android.content.IntentFilter;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState)
```

```
    { super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_main);
```

```
    IntentFilter intentFilter =new
```

```
    IntentFilter("com.mad_practical.myBroadcastMessage");MyBroadcastReceiver
```

```
    objReceiver =new MyBroadcastReceiver(); registerReceiver(objReceiver,
```

```
    intentFilter);
```

```
    }
```

```
}
```

MyBroadcastReceiver.java

```
package
```

```
com.example.broadcastreceiverapp;import
```

```
android.content.BroadcastReceiver; import
```

```
android.content.Context;
```

```
import
```

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

```
import android.util.Log;
```

```
import
```

```
android.widget.Toast;
```

```
public class MyBroadcastReceiver extends BroadcastReceiver {
```

```
    @Override
```

```
    public void onReceive(Context context, Intent intent) {
```

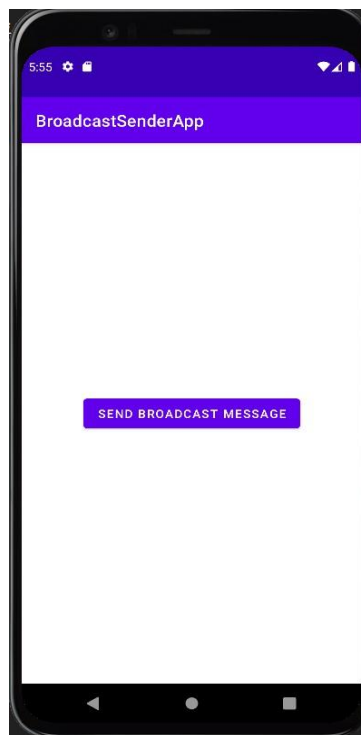
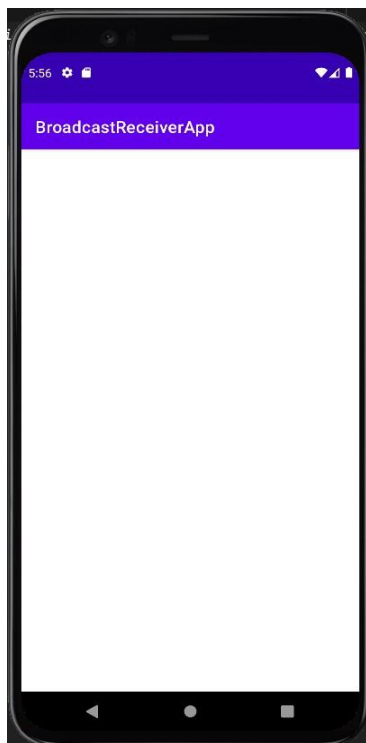
```
// TODO: This method is called when the BroadcastReceiver is receiving
// an Intent broadcast.

Log.i("BroadcastReceiver", "Broadcast message is received");

Toast.makeText(context, "broadcast message
isreceived", Toast.LENGTH_LONG).show();

}

}
```

Output:

PRACTICAL: 13

Practical: 13

Aim Implement Notifications.Program :

Program:

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_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.notification;

import

androidx.appcompat.app.AppCompatActivity;

import androidx.core.content.res.ResourcesCompat;

import android.app.Notification;
```

```
import
android.app.NotificationChannel;

import
android.app.NotificationManager;
import android.graphics.Bitmap;
import
android.graphics.drawable.BitmapDrawable;
import android.graphics.drawable.Drawable;
import android.os.Build;
import
android.os.Bundle;

public class MainActivity extends AppCompatActivity {
private static final String CHANNEL_ID="meassge
channel";private static final int NOTIFICATION_ID=100;

@Override

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

Drawable drawable= ResourcesCompat.getDrawable(getResources(),R.drawable.icon,null);

BitmapDrawable bitmapDrawable=(BitmapDrawable)
drawable;Bitmap largeIcon=bitmapDrawable.getBitmap();

NotificationManager nm=(NotificationManager)
getSystemService(NOTIFICATION_SERVICE);

Notification notification;

if(Build.VERSION.SDK_INT>=Build.VERSION_CODES.O) {
```



```
notification = new Notification.Builder(this)

.setLargeIcon(largeIcon)

.setSmallIcon(R.drawable.icon)

.setContentText("New Meassge")

.setSubText("New Meassge from Batch-191")

.setChannelId(CHANNEL_ID)

.build();
nm.createNotificationChannel(new NotificationChannel(CHANNEL_ID,
"newchannle",NotificationManager.IMPORTANCE_HIGH));
}

else{

notification = new Notification.Builder(this)

.setLargeIcon(largeIcon)

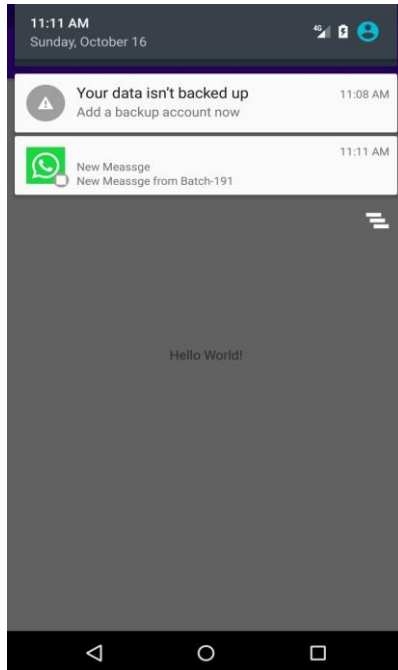
.setSmallIcon(R.drawable.icon)

.setContentText("New Meassge")

.setSubText("New Meassge from Batch-191")

.build();
}

nm.notify(NOTIFICATION_ID,notification);
}
}
```

Output:

PRACTICAL: 14

Practical: 13

Aim: Get and save User Preferences

Program:

MainActivity.java:

```
package com.example.p14;

import android.app.Activity;
import android.content.Context;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.Menu;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity
{
    SharedPreferences sharedPreferences;
    TextView name;
    TextView email;
    public static final String mypreference = "mypref";
    public static final String Name = "nameKey";
    public static final String Email = "emailKey";

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = (TextView) findViewById(R.id.etName);
        email = (TextView) findViewById(R.id.etEmail);
        sharedPreferences = getSharedPreferences(mypreference,
            Context.MODE_PRIVATE);
        if (sharedPreferences.contains(Name))
        {
            name.setText(sharedPreferences.getString(Name,
                ""));
        }
        if (sharedPreferences.contains(Email))
        {
            email.setText(sharedPreferences.getString(Email, ""));
        }
    }

    public void Save(View view) {
        String n = name.getText().toString();
        String e = email.getText().toString();
        SharedPreferences.Editor editor = sharedPreferences.edit();
    }
}
```

```

        editor.putString(Name,    n);
        editor.putString(Email,    e);
        editor.commit();
        Toast.makeText(MainActivity.this, "Saved", Toast.LENGTH_SHORT).show();
    }

    public void clear(View view) {
        name = (TextView) findViewById(R.id.etName);
        email = (TextView) findViewById(R.id.etEmail);
        name.setText("");
        email.setText("");
        Toast.makeText(MainActivity.this, "Cleared", Toast.LENGTH_SHORT).show();
    }
}

```

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
        xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:paddingBottom="100dp"
        android:paddingLeft="100dp" android:paddingRight="100dp"
        android:paddingTop="100dp" >

        <Button
            android:id="@+id/btnSave"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerVertical="true"
            android:layout_alignParentLeft="true"
            android:layout_alignParentStart="true"
            android:onClick="Save"
            android:text="Save" />

        <Button
            android:id="@+id/btnRetr"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignTop="@+id/btnSave"
            android:layout_centerVertical="true"

```

```
android:layout_marginTop="110dp"
android:onClick="Get"
android:text="Retrieve" />
```

```
<Button
    android:id="@+id/btnClear"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignRight="@+id/etEmail"
    android:layout_alignParentEnd="false"
    android:layout_alignParentRight="false"
    android:layout_centerVertical="true"
    android:layout_marginEnd="2dp"
    android:layout_marginRight="-67dp"
    android:onClick="clear" android:text="Clear"
/>
```







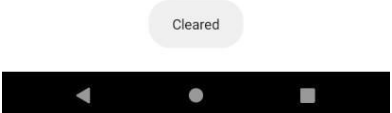
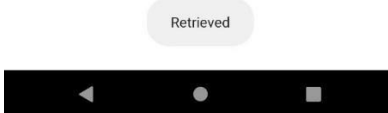
```
<EditText
    android:id="@+id/etEmail"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10" android:hint="Email"
    android:inputType="textEmailAddress"
    android:layout_below="@+id/etName"
    android:layout_marginTop="20dp"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true" />
```

```
<EditText
    android:id="@+id/etName"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:ems="10" android:hint="Name"
    android:inputType="text"
    android:layout_alignParentTop="true"
    android:layout_alignLeft="@+id/etEmail"
    android:layout_alignStart="@+id/etEmail" />
```

```
</RelativeLayout>
```

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

Output:

	
<p>Name <input type="text"/></p> <p>Email <input type="text"/></p> <p>SAVE CLEAR</p> <p>RETRIEVE</p>	<p>Name <input type="text" value="John"/></p> <p>Email <input type="text" value="john@gmail.com"/></p> <p>SAVE CLEAR</p> <p>RETRIEVE</p>
	
	
<p>Name <input type="text"/></p> <p>Email <input type="text"/></p> <p>SAVE CLEAR</p> <p>RETRIEVE</p>	<p>Name <input type="text" value="John"/></p> <p>Email <input type="text" value="john@gmail.com"/></p> <p>SAVE CLEAR</p> <p>RETRIEVE</p>
	

PRACTICAL: 15

Practical: 15

Aim: make a use of android system

Program:

Activity_main.xml

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

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

    <uses-feature
        android:name="android.hardware.telephony"
        android:required="false" />

    <application
        android:allowBackup="false"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.MyCompanion">

        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="@string/google_maps_key" />

        <activity
            android:name=".MapsActivity"
            android:label="@string/title_activity_maps" />
        <activity android:name=".HomeActivity" />
        <activity android:name=".LoginActivity" />
        <activity android:name=".AppActivity" />
        <activity android:name=".MainActivity"
            android:exported="true">
```

```
<intent-filter>
    <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

AppActivity.java

```
package com.example.mycompanion;

import androidx.appcompat.app.AppCompatActivity;

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

public class AppActivity extends AppCompatActivity {
    EditText user,pass,number,name;
    TextView loginRedirect;
    Button signup;
    DBHelper DB;

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

        TextView loginRedirect = findViewById(R.id.login_redirect);
        user = findViewById(R.id.user);
        pass = findViewById(R.id.pass);
        number = findViewById(R.id.number);
        name = findViewById(R.id.name);
        signup = findViewById(R.id.signup);

        DB = new DBHelper(this);
```

```
signup.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        String us = user.getText().toString();  
        String ps = pass.getText().toString();  
        String nu = number.getText().toString();  
        String nm = name.getText().toString();  
  
        if(us.equals("")||ps.equals("")||nu.equals("")||nm.equals(""))  
        {  
            Toast.makeText(AppActivity.this,"Please enter all the  
fields",Toast.LENGTH_SHORT).show();  
        }  
        else  
        {  
            Boolean checkuser = DB.checkusername(us);  
            if(checkuser==false)  
            {  
                Boolean insert = DB.insertData(us,ps,nm,nu);  
                if(insert==true)  
                {  
                    Toast.makeText(AppActivity.this,"Sign Up  
Successfully",Toast.LENGTH_SHORT).show();  
                    Intent intent = new  
Intent(getApplicationContext(),HomeActivity.class);  
                    startActivity(intent);  
                }  
                else  
                {  
                    Toast.makeText(AppActivity.this,"Sign Up  
Failed",Toast.LENGTH_SHORT).show();  
                }  
            }  
            else  
            {  
                Toast.makeText(AppActivity.this,"User already  
exists",Toast.LENGTH_SHORT).show();  
            }  
        }  
    }  
});
```

```
loginRedirect.setOnClickListener(new View.OnClickListener() {
```

@Override

```
public void onClick(View v) {  
    Intent LOGIN = new Intent(AppActivity.this, LoginActivity.class);  
    startActivity(LOGIN);  
}  
});  
}
```

HomeActivity.java

```
package com.example.mycompanion;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.cardview.widget.CardView;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.ImageView;  
  
import com.synnapps.carouselview.CarouselView;  
import com.synnapps.carouselview.ImageListener;  
  
public class HomeActivity extends AppCompatActivity {  
    CarouselView carouselView;  
    CardView cardView;  
    int[] sampleImages = {R.drawable.w1, R.drawable.w4, R.drawable.w5,  
R.drawable.w3};  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_home);  
        carouselView = findViewById(R.id.carouselView);  
        carouselView.setPageCount(sampleImages.length);  
        carouselView.setImageListener(imageListener);  
        cardView = findViewById(R.id.card1);  
  
        cardView.setOnClickListener(new View.OnClickListener() {  
            @Override  
            public void onClick(View v) {  
                Intent intent = new  
Intent(getApplicationContext(), MapsActivity.class);
```

```
        startActivity(intent);
    }
});
}
```

```
ImageListener imageListener = new ImageListener() {
    @Override
    public void setImageForPosition(int position, ImageView imageView) {
        imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
        imageView.setImageResource(sampleImages[position]);
    }
};

}
```

LoginActivity.java

```
package com.example.mycompanion;

import androidx.appcompat.app.AppCompatActivity;

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

public class LoginActivity extends AppCompatActivity {

    EditText username,password;
    Button signin;
    DBHelper DB;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);
        DB = new DBHelper(this);
        username = findViewById(R.id.username);
        password = findViewById(R.id.password);
        signin = findViewById(R.id.signin);

        signin.setOnClickListener(new View.OnClickListener() {
```

```

@Override
public void onClick(View v) {
    String user = username.getText().toString();
    String pass = password.getText().toString();

    if(user.equals("")||pass.equals(""))
    {
        Toast.makeText(LoginActivity.this,"Please enter all the
fields",Toast.LENGTH_SHORT).show();
    }
    else
    {
        Boolean checkuserpass = DB.checkusernamepassword(user,pass);
        if(checkuserpass==true) {
            Toast.makeText(LoginActivity.this, "Sign In Successfull",
Toast.LENGTH_SHORT).show();
            Intent intent = new
Intent(getApplicationContext(),HomeActivity.class);
            startActivity(intent);
        }
        else{
            Toast.makeText(LoginActivity.this,"Inavlid
Credentials",Toast.LENGTH_SHORT).show();
        }
    }
}
});
}
}

```

MainActivity.java

```

package com.example.mycompanion;

import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.widget.ImageView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

```

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

    ImageView img = findViewById(R.id.img);
    img.setAlpha(0.0f);
    img.animate().alpha(1.0f).setDuration(5000);
    new Handler().postDelayed(() -> {
        Intent mainIntent = new Intent(MainActivity.this,AppActivity.class);
        MainActivity.this.startActivity(mainIntent);
        MainActivity.this.finish();
    },5800);
}
```

MapsActivity.java

```
package com.example.mycompanion;

import androidx.annotation.NonNull;
import androidx.core.app.ActivityCompat;
import androidx.fragment.app.FragmentActivity;

import android.Manifest;
import android.app.Activity;
import android.content.pm.PackageManager;
import android.database.Cursor;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.net.Uri;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.widget.Toast;

import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
```

```
import static java.lang.String.valueOf;

public class MapsActivity extends FragmentActivity implements
OnMapReadyCallback {

    private GoogleMap mMap;
    private LocationManager locationManager;
    private LocationListener locationListener;
    private final long MIN_TIME =1000;
    private final long MIN_DIST = 5;
    private LatLng latLng;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_maps);
        // Obtain the SupportMapFragment and get notified when the map is ready
        to be used.
        SupportMapFragment mapFragment = (SupportMapFragment)
        getSupportFragmentManager()
            .findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
        ActivityCompat.requestPermissions(this,new
        String[]{Manifest.permission.ACCESS_FINE_LOCATION,Manifest.permission
        .ACCESS_COARSE_LOCATION},
        PackageManager.PERMISSION_GRANTED);
        ActivityCompat.requestPermissions(this,new
        String[]{Manifest.permission.SEND_SMS},
        PackageManager.PERMISSION_GRANTED);
        ActivityCompat.requestPermissions(this,new
        String[]{Manifest.permission.INTERNET},
        PackageManager.PERMISSION_GRANTED);
    }

    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;

        locationListener = new LocationListener() {
            @Override
            public void onLocationChanged(Location location) {
                try{
```



```

        DBHelper db = new DBHelper(MapsActivity.this);
        latLng = new
LatLng(location.getLatitude(),location.getLongitude());
        mMap.addMarker(new MarkerOptions().position(latLng).title("Your
Location"));
        mMap.moveCamera(CameraUpdateFactory.newLatLng(latLng));
//        String myLatitude = String.valueOf(location.getAltitude());
//        String myLongitude = String.valueOf(location.getLongitude());
//        String message = "Latitude = "+myLatitude+" Longitude =
"+myLongitude;
        //String uri = "http://maps.google.com/maps?saddr=" +
location.getLatitude()+","+location.getLongitude();
        String message = "http://maps.google.com/?q=" +
location.getLatitude() + "," + location.getLongitude();

        Cursor cursor=new
DBHelper(getApplicationContext()).readalldata();

        String phoneNumber = null;

        while(cursor.moveToNext())
        {
            phoneNumber =cursor.getString(3);

        }
        //String phoneNumber = "7987106365";
        SmsManager smsManager = SmsManager.getDefault();
        StringBuffer smsBody = new StringBuffer();
        //smsBody.append(Uri.parse(uri));
        smsManager.sendTextMessage(phoneNumber, null, message, null,
null);

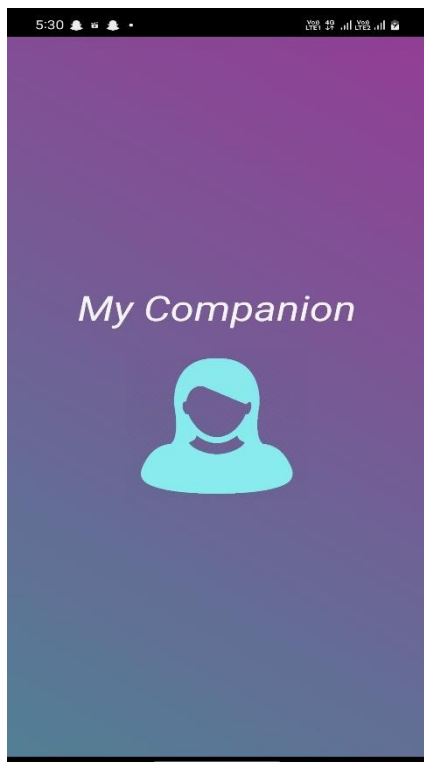
//smsManager.sendTextMessage(phoneNumber,null,message,null,null);
    }
    catch (Exception e)
    {
        e.printStackTrace();
    }
}
};
locationManager = (LocationManager)
getSystemService(LOCATION_SERVICE);

```

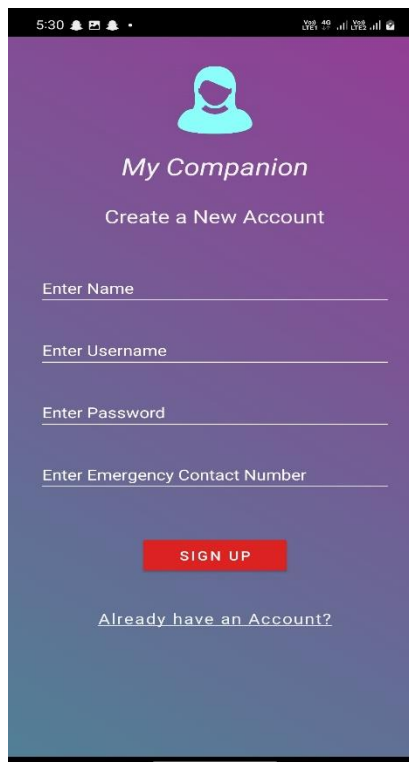
```
try {  
  
locationManager.requestLocationUpdates(LocationManager.NETWORK_PROVIDER, MIN_TIME, MIN_DIST, locationListener);  
  
locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER, MIN_TIME, MIN_DIST, locationListener);  
    }  
    catch (SecurityException e)  
    {  
        e.printStackTrace();  
    }  
}  
}
```

Output:

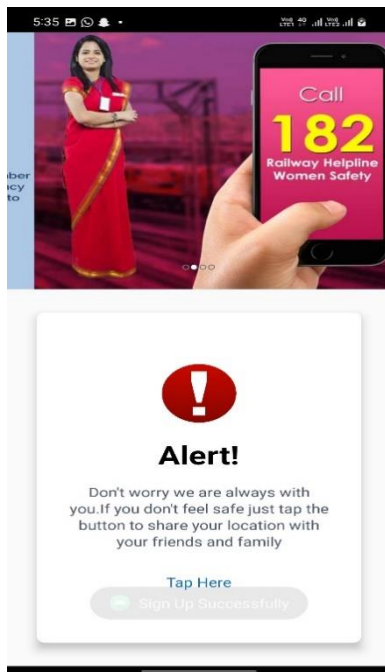
Home page



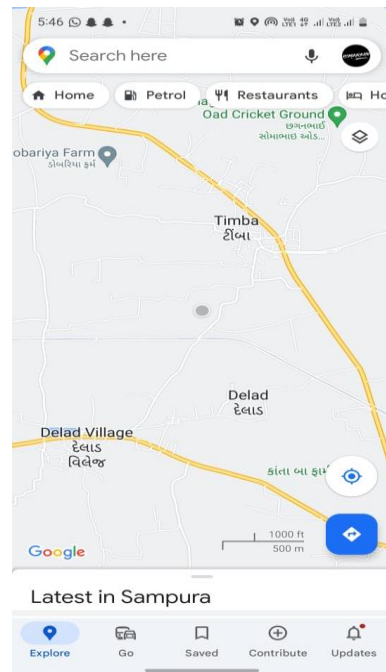
SignUp Page



Alert page



Map Page



PRACTICAL: 16

Practical: 16

Aim: Make a use of Light and Accelerometer Sensor.

Program:

activity_main.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:background="#4caf50"
    android:gravity="center"
    android:orientation="vertical">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="sans-serif-black"
        android:text="Latitude:"
        android:textSize="24sp" />
    <TextView
        android:id="@+id/latTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="Latitude "
        android:textColor="#f5f5f5"
        android:textSize="16sp" />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="sans-serif-black"
        android:text="Longitude:"
        android:textSize="24sp" />
```

```
<TextView
android:id="@+id/lonTextView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:hint="Longitude"
android:textColor="#f5f5f5"
android:textSize="16sp" />
</LinearLayout>
```

MainActivity.java:

```
package com.example.practical16;

import android.Manifest;
import android.annotation.SuppressLint;
import android.content.Context;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationManager;
import android.os.Bundle;
import android.os.Looper;
import android.provider.Settings;
import android.widget.TextView;
import android.widget.Toast;

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

import com.google.android.gms.location.FusedLocationProviderClient;
import com.google.android.gms.location.LocationCallback;
import com.google.android.gms.location.LocationRequest;
```

```
import com.google.android.gms.location.LocationResult;
import com.google.android.gms.location.LocationServices;
import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;

public class MainActivity extends AppCompatActivity {
    FusedLocationProviderClient mFusedLocationClient;
    TextView latitudeTextView, longitTextView;
    int PERMISSION_ID = 44;

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

        latitudeTextView = findViewById(R.id.latTextView);
        longitTextView = findViewById(R.id.lonTextView);

        mFusedLocationClient = LocationServices.getFusedLocationProviderClient(this);
        getLastLocation();
    }
    @SuppressWarnings("MissingPermission")
    private void getLastLocation() {
        if (checkPermissions()) {
            if (isLocationEnabled()) {
                mFusedLocationClient.getLastLocation().addOnCompleteListener(new
OnCompleteListener<Location>() {
                    @Override
                    public void onComplete(@NonNull Task<Location> task) {
                        Location location = task.getResult();
                        if (location == null) {
                            requestNewLocationData();
                        }
                    }
                });
            }
        }
    }
}
```

```
        } else {  
            latitudeTextView.setText(location.getLatitude() + "");  
            longitTextView.setText(location.getLongitude() + "");  
        }  
    }  
});  
} else {  
    Toast.makeText(this, "Please turn on" + " your location...",  
    Toast.LENGTH_LONG).show();  
    Intent intent = new Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);  
    startActivity(intent);  
}  
} else {  
    requestPermissions();  
}  
}  
  
@SuppressWarnings("MissingPermission")  
private void requestNewLocationData() {  
    LocationRequest mLocationRequest = new LocationRequest();  
    mLocationRequest.setPriority(LocationRequest.PRIORITY_HIGH_ACCURACY);  
    mLocationRequest.setInterval(5);  
    mLocationRequest.setFastestInterval(0);  
    mLocationRequest.setNumUpdates(1);  
  
    mFusedLocationClient = LocationServices.getFusedLocationProviderClient(this);  
    mFusedLocationClient.requestLocationUpdates(mLocationRequest,  
    mLocationCallback, Looper.myLooper());  
}  
private LocationCallback mLocationCallback = new LocationCallback() {  
    @Override  
    public void onLocationResult(LocationResult locationResult) {
```



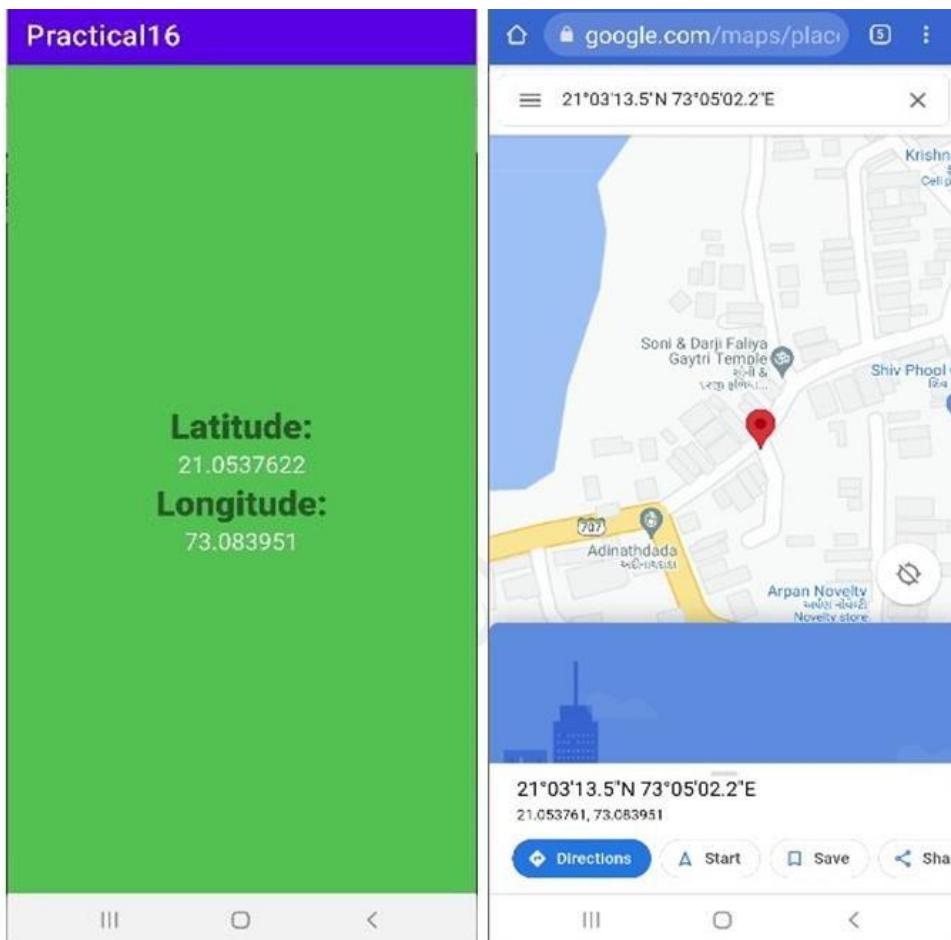
```
Location mLastLocation = locationResult.getLastLocation();
latitudeTextView.setText("Latitude: " + mLastLocation.getLatitude() + "");
longitTextView.setText("Longitude: " + mLastLocation.getLongitude() + "");
}
};
private boolean checkPermissions() {
    return ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) ==
PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) ==
PackageManager.PERMISSION_GRANTED;

private void requestPermissions() {
    ActivityCompat.requestPermissions(this, new String[]{
        Manifest.permission.ACCESS_COARSE_LOCATION,
        Manifest.permission.ACCESS_FINE_LOCATION}, PERMISSION_ID);
}
private boolean isLocationEnabled() {
    LocationManager locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);
    return locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER) ||
locationManager.isProviderEnabled(LocationManager.NETWORK_PROVIDER);
}
@Override
public void
onRequestPermissionsResult(int requestCode, @NonNull String[] permissions, @NonNull
int[] grantResults) {
    super.onRequestPermissionsResult(requestCode, permissions, grantResults);

    if (requestCode == PERMISSION_ID) {
        if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
```

```
        getLastLocation();  
    }  
}  
}  
@Override  
public void onResume() {  
    super.onResume();  
    if (checkPermissions()) {  
        getLastLocation();  
    }  
}
```

Output:



PRACTICAL: 17

Practical: 17

Aim: Display use of animations

Source Code(MainActivity.java):

```
package com.example.practical17;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    ImageView imgview;

    Button izoom, ozoom, ifade, ofade, rotate, arotate, blink, uslide, dslide, move, bounce, stop;

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

        imgview=findViewById(R.id.imgview);

        izoom=findViewById(R.id.BTNizoom);
        rotate=findViewById(R.id.BTNrotate);
        ifade=findViewById(R.id.BTNifade);

        ozoom=findViewById(R.id.BTNozoom);
        arotate=findViewById(R.id.BTNarotate);
        ofade=findViewById(R.id.BTNofade);

        move=findViewById(R.id.BTNmove);
```

```
blink=findViewById(R.id.BTNblink);
bounce=findViewById(R.id.BTNbounce);

uslide=findViewById(R.id.BTNuslide);
dslide=findViewById(R.id.BTNdslide);
stop=findViewById(R.id.BTNstop);

izoom.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_in_animation);
        imgview.startAnimation(anim);
    }
});

rotate.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.rotato_animation);
        imgview.startAnimation(anim);
    }
});

ifade.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.fade_in_animation);
        imgview.startAnimation(anim);
    }
});

ozoom.setOnClickListener(new View.OnClickListener() {
```

```
@Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_out_animation);

        imgview.startAnimation(anim);

    }

});

arotate.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.rotate_anti_animation);

        imgview.startAnimation(anim);

    }

});

ofade.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.fade_out_animation);

        imgview.startAnimation(anim);

    }

});

move.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.move_animation);

        imgview.startAnimation(anim);

    }

});

blink.setOnClickListener(new View.OnClickListener() {
```

```
@Override

public void onClick(View v) {

    Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.blink_animation);

    imgview.startAnimation(anim);

}

});

bounce.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.bounce_animation);

        imgview.startAnimation(anim);

    }

});

uslide.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.slide_up_animation);

        imgview.startAnimation(anim);

    }

});

dslide.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Animation anim = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.slide_down_animation);

        imgview.startAnimation(anim);

    }

});

stop.setOnClickListener(new View.OnClickListener() {
```

```
@Override  
    public void onClick(View v) {  
        imgview.clearAnimation();  
    }  
});  
}
```

Source 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"  
        android:background="#BA5151"  
        tools:context=".MainActivity">  
  
    <TextView  
        android:id="@+id/txt1"  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:layout_marginTop="28dp"  
        android:text="ANIMATION"  
        android:textSize="35dp"  
        android:textColor="@color/black"  
        android:gravity="center"  
        app:layout_constraintEnd_toEndOf="parent"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintTop_toTopOf="parent"/>  
  
    <ImageView  
        android:id="@+id/imgview"
```



```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="28dp"
android:src="@drawable/img"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.497"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/txt1"/>
```

<LinearLayout

```
android:id="@+id/linear1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="16dp"
android:orientation="horizontal"
android:weightSum="3"
app:layout_constraintTop_toBottomOf="@+id/imgview"
tools:layout_editor_absoluteX="0dp">
```

<Button

```
android:id="@+id/BTNizoom"
style="@style/TextAppearance.AppCompat.Widget.Button"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/izoom"
android:textColor="@color/white" />
```

<Button

```
android:id="@+id/BTNrotate"
style="@style/TextAppearance.AppCompat.Widget.Button"
```

```
android:layout_width="59dp"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/clockwise"
android:textColor="@color/white" />
```

<Button

```
android:id="@+id/BTNifade"
style="@style/TextAppearance.AppCompat.Widget.Button"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/ifade"
android:textColor="@color/white" />
```

</LinearLayout>

<LinearLayout

```
android:id="@+id/linear2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="16dp"
android:orientation="horizontal"
android:weightSum="3"
app:layout_constraintTop_toBottomOf="@+id/linear1"
tools:layout_editor_absoluteX="0dp">
```

<Button

```
    android:id="@+id/BTNozoom"
    style="@style/TextAppearance.AppCompat.Widget.Button"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_weight="1"
    android:padding="3dp"
    android:text="@string/ozoom"
    android:textColor="@color/white" />
```

<Button

```
    android:id="@+id/BTNarotate"
    style="@style/TextAppearance.AppCompat.Widget.Button"
    android:layout_width="59dp"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_weight="1"
    android:padding="3dp"
    android:text="@string/anticlockwise"
    android:textColor="@color/white" />
```

<Button

```
    android:id="@+id/BTNofade"
    style="@style/TextAppearance.AppCompat.Widget.Button"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_weight="1"
    android:padding="3dp"
    android:text="@string/ofade"
```

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

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:id="@+id/linear3"
```

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

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

```
    android:layout_marginTop="16dp"
```

```
    android:orientation="horizontal"
```

```
    android:weightSum="3"
```

```
    app:layout_constraintTop_toBottomOf="@+id/linear2"
```

```
    tools:layout_editor_absoluteX="0dp">
```

```
<Button
```

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

```
    style="@style/TextAppearance.AppCompat.Widget.Button"
```

```
    android:layout_width="0dp"
```

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

```
    android:layout_margin="10dp"
```

```
    android:layout_weight="1"
```

```
    android:padding="3dp"
```

```
    android:text="@string/move"
```

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

```
<Button
```

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

```
    style="@style/TextAppearance.AppCompat.Widget.Button"
```

```
    android:layout_width="59dp"
```

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

```
    android:layout_margin="10dp"
```

```
    android:layout_weight="1"
```

```
android:padding="3dp"
android:text="@string/blink"
android:textColor="@color/white" />
```

```
<Button
```

```
    android:id="@+id/BTNbounce"
    style="@style/TextAppearance.AppCompat.Widget.Button"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_weight="1"
    android:padding="3dp"
    android:text="@string/bounce"
    android:textColor="@color/white" />
```

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:id="@+id/linear4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:orientation="horizontal"
    android:weightSum="3"
    app:layout_constraintTop_toBottomOf="@+id/linear3"
    tools:layout_editor_absoluteX="0dp">
```

```
<Button
```

```
    android:id="@+id/BTNuslide"
    style="@style/TextAppearance.AppCompat.Widget.Button"
    android:layout_width="0dp"
```

```
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/uslide"
android:textColor="@color/white" />
```

<Button

```
android:id="@+id/BTNstop"
style="@style/TextAppearance.AppCompat.Widget.Button"
android:layout_width="59dp"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/stop"
android:textColor="@color/white" />
```

<Button

```
android:id="@+id/BTNdslide"
style="@style/TextAppearance.AppCompat.Widget.Button"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:layout_weight="1"
android:padding="3dp"
android:text="@string/dslide"
android:textColor="@color/white" />
```

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

Source Code(blink.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <alpha android:fromAlpha="0.0"
        android:toAlpha="1.0"
        android:interpolator="@android:anim/accelerate_interpolator"
        android:duration="500"
        android:repeatMode="reverse"
        android:repeatCount="infinite"/>
</set>
```

Source Code(bounce.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    android:interpolator="@android:anim/linear_interpolator"
    android:fillAfter="true">
    <translate
        android:fromYDelta="100%"
        android:toYDelta="-20%"
        android:duration="300" />
    <translate
        android:startOffset="500"
        android:fromYDelta="-20%"
        android:toYDelta="10%"
        android:duration="150" />
    <translate
        android:startOffset="1000"
        android:fromYDelta="10%"
        android:toYDelta="0"
        android:duration="100" />
</set>
```

Source Code(fade_in.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    android:interpolator="@android:anim/linear_interpolator">
        <alpha
            android:duration="2000"
            android:fromAlpha="0.1"
            android:toAlpha="1.0" />
        </set>
```

Source Code(fade_out.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    android:interpolator="@android:anim/linear_interpolator">
        <alpha
            android:duration="2000"
            android:fromAlpha="1.0"
            android:toAlpha="0.1" />
        </set>
```

Source Code(move.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <translate
        android:fromXDelta="0%p"
        android:toXDelta="75%p"
        android:duration="700" />
    </set>
```

Source Code(rotate_anti.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
```



```
        android:duration="1000"
        android:pivotX="50%"
        android:pivotY="50%"
        android:fromDegrees="360"
        android:toDegrees="0"/>
    </set>
```

Source Code(rotate.xml):

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

Source Code(slide_up.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <translate
        android:duration="1000"
        android:fromYDelta="0"
        android:toYDelta="-100%" />
    </set>
```

Source Code(slide_down.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <translate
        android:duration="1000"
        android:fromYDelta="-100%"
        android:toYDelta="0" />
    </set>
```

Source Code(zoom_in.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale
        android:duration="1000"
        android:fromXScale="1"
        android:fromYScale="1"
        android:pivotX="50%"
        android:pivotY="50%"
        android:toXScale="3"
        android:toYScale="3"/>
</set>
```

Source Code(zoom_out.xml):

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale
        android:duration="1000"
        android:fromXScale="1"
        android:fromYScale="1"
        android:pivotX="50%"
        android:pivotY="50%"
        android:toXScale="0.3"
        android:toYScale="0.3"/>
</set>
```

Output:

Zoom Animation



Rotate Animation



Fade Animation



Slide Animation

