EXERCISE-1

Toast msgs

1. AIM: To write an android program to implement activity life cycle using toast messages with proper positioning.

Description:

An activity is the single screen in android. It is like window or frame of Java. By the help of activity, you can place all your UI components or widgets in a single screen. The 7 lifecycle method of Activity describes how activity will behave at different states.

`onCreate()` -- called when activity is first created.

`onStart()` -- called when activity is becoming visible to the user.

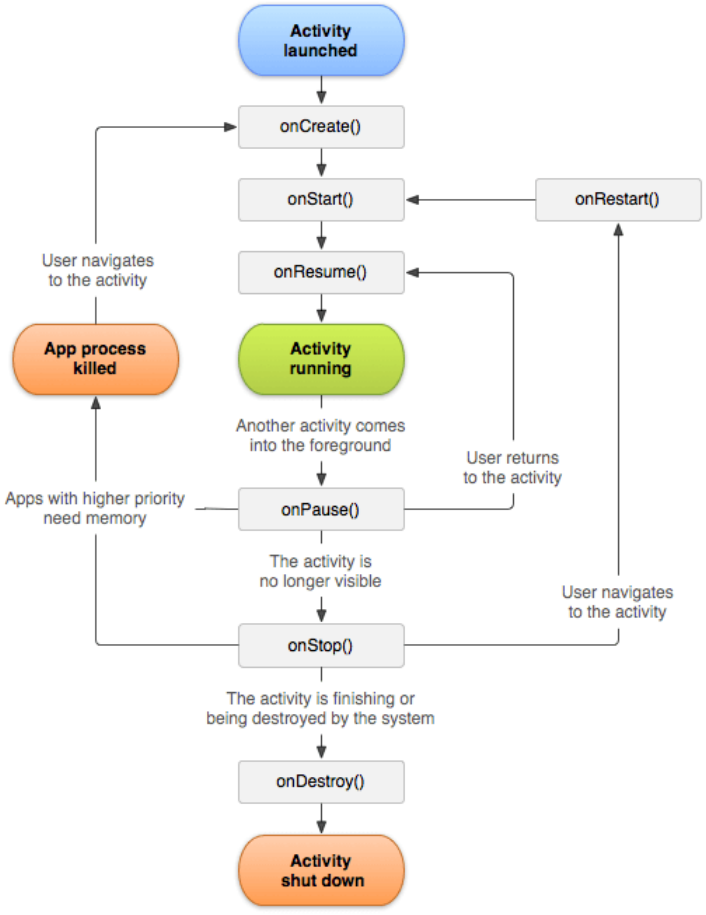
`onResume()` -- called when activity will start interacting with the user

`onPause()` -- called when activity is not visible to the user.

`onStop()` -- called when activity is no longer visible to the user.

`onRestart()` -- called after your activity is stopped, prior to start.

`onDestroy()` -- called before the activity is destroyed.



Syntax:

Toast.makeText(getApplicationContext(),"Text",Toast.LENGTH_SHORT).show();

Program:

MainActivity.java

```
package com.example.activity_lifecycle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Toast.makeText(MainActivity.this,"ON CREATE",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onStart() {
        super.onStart();
        Toast.makeText(MainActivity.this,"ON START",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onResume() {
        super.onResume();
        Toast.makeText(MainActivity.this,"ON RESUME",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onPause() {
        super.onPause();
        Toast.makeText(MainActivity.this, "ON PAUSE", Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onStop() {
        super.onStop();
        Toast.makeText(MainActivity.this,"ON STOP",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onRestart() {
        super.onRestart();
        Toast.makeText(MainActivity.this,"ON RESTART",Toast.LENGTH_SHORT).show();
    }
    @Override
    protected void onDestroy() {
        super.onDestroy();
        Toast.makeText(MainActivity.this,"ON DESTROY",Toast.LENGTH_SHORT).show();
    }
}
```

activity_main.xml

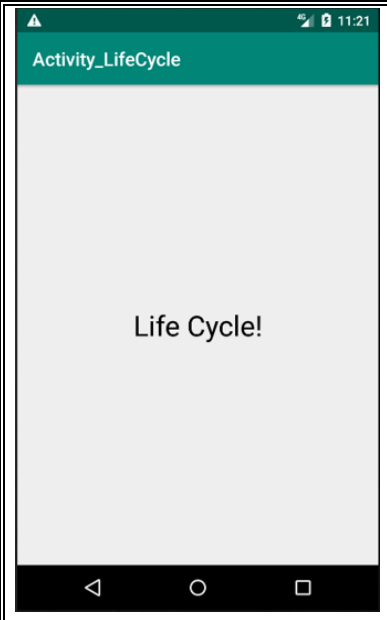
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout

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

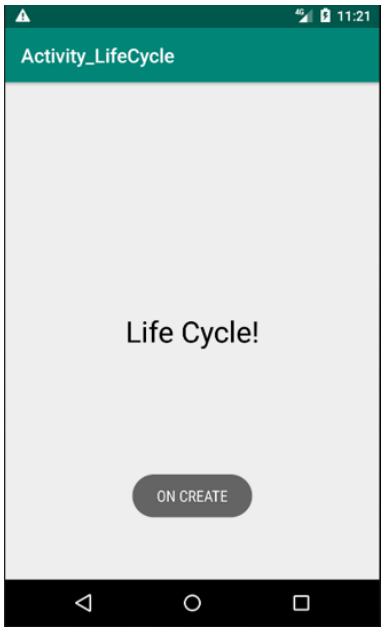
```
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Life Cycle!"
        android:textColor="#000"
        android:textSize="30dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

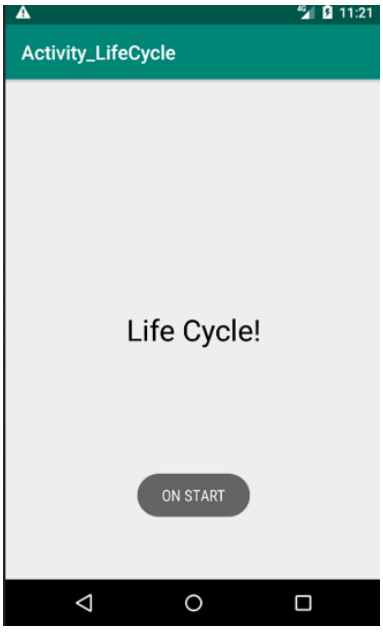
AndroidManifest.xml

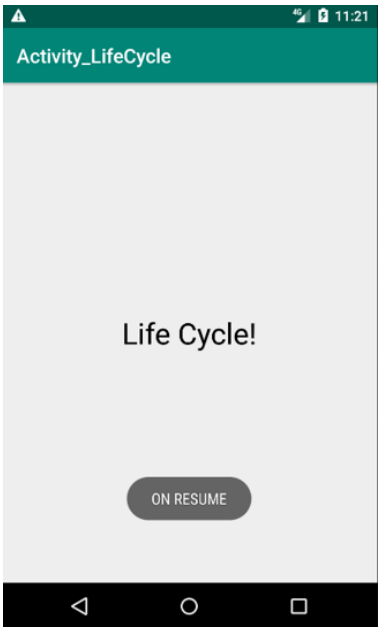
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.activity_lifecycle">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        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>
```

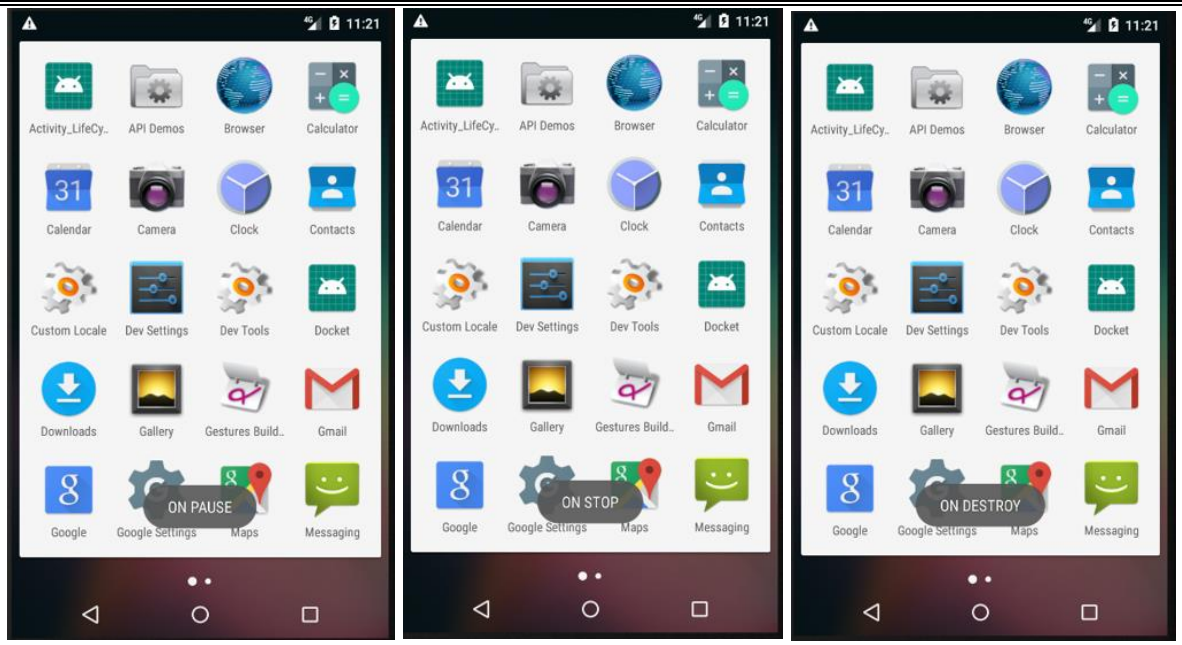
Output:


11:21
Activity_LifeCycle
Life Cycle!


11:21
Activity_LifeCycle
Life Cycle!
ON CREATE


11:21
Activity_LifeCycle
Life Cycle!
ON START


11:21
Activity_LifeCycle
Life Cycle!
ON RESUME


11:21
Activity_LifeCy..
API Demos
Browser
Calculator
Calendar
Camera
Clock
Contacts
Custom Locale
Dev Settings
Dev Tools
Docket
Downloads
Gallery
Gestures Build..
Gmail
Google
Google Settings
Maps
Messaging
ON PAUSE
11:21
Activity_LifeCy..
API Demos
Browser
Calculator
Calendar
Camera
Clock
Contacts
Custom Locale
Dev Settings
Dev Tools
Docket
Downloads
Gallery
Gestures Build..
Gmail
Google
Google Settings
Maps
Messaging
ON STOP
11:21
Activity_LifeCy..
API Demos
Browser
Calculator
Calendar
Camera
Clock
Contacts
Custom Locale
Dev Settings
Dev Tools
Docket
Downloads
Gallery
Gestures Build..
Gmail
Google
Google Settings
Maps
Messaging
ON DESTROY

EXERCISE-2

Layouts

2(a). AIM: To write an android program to print the set of alphabets/strings in a linear layout and in table layout.

Description:

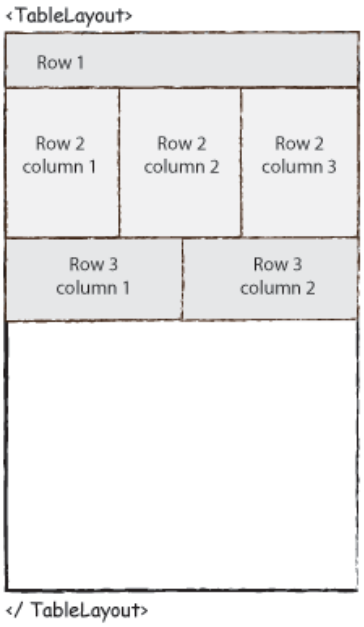
A layout defines the structure for a user interface in an app.

Linear Layout:

LinearLayout is a view group that aligns all children in a single direction, vertically or horizontally. You can specify the layout direction with the `android:orientation` attribute.

- `android:orientation="vertical"` is used to align elements vertically.
- `android:orientation="horizontal"` is used to align elements horizontally.

Table Layout:



Android TableLayout going to be arranged groups of views into rows and columns. You will use the <TableRow> element to build a row in the table. Each row has zero or more cells; each cell can hold one View object. TableLayout containers do not display border lines for their rows, columns, or cells.

Syntax:

LinearLayout:

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical | horizontal" >

        ......

</LinearLayout>
```

TableLayout:

```
<TableLayout
      android:layout_width="match_parent"
      android:layout_height="match_parent">

   <TableRow>
       ....
   </TableRow>
   <TableRow>
       .....
   </TableRow>
</TableLayout>
```

LinearLayout Program:

MainActivity.java

```
package com.example.layouts_exp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

activity_main.xml

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

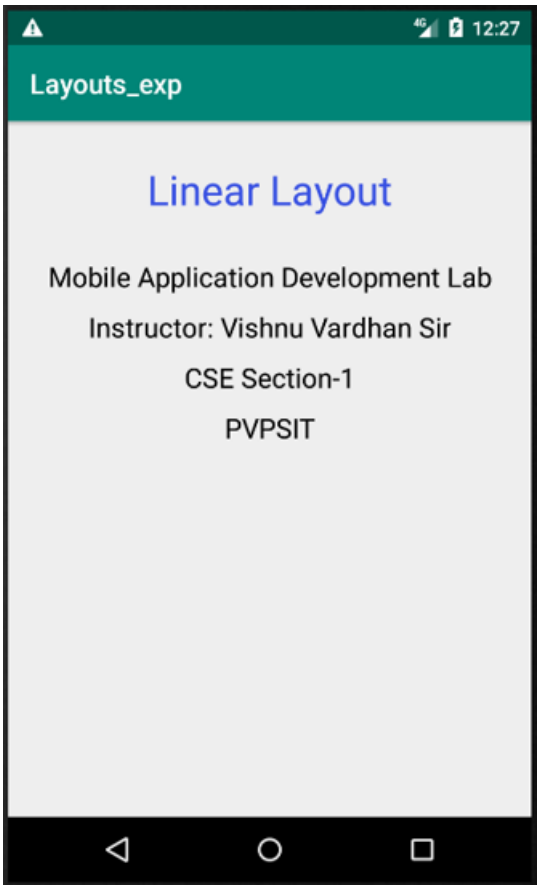
```
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Linear Layout"
        android:textSize="30dp"
        android:textColor="#364FE2"
        android:layout_marginTop="30dp"
        android:textAlignment="center"></TextView>


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Mobile Application Development Lab"
        android:textColor="#000"
        android:textSize="20dp"
        android:layout_marginTop="30dp"
        android:textAlignment="center"/>


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Instructor: Vishnu Vardhan Sir"
        android:textColor="#000"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:textAlignment="center"/>


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="CSE Section-1"
        android:textColor="#000"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:textAlignment="center"/>


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="PVPSIT"
        android:textColor="#000"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:textAlignment="center"/>

</LinearLayout>
```

AndroidManifest.xml

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

```
    <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:



TableLayout Program:

MainActivity.java

```
package com.example.table_layout;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
```

```
public class MainActivity extends AppCompatActivity {

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

activity_main.xml

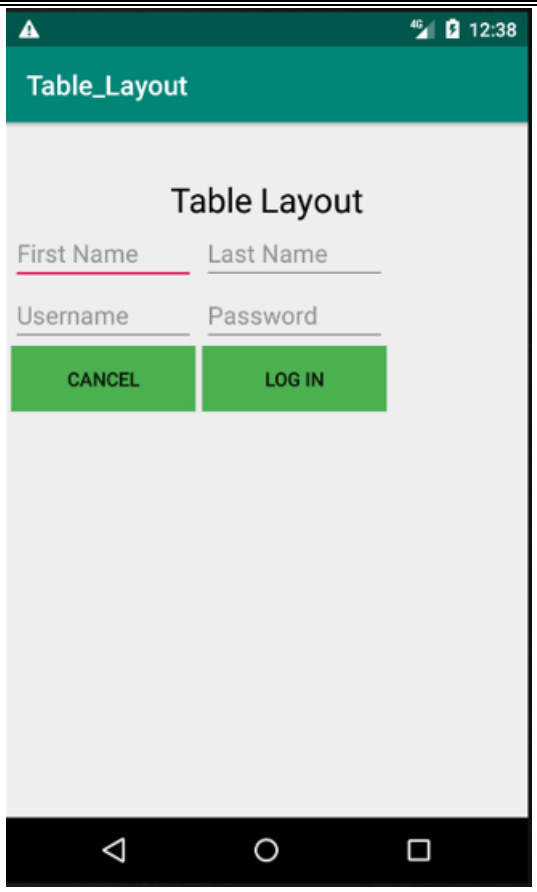
```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

        <TextView
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:text="Table Layout"
            android:textSize="25dp"
            android:textColor="#000"
            android:layout_marginTop="40dp"
            android:textAlignment="center"></TextView>

        <TableRow>

            <EditText
                android:layout_width="135dp"
                android:layout_height="wrap_content"
                android:layout_column="1"
                android:layout_marginLeft="5dp"
                android:hint="First Name"
                android:textSize="18dp"></EditText>

            <EditText
                android:layout_width="135dp"
                android:layout_height="wrap_content"
                android:layout_column="2"
                android:layout_marginLeft="5dp"
                android:hint="Last Name"
                android:textSize="18dp"></EditText>
        </TableRow>
    <TableRow>

        <EditText
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1"
            android:hint="Username"
            android:textSize="18dp"
            android:layout_marginLeft="5dp">
        </EditText>

        <EditText
            android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:layout_column="2"
            android:hint="Password"
            android:textSize="18dp"
            android:layout_marginLeft="5dp"></EditText>
    </TableRow>
    <TableRow>

        <Button
            android:background="#4CAF50"
            android:text="Cancel"
            android:layout_column="1"
            android:layout_marginLeft="5dp">
        </Button>
        <Button
            android:background="#4CAF50"
            android:text="Log In"
            android:layout_column="2"
            android:layout_marginLeft="5dp">
        </Button>
    </TableRow>
</TableLayout>
```

AndroidManifest.xml

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

    <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:

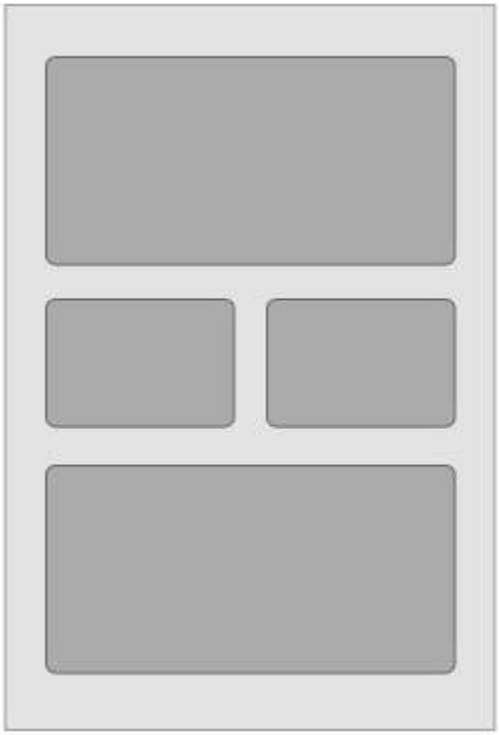


2(b). AIM: To write an android program to align text boxes labels, buttons in a Emulator using relative and linear layout tags in a layout.xml.

Description:

Relative Layout:

Android RelativeLayout enables you to specify how child views are positioned relative to each other. The position of each view can be specified as relative to sibling elements or relative to the parent.



Syntax:

RelativeLayout:

```
<RelativeLayout
   android:layout_width="match_parent"
   android:layout_height="match_parent">

      .....
</RelativeLayout>
```

LinearLayout Program:

MainActivity.java

```
package com.example.layouts_exp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

activity_main.xml

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

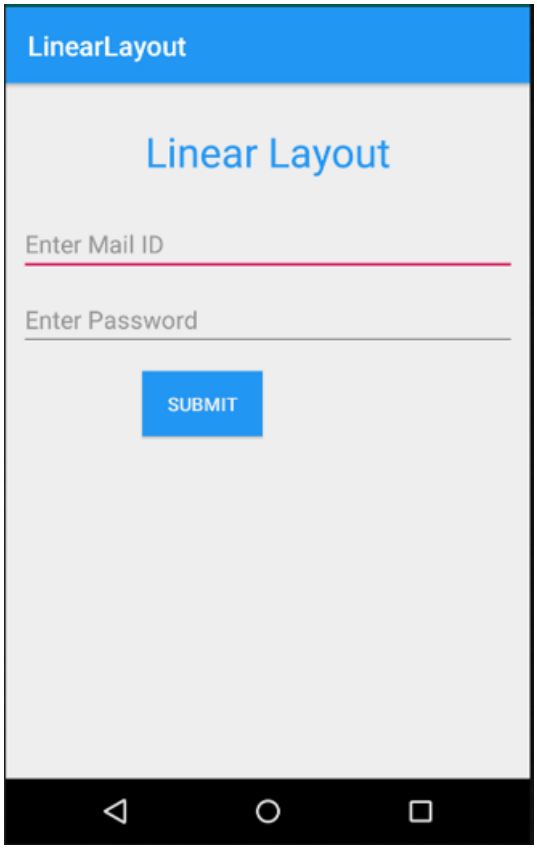
```
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Linear Layout"
        android:textSize="30dp"
        android:textColor="#2196F3"
        android:layout_marginTop="30dp"
        android:textAlignment="center"></TextView>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Mail ID"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:layout_marginTop="25dp" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Password"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:layout_marginTop="10dp"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit"
        android:background="#2196F3"
        android:textColor="#F5F4F4"
        android:layout_marginTop="15dp"
        android:layout_marginLeft="100dp"/>

</LinearLayout>
```

AndroidManifest.xml

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

    <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>
```

Ouput:



RelativiLayout Program:

MainActivity.java

```
package com.example.relative_layout;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

activity_main.xml

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

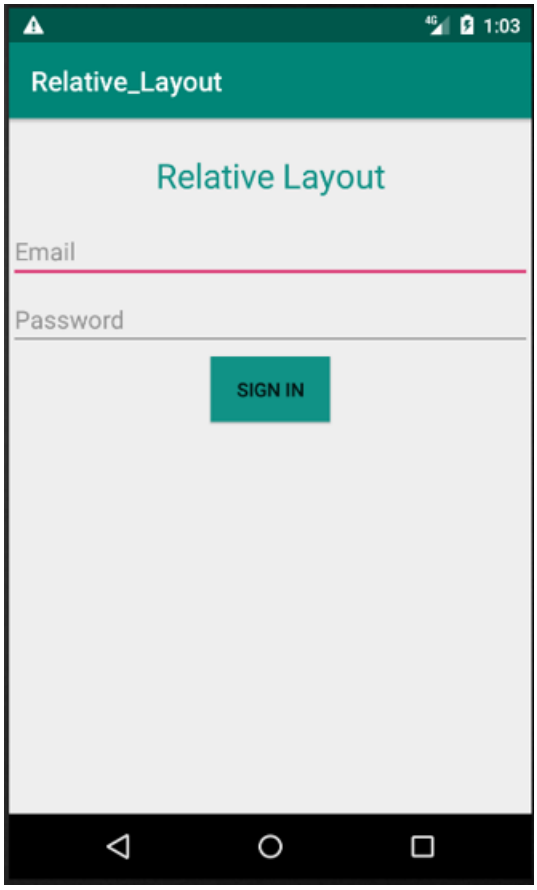
```
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/tv1"
        android:text="Relative Layout"
        android:textSize="25dp"
        android:textAlignment="center"
        android:textColor="#109286"
        android:layout_marginTop="25dp"></TextView>

    <EditText
        android:id="@+id/et1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:layout_alignTop="@id/tv1"
        android:layout_marginTop="50dp"></EditText>
    <EditText
        android:id="@+id/et2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:layout_alignTop="@id/et1"
        android:layout_marginTop="50dp"></EditText>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/bt1"
        android:layout_alignTop="@id/et2"
        android:layout_marginTop="50dp"
        android:text="sign in"
        android:layout_centerInParent="true"
        android:background="#109286">
    </Button>

</RelativeLayout>
```

AndroidManifest.xml

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

    <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:



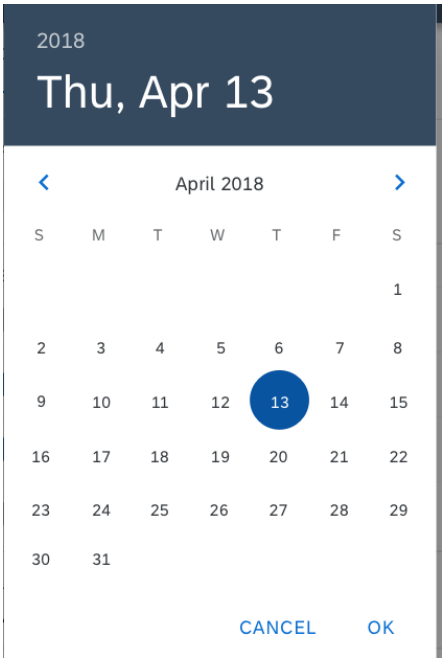
EXERCISE-3

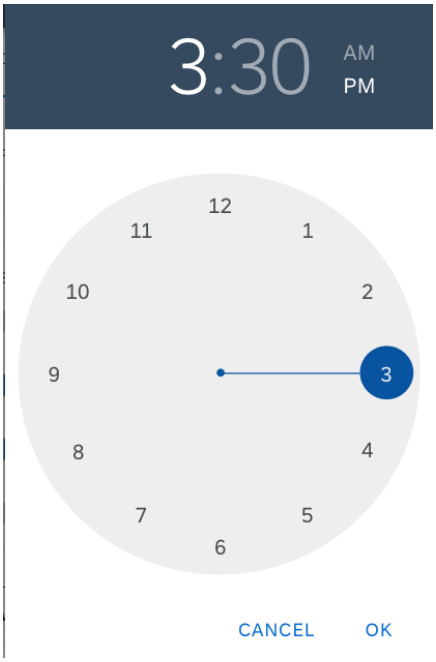
Dialogs and Menu

3(a). AIM: To write an android program to demonstrate DatePickerDialog, TimePickerDialog with current date and current running time.

Description:

Android provides controls for the user to pick a time or pick a date as ready-to-use dialogs. Each picker provides controls for selecting each part of the time (hour, minute, AM/PM) or date (month, day, year). Using these pickers helps ensure that your users can pick a time or date that is valid, formatted correctly, and adjusted to the user's locale.





Key Classes are:

- `DatePickerDialog`
- `TimePickerDialog`

Syntax:

DatePickerDialog:

```
Calendar c = Calendar.getInstance();
mYear = c.get(Calendar.YEAR);
mMonth = c.get(Calendar.MONTH);
mDay = c.get(Calendar.DAY_OF_MONTH);
DatePickerDialog datePickerDialog = new DatePickerDialog(this, new
DatePickerDialog.OnDateSetListener() {
     @Override
     public void onDateSet(DatePicker view, int year, int month, int dayOfMonth) {
                    ....
               }
```

```
},mYear,mMonth,mDay);
datePickerDialog.show();
```

TimePickerDialog:

```
Calendar c = Calendar.getInstance();
mHour = c.get(Calendar.HOUR_OF_DAY);
mMinute = c.get(Calendar.MINUTE);TimePickerDialog timePickerDialog = new
TimePickerDialog(this, new TimePickerDialog.OnTimeSetListener() {
     @Override
     public void onTimeSet(TimePicker view, int hourOfDay, int minute) {
                  .....
               }
},mHour,mMinute,false);
timePickerDialog.show();
```

Program:

MainActivity.java

```
package com.example.date_and_time_picker;

import androidx.appcompat.app.AppCompatActivity;

import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;
import android.widget.TimePicker;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {

    Button btn1,btn2;
    TextView tv1,tv2;

    private int mYear,mMonth,mDay,mHour,mMinute;

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

        btn1=(Button)findViewById(R.id.btn1);
        btn2=findViewById(R.id.btn2);
        tv1=findViewById(R.id.tv1);
        tv2=findViewById(R.id.tv2);

        btn1.setOnClickListener(this);
        btn2.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
```

```
        if(v==btn1){
            final Calendar c = Calendar.getInstance();
            mYear = c.get(Calendar.YEAR);
            mMonth = c.get(Calendar.MONTH);
            mDay = c.get(Calendar.DAY_OF_MONTH);
            DatePickerDialog datePickerDialog = new DatePickerDialog(this, new
DatePickerDialog.OnDateSetListener() {
                @Override
                public void onDateSet(DatePicker view, int year, int month, int
dayOfMonth) {
                    tv1.setText(dayOfMonth+"-"+month+"-"+year);
                }
            },mYear,mMonth,mDay);
            datePickerDialog.show();
        }
        if(v==btn2){
            final Calendar c = Calendar.getInstance();
            mHour = c.get(Calendar.HOUR_OF_DAY);
            mMinute = c.get(Calendar.MINUTE);
            TimePickerDialog timePickerDialog = new TimePickerDialog(this, new
TimePickerDialog.OnTimeSetListener() {
                @Override
                public void onTimeSet(TimePicker view, int hourOfDay, int minute)
{
                    tv2.setText(hourOfDay+":"+minute);
                }
            },mHour,mMinute,false);
            timePickerDialog.show();
        }
    }
}
```

activity_main.xml

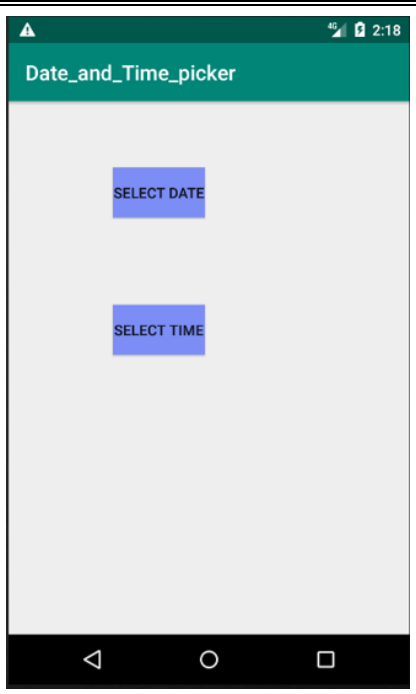
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/tv1"
        android:layout_marginTop="20dp"
        android:layout_marginLeft="15dp"
        android:layout_marginRight="15dp"
        android:textSize="25dp"></TextView>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="select date"
        android:id="@+id/btn1"
        android:background="#7C8EF5"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="10dp"></Button>
```

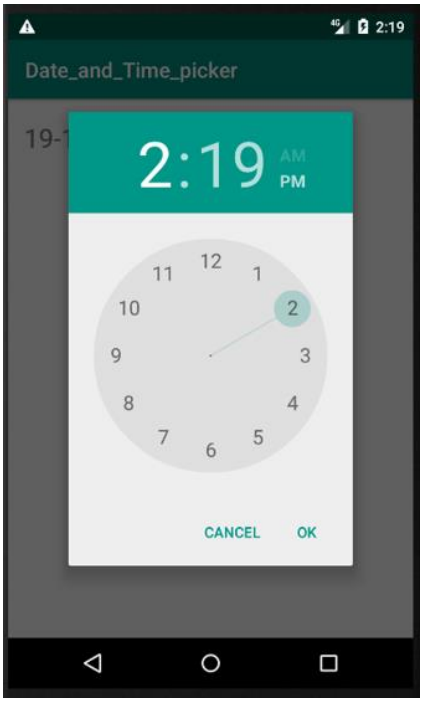
```
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/tv2"
        android:layout_marginTop="40dp"
        android:layout_marginLeft="15dp"
        android:layout_marginRight="15dp"
        android:textSize="25dp"></TextView>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="select time"
        android:id="@+id/btn2"
        android:background="#7C8EF5"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="10dp"></Button>
</LinearLayout>
```

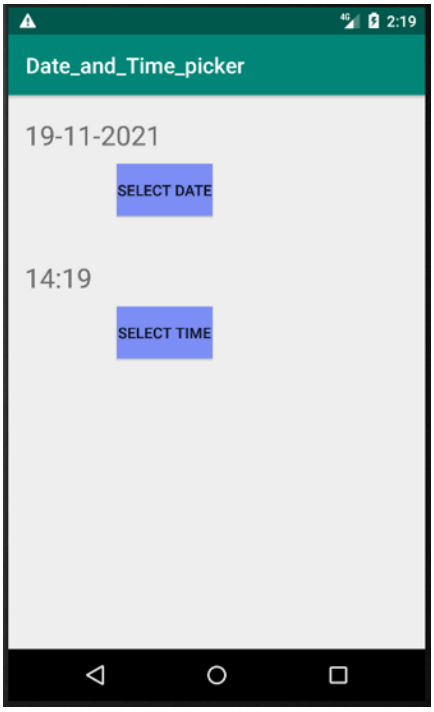
AndroidManifest.xml

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

    <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:







3(b). AIM: To write an android program to demonstrate a Menu with name File with New and Open as menu items. Give toast msgs on click of each menu item.

Description:

In android, Menu is an important part of UI component which is used to provide some common functionality around the application. With the help of menu user can experience smooth and consistent experience throughout the application. In order to use menu, we should define it in separate XML file and use that file in our application based on our requirements.

We should create a new folder menu inside of our project directory (res/menu) to define the menu and also add a new XML file to build the menu with following elements.

- `<menu>` It is the root element which helps in defining Menu in XML file and it also holds multiple elements.
- `<item>` It is used to create a single item in menu. It also contains nested <menu> element in order to create a submenu.
- `<group>` It is an optional and invisible for <item> elements to categorize the menu items so they can share properties like active state, visibility.

MainActivity.java

```
package com.example.hello;

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.menu_main, menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item){
        switch(item.getItemId()){
            case R.id.open:
                Toast.makeText(getApplicationContext(),"OPEN menu item
selected",Toast.LENGTH_LONG).show();
                break;
            case R.id.close:
                Toast.makeText(getApplicationContext(),"CLOSE menu item
selected",Toast.LENGTH_LONG).show();
                break;
        }
        return false;
    }
}
```

activity_main.xml

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

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Menus Demo"
        android:textColor="#000"
        android:textAlignment="center"
        android:textSize="25dp"
        android:layout_marginTop="300dp"/>


</LinearLayout>
```

menu_main.xml

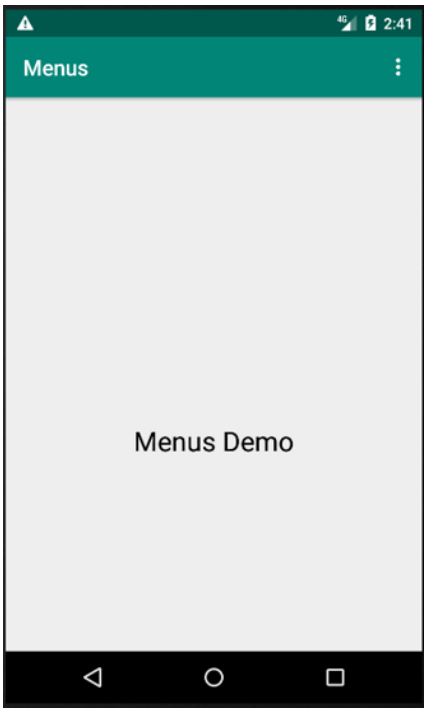
```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">

    <item android:id="@+id/open"
        android:title="@string/open"
        app:showAsAction="never"/>
    <item android:id="@+id/close"
        android:title="@string/close"
        app:showAsAction="never"/>
</menu>
```

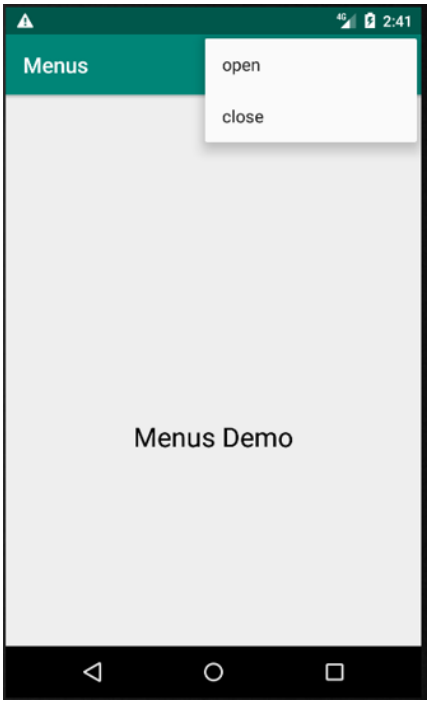
AndroidManifest.xml

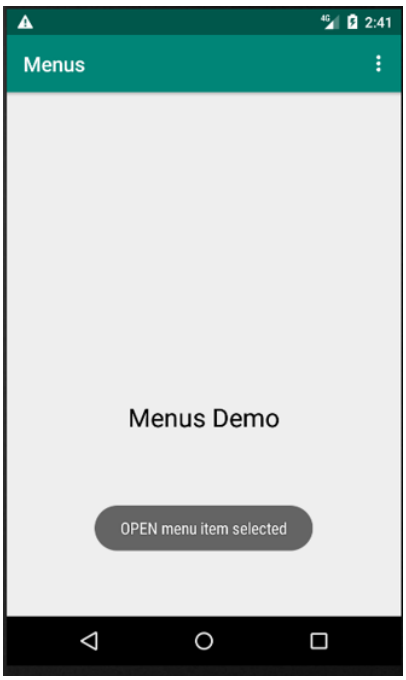
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.hello">

    <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>
```

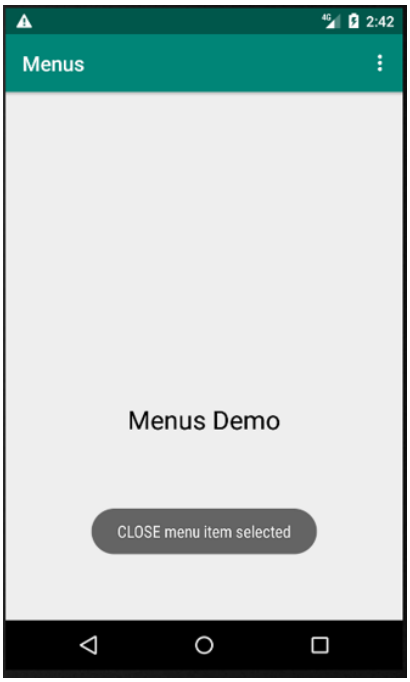
```
</manifest>
```

Output:









EXERCISE-4

AIM: To write an android program to switch from one activity to another using Intent. When the activity is changed disable the use of back button to avoid going to previous activity.

Description:
An ***Activity*** is an application component that provides a screen with which users can interact in order to do something, such as dial the phone, take a photo or send an email.

An ***Intent*** is Description of an operation to be performed. It is a Messaging object used to request an action from another app component via the Android system.

An Intent can be used to:
- ✓ Start an Activity
- ✓ Start a Service
- ✓ Deliver a Broadcast

Intents can be Explicit or Implicit.
- *Explicit Intent*: We specify the receiving activity (or other component) using the activity's fully qualified class.
- *Implicit Intent*: We do not specify a specific activity or other component to receive the intent.

Syntax:
Explicit Intent:
Intent intent = new Intent(getApplicationContext(), SecondActivity.class);
StartActivity(intent);

Implicit Intent:
Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(url));
startActivity(intent);

Program:

MainActivity.java

```
package com.example.explicit_intent_demo;

import androidx.appcompat.app.AppCompatActivity;

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


public class MainActivity extends AppCompatActivity {
    EditText fname,lname;
    Button sub_btn;

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

```
        fname = findViewById(R.id.et1);
        lname = findViewById(R.id.et2);
        sub_btn = findViewById(R.id.btn1);

        sub_btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new
Intent(MainActivity.this,SecondActivity.class);
                intent.putExtra("fname",fname.getText().toString());
                intent.putExtra("lname",lname.getText().toString());
                startActivity(intent);
            }
        });
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="#ACA7A7"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Explicit Intent Demo"
        android:textColor="#FCF7F7"
        android:textAlignment="center"
        android:textSize="25dp"
        android:layout_marginTop="25dp"
        >
    </TextView>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="First Name:"
        android:textColor="#F3EDED"
        android:textSize="18dp"
        android:layout_marginLeft="15dp"
        android:layout_marginTop="10dp">

    </TextView>
        <EditText
            android:id="@+id/et1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:hint="Enter your First Name"
            android:textColorHint="#F3F1F1"
```

```
            android:layout_marginTop="10dp"
            android:layout_marginLeft="8dp"></EditText>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Last Name:"
            android:textColor="#F8F7F7"
            android:textSize="18dp"
            android:layout_marginLeft="15dp"
            android:layout_marginTop="10dp">

        </TextView>
        <EditText
            android:id="@+id/et2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:hint="Enter your Last Name"
            android:textColorHint="#F3F1F1"
            android:layout_marginTop="10dp"
            android:layout_marginLeft="8dp"></EditText>
    </LinearLayout>

    <Button
        android:id="@+id/btn1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="120dp"
        android:layout_marginTop="10dp"
        android:textColor="#F0EDED"
        android:background="#414142"
        android:text="submit"
        >

    </Button>

</LinearLayout>
```

SecondActivity.java

```
package com.example.explicit_intent_demo;

import androidx.appcompat.app.AppCompatActivity;

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

public class SecondActivity extends AppCompatActivity {

    TextView tv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);

        tv=findViewById(R.id.tv);
        Intent i = getIntent();
        String s1 = i.getStringExtra("fname");
        String s2 = i.getStringExtra("lname");
        tv.setText("Welcome "+s1+" "+s2);
    }

    @Override
    public void onBackPressed() {
        Toast.makeText(this,"Use of Back button is
disabled!!",Toast.LENGTH_LONG).show();
    }
}
```

activity_second.xml

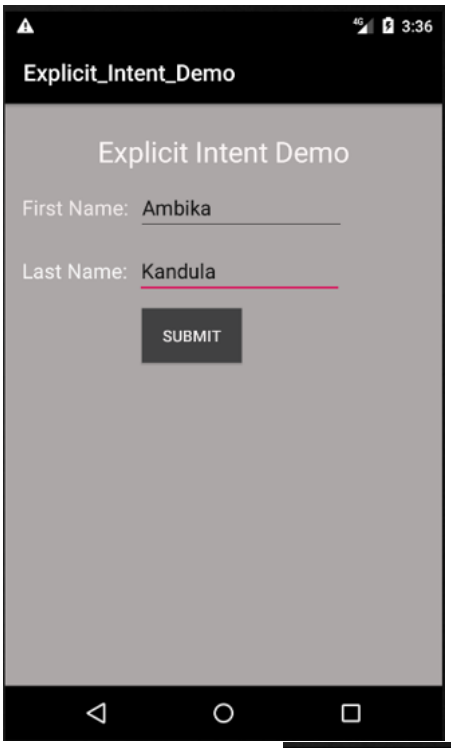
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".SecondActivity">
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Second Activity"
    android:textColor="#000"
    android:background="#EB7049"
    android:textSize="25dp"
    android:layout_marginTop="15dp"
    android:textAlignment="center">
</TextView>
    <TextView
        android:id="@+id/tv"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:textColor="#000"
        android:textSize="20dp"></TextView>
</LinearLayout>
```

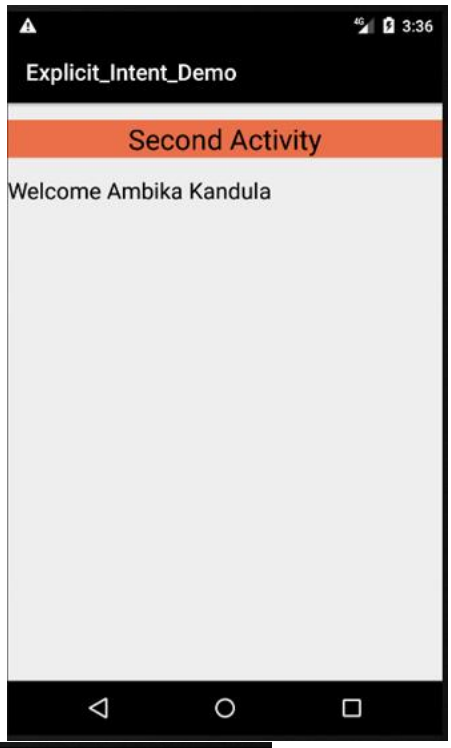
AndroidManifest.xml

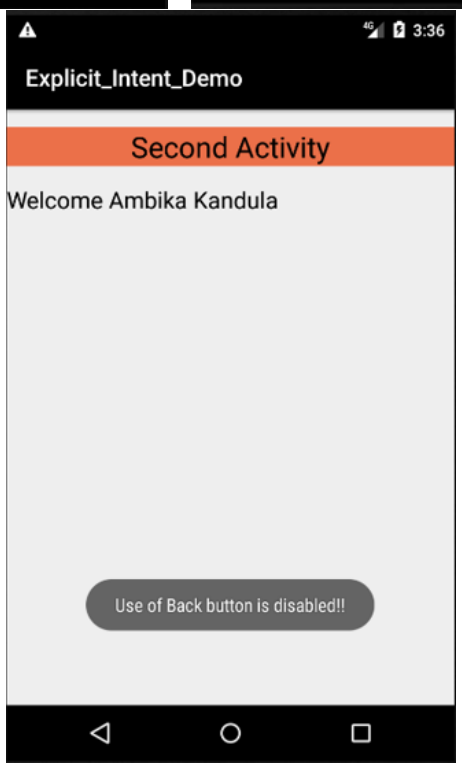
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.explicit_intent_demo">

    <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=".SecondActivity"></activity>
```

```
        <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:







EXERCISE-5

Views

AIM: To write an android program to demonstrate scroll view and list view.

Description:

ScrollView:

In Android, a ***ScrollView*** is a view group that is used to make vertically scrollable views. A scroll view contains a single direct child only. In order to place multiple views in the scroll view, one needs to make a view group as a direct child and then we can define many views inside it. A ScrollView supports Vertical scrolling only, so in order to create a horizontally scrollable view, HorizontalScrollView is used.

ListView:

Android ***ListView*** is a view which groups several items and display them in vertical scrollable list. The list items are automatically inserted to the list using an Adapter that pulls content from a source such as an array or database.

An adapter actually bridges between UI components and the data source that fill data into UI Component. Adapter holds the data and send the data to adapter view, the view can takes the data from adapter view and shows the data on different views like as spinner, list view, grid view etc.

The common adapters are ArrayAdapter, Base Adapter, CursorAdapter, SimpleAdapter etc..

Syntax:

ScrollView

```
<ScrollView
    android:layout_width="match_parent"
    android:layout_height="match_parent">
       .....
</ScrollView>
```

ListView

In activity_main.xml:

```
<ListView
   android:id="@+id/listview"
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"/>
```

In MainActivity.java:

```
ArrayAdapter adapter=new ArrayAdapter<String>(this,
android.R.layout.simple_list_item_1, array_list_object);
Listview.setAdapter(adapter);
```

Program:

ScrollView

MainActivity.java

```
package com.example.scrollview;

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

public class MainActivity extends AppCompatActivity {

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

activity_main.xml

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

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

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Enter Following Details"
            android:textAlignment="center"
            android:textColor="#000"
            android:textSize="22dp"
            android:layout_marginTop="15dp"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="First Name"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Last Name"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="College"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <EditText
            android:layout_width="match_parent"
```

```
            android:layout_height="wrap_content"
            android:hint="Location"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Gender"
            android:textColor="#000"
            android:textSize="18dp"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <RadioGroup
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:orientation="vertical">
        <RadioButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male"
            android:textSize="17dp"
            android:layout_marginLeft="15dp"/>
            <RadioButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Female"
                android:textSize="17dp"
                android:layout_marginLeft="15dp"/>
        </RadioGroup>
        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Year Of Study"
            android:textColor="#000"
            android:textSize="18dp"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <RadioGroup
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:orientation="vertical">
            <RadioButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="1st year"
                android:textSize="17dp"
                android:layout_marginLeft="15dp"/>
            <RadioButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="2nd year"
                android:textSize="17dp"
                android:layout_marginLeft="15dp"/>
            <RadioButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
```

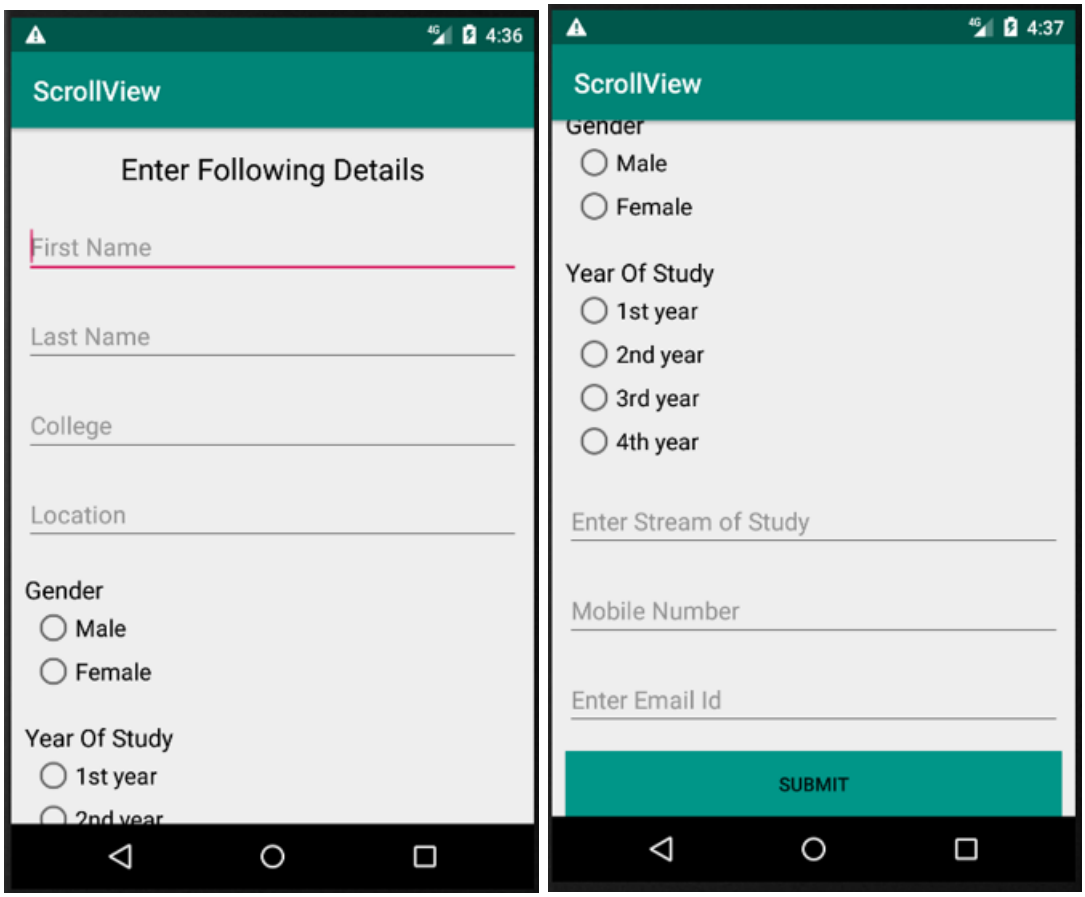
```
                android:text="3rd year"
                android:textSize="17dp"
                android:layout_marginLeft="15dp"/>
            <RadioButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="4th year"
                android:textSize="17dp"
                android:layout_marginLeft="15dp"/>
        </RadioGroup>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter Stream of Study"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Mobile Number"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter Email Id"
            android:layout_marginTop="20dp"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"/>
        <Button
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:text="Submit"
            android:layout_marginLeft="10dp"
            android:layout_marginRight="10dp"
            android:layout_marginTop="15dp"
            android:background="#009688"/>
    </LinearLayout>

</ScrollView>
```

AndroidManifest.xml

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

    <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:



ListView

MainActivity.java

```
package com.example.listview;

import androidx.appcompat.app.AppCompatActivity;

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

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
```

```
    ListView listView;


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

        listView=findViewById(R.id.lv);

        Company company1=new Company("Adode","California","$4.07 billions");
        Company company2=new Company("Amazon","Washington","$386 billions");
        Company company3=new Company("Google","California","$181.6 billions");
        Company company4=new Company("Facebook","California","$181.6 billions");
        Company company5=new Company("Cisco","California","$181.6 billions");

        ArrayList<Company> companies=new ArrayList<>();
        companies.add(company1);
        companies.add(company2);
        companies.add(company3);
        companies.add(company4);
        companies.add(company5);

        CompanyAdapter adapter=new
CompanyAdapter(MainActivity.this,R.layout.listview,companies);
        listView.setAdapter(adapter);
    }
}
```

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"
    tools:context=".MainActivity">
    <ListView
        android:id="@+id/lv"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

</LinearLayout>
```

listview.xml

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

    <TextView
        android:id="@+id/tv"
        android:layout_width="140dp"
        android:layout_height="49dp"

        android:text="TextView1"
        android:textAlignment="center"
```

```
        android:textColor="#000"
        android:textSize="25dp"
        android:textStyle="bold" />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        >
    <TextView
        android:id="@+id/tv1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="TextView2"
        android:textAlignment="center"
        android:textSize="18dp"
        android:textColor="#000"

        />
    <TextView
        android:id="@+id/tv2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textAlignment="center"
        android:text="TextView3"
        android:textSize="18dp"
        android:textColor="#000" />
    </LinearLayout>

</LinearLayout>
```

Company.java

```
package com.example.listview;

public class Company {
    private String name;
    private String HQ;
    private String Annual_rev;

    public String getName() {
        return name;
    }

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

    public String getHQ() {
        return HQ;
    }

    public void setHQ(String HQ) {
        this.HQ = HQ;
    }

    public String getAnnual_rev() {
        return Annual_rev;
    }
```

```
    public void setAnnual_rev(String annual_rev) {
        Annual_rev = annual_rev;
    }

    public Company(String name, String HQ, String annual_rev) {
        this.name = name;
        this.HQ = HQ;
        Annual_rev = annual_rev;
    }
}
```

CompanyAdapter.java

```
package com.example.listview;

import android.content.Context;
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;
import java.util.List;

public class CompanyAdapter extends ArrayAdapter<Company> {
    private Context context;
    int mresource;

    public CompanyAdapter(Context context, int resource, ArrayList<Company>
objects) {
        super(context, resource, objects);
        this.context = context;
        mresource=resource;
    }

    @NonNull
    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        String name=getItem(position).getName();
        String HQ=getItem(position).getHQ();
        String Annual_rev=getItem(position).getAnnual_rev();

        Company company=new Company(name,HQ,Annual_rev);
        LayoutInflater inflater=LayoutInflater.from(context);
        convertView=inflater.inflate(mresource,parent,false);

        TextView tv=(TextView)convertView.findViewById(R.id.tv);
        TextView tv1=(TextView)convertView.findViewById(R.id.tv1);
        TextView tv2=(TextView)convertView.findViewById(R.id.tv2);
        tv.setText(name);
        tv1.setText(HQ);
        tv2.setText(Annual_rev);
        return convertView;
    }
}
```

AndroidManifest.xml

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

    <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:

EXERCISE-6

AIM: To write an android program to implement the following operations using SQLite Database.

- Create the SQLite Database Object.
- Execute the CRUD Operations required for the application
- Close the database.

Description:

SQLite is a opensource SQL database that stores data to a text file on a device. Android comes in with built in SQLite database implementation.

SQLite supports all the relational database features. In order to access this database, you don't need to establish any kind of connections for it like JDBC,ODBC etc..

SQLite OpenHelper class is responsible for creating and upgrading database. Cursor Class is just like the result set in Java. When ever you make any query to a database the result which comes back is in the form of cursor class.

CRUD is nothing but an abbreviation for the basic operations that we perform in any database. And the operations are:

- **C**reate
- **R**ead
- **U**pdate
- **D**elete

Syntax:

Create

```
@Override
public void onCreate(SQLiteDatabase db) {
     db.execSQL("create table TABLE_NAME(.....)");
}
```

Read

```
SQLiteDatabase DB = this.getWritableDatabase();
Cursor cursor = DB.rawQuery("select * from TABLE_NAME",null);
```

Update

```
SQLiteDatabase DB = this.getWritableDatabase();
DB.update("TABLE_NAME", contentValues, "Where condition", new String[]{value});
```

Delete

```
SQLiteDatabase DB = this.getWritableDatabase();
DB.delete("TABLE_NAME", "Where condition", new String[]{value});
```

Program:

MainActivity.java

```
package com.example.sqlite_application;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
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 {

    EditText roll,name,dept;
    Button insert,delete,update,view;
    DBHelper DB;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        roll=findViewById(R.id.roll);
        name=findViewById(R.id.name);
        dept=findViewById(R.id.dept);

        insert=findViewById(R.id.btninsert);
        delete=findViewById(R.id.btndelete);
        update=findViewById(R.id.btnupdate);
        view=findViewById(R.id.btnview);
        DB=new DBHelper(this);
        insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String rollTXT = roll.getText().toString();
                String nameTXT =name.getText().toString();
                String deptTXT = dept.getText().toString();

                Boolean checkinsertdata = DB.insertdata(rollTXT,nameTXT,deptTXT);
                if(checkinsertdata==true){
                    Toast.makeText(MainActivity.this,"New record
inserted!",Toast.LENGTH_SHORT).show();
                }
                else{
                    Toast.makeText(MainActivity.this,"new record can't be
inserted",Toast.LENGTH_SHORT).show();
                }
            }
        });
        update.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String rollTXT = roll.getText().toString();
                String nameTXT =name.getText().toString();
                String deptTXT = dept.getText().toString();

                Boolean checkupdatedata = DB.updatedata(rollTXT,nameTXT,deptTXT);
                if(checkupdatedata==true){
                    Toast.makeText(MainActivity.this,"Record updated!",
Toast.LENGTH_SHORT).show();
                }
                else{
                    Toast.makeText(MainActivity.this,"Record can't be updated",
Toast.LENGTH_SHORT).show();
                }
            }
        });
        delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String rollTXT = roll.getText().toString();
```

```
                Boolean checkdeletedata = DB.deletedata(rollTXT);
                if(checkdeletedata==true){
                    Toast.makeText(MainActivity.this,"Record deleted!",
Toast.LENGTH_SHORT).show();
                }
                else{
                    Toast.makeText(MainActivity.this,"Record can't be deleted",
Toast.LENGTH_SHORT).show();
                }
            }
        });

        view.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Cursor res =DB.getdata();
                if(res.getCount()==0){
                    Toast.makeText(MainActivity.this,"No record Found!!",
Toast.LENGTH_SHORT).show();
                    return;
                }
                StringBuffer buffer = new StringBuffer();
                while(res.moveToNext()){
                    buffer.append("Roll No :"+res.getString(0)+"\n");
                    buffer.append("Name :"+res.getString(1)+"\n");
                    buffer.append("Department :"+res.getString(2)+"\n\n");
                }

                AlertDialog.Builder builder = new
AlertDialog.Builder(MainActivity.this);
                builder.setCancelable(true);
                builder.setTitle("Student Details");
                builder.setMessage(buffer.toString());
                builder.setPositiveButton("Ok",null);
                builder.show();
            }
        });
    }
}
```

activity_main.xml

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

    <TextView
        android:id="@+id/texttitle"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Please enter details below"
        android:textSize="24dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="20dp"
        android:textColor="#000"
         />
```

```
    <EditText
        android:id="@+id/roll"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Roll No"
        android:textSize="20dp"
        android:layout_marginLeft="10dp"
        android:layout_below="@+id/texttitle"></EditText>

    <EditText
        android:id="@+id/name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name"
        android:textSize="20dp"
        android:layout_marginLeft="10dp"
        android:layout_below="@+id/roll"></EditText>
    <EditText
        android:id="@+id/dept"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Department"
        android:textSize="20dp"
        android:layout_marginLeft="10dp"
        android:layout_below="@+id/name"></EditText>
    <Button
        android:id="@+id/btninsert"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Insert"
        android:textColor="#000"
        android:textSize="20dp"
        android:layout_marginTop="30dp"
        android:layout_below="@+id/dept"
        android:background="#3F51B5"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"></Button>

    <Button
        android:id="@+id/btnupdate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Update"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:layout_below="@+id/btninsert"
        android:textColor="#000"
        android:background="#3F51B5"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"></Button>
    <Button
        android:id="@+id/btndelete"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Delete"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:layout_below="@+id/btnupdate"
        android:textColor="#000"
```

```
        android:background="#3F51B5"
        android:layout_marginRight="10dp"
        android:layout_marginLeft="10dp"></Button>
    <Button
        android:id="@+id/btnview"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View data"
        android:textSize="20dp"
        android:layout_marginTop="10dp"
        android:layout_below="@+id/btndelete"
        android:textColor="#000"
        android:background="#3F51B5"
        android:layout_marginRight="10dp"
        android:layout_marginLeft="10dp"></Button>

</RelativeLayout>
```

DBHelper.java

```
package com.example.sqlite_application;

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

import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {
    public DBHelper(Context context) {
        super(context, "Student.db",null,1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table StudentDetails(roll TEXT primary key,name
TEXT,dept TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("drop table if exists StudentDetails");
    }

    public boolean insertdata(String roll, String name, String dept){
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put("roll",roll);
        contentValues.put("name",name);
        contentValues.put("dept",dept);
        long result = DB.insert("StudentDetails",null,contentValues);
        if(result==-1){
            return false;
        }
        else{
            return true;
        }
    }
```

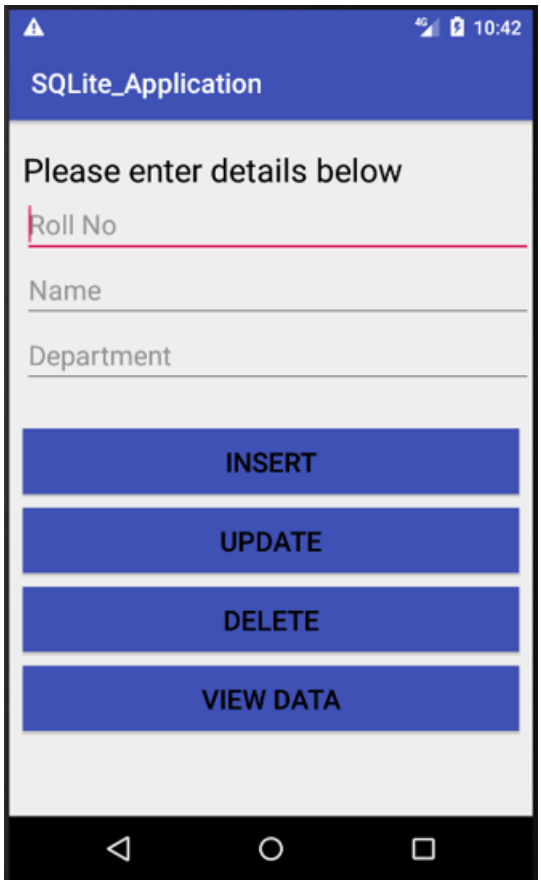
```
    public boolean updatedata(String roll, String name, String dept){
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put("name",name);
        contentValues.put("dept",dept);
        Cursor cursor = DB.rawQuery("select * from StudentDetails where
roll=?",new String[]{roll});
        if(cursor.getCount()>0) {
            long result = DB.update("StudentDetails", contentValues, "roll=?", new
String[]{roll});
            if (result == -1) {
                return false;
            } else {
                return true;
            }
        }else
        {
            return false;
        }
    }

    public boolean deletedata(String roll){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("select * from StudentDetails where
roll=?",new String[]{roll});
        if(cursor.getCount()>0) {
            long result = DB.delete("StudentDetails","roll=?",new String[]{roll});
            if (result == -1) {
                return false;
            } else {
                return true;
            }
        }else
        {
            return false;
        }
    }

    public Cursor getdata(){
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor = DB.rawQuery("select * from StudentDetails",null);
        return cursor;
    }
}
```

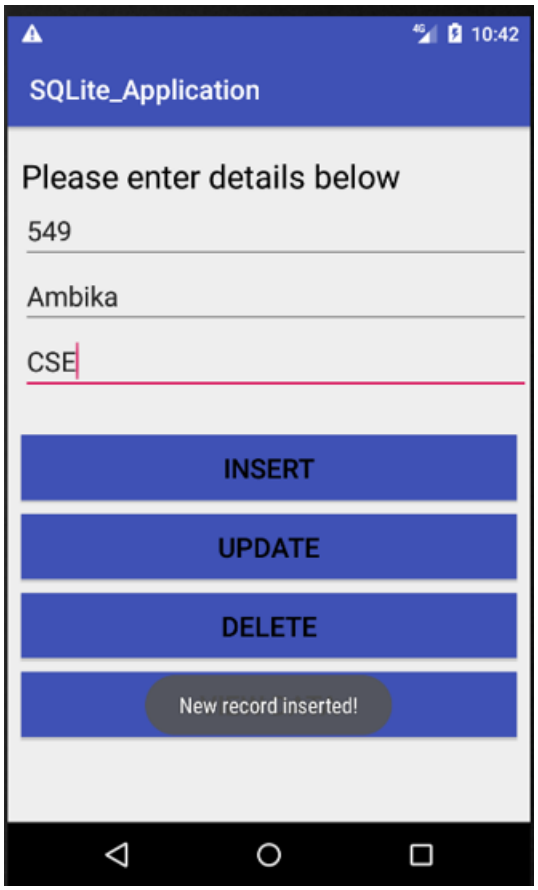
AndroidManifest.xml

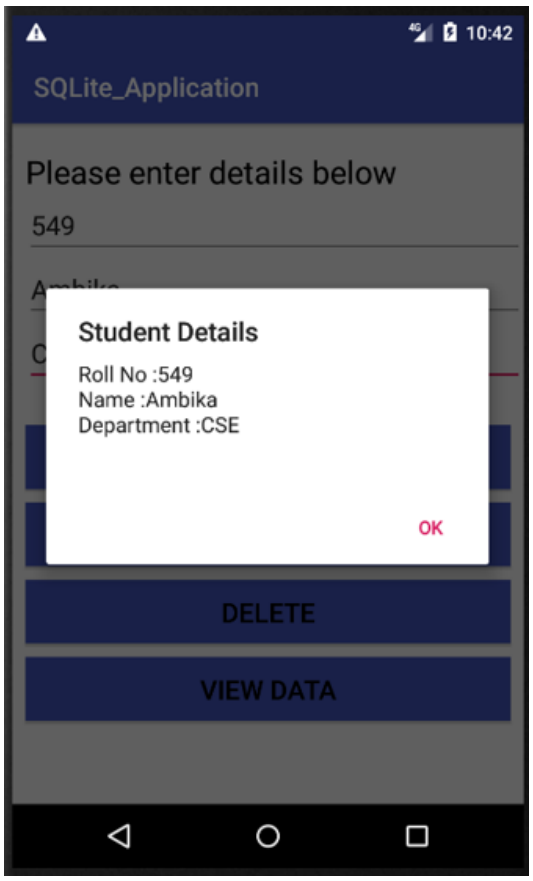
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.sqlite_application">

    <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">
```

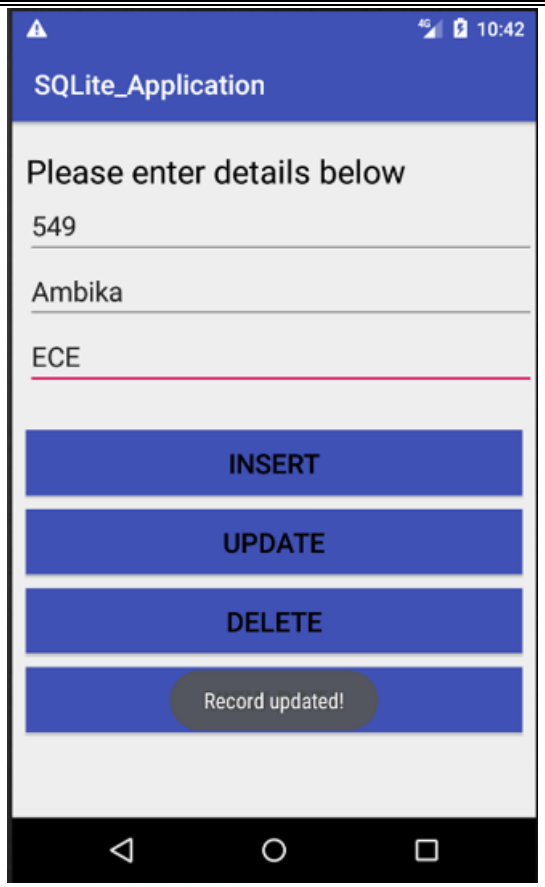
```
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

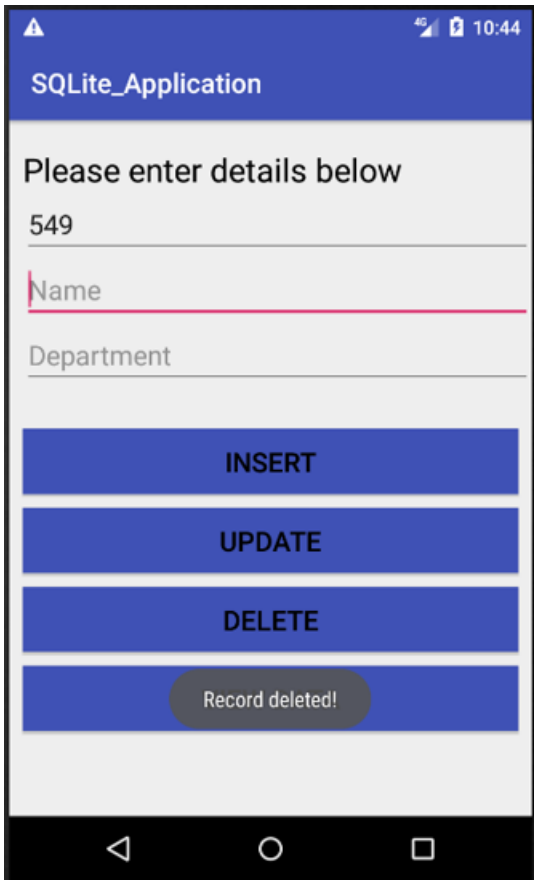
Output:






10:42
SQLite_Application
Please enter details below
549
Student Details
Roll No :549
Name :Ambika
Department :CSE
OK
DELETE
VIEW DATA


10:42
SQLite_Application
Please enter details below
549
Ambika
ECE
INSERT
UPDATE
DELETE
Record updated!


10:44
SQLite_Application
Please enter details below
549
Name
Department
INSERT
UPDATE
DELETE
Record deleted!

EXERCISE-7

AIM: To develop a Docket(To-do List) application.

Description: We provided an user-friendly UI. User is allowed to type his/her task. After entering the task ADD TASK button adds the task to his/her to-do list. All the tasks will be displayed on the screen. User can also retrieve all tasks on pressing VIEW ALL button. RESET button will delete all the added tasks. On Long pressing on a specific task user can delete that particular task.

Program:

MainActivity.java

```
package com.example.docket;

import androidx.appcompat.app.AppCompatActivity;

import android.app.AlertDialog;
import android.content.DialogInterface;
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.Toast;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    EditText et1;
    Button btn,btn1;
    ListView lv;
    ArrayList<String> list;
    ArrayAdapter adapter;
    DBHelper DB;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        et1=findViewById(R.id.et1);
        btn=findViewById(R.id.btn);
        btn1=findViewById(R.id.btn1);
        lv=(ListView) findViewById(R.id.lv);
        list=new ArrayList<>();
        DB=new DBHelper(this);

        lv.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                Toast.makeText(MainActivity.this,"Long press on a task to delete
```

```
it",Toast.LENGTH_LONG).show();
            }
        });

        lv.setOnItemLongClickListener(new AdapterView.OnItemLongClickListener() {
            @Override
            public boolean onItemLongClick(AdapterView<?> parent, View view, int
position, long id) {
                final int pos=position;

                new AlertDialog.Builder(MainActivity.this)
                        .setTitle("Delete")
                        .setMessage("Do you want delete this task?")
                        .setPositiveButton("Yes", new
DialogInterface.OnClickListener() {
                            @Override
                            public void onClick(DialogInterface dialog, int which)
{

                                String item=list.get(pos);
                                DB.deleteTask(item);
                                list.remove(pos);
                                adapter.notifyDataSetChanged();
                            }
                        })
                        .setNegativeButton("No",null)
                        .show();

                return true;
            }
        });
    }



    public void addTask(View view) {
        String task = et1.getText().toString();
        if (!task.equals("")) {
            Boolean checkInsertTask = DB.insertTask(task);

        if(checkInsertTask==true) {
            Toast.makeText(MainActivity.this, "Task inserted",
Toast.LENGTH_SHORT).show();
                list.add(task);
                adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, list);
                lv.setAdapter(adapter);
                et1.setText("");
            }
        }
    }

    public void viewTasks(View view) {
        Cursor res = DB.getData();
        if (res.getCount()==0) {
            Toast.makeText(MainActivity.this, "No Tasks to display",
Toast.LENGTH_SHORT).show();
            return;
        } else {
            StringBuffer buffer = new StringBuffer();
```

```
            while (res.moveToNext()) {
                buffer.append(res.getString(0) + "\n\n");
            }
            AlertDialog.Builder builder = new
AlertDialog.Builder(MainActivity.this);
            builder.setCancelable(true);
            builder.setTitle("Tasks");
            builder.setMessage(buffer.toString());
            builder.setPositiveButton("Ok", null);
            builder.show();
        }
    }

    public void clearData(View view) {
        Boolean checkreset=DB.reset();
        if(checkreset==true) {
            adapter.clear();
            adapter.notifyDataSetChanged();
            Toast.makeText(MainActivity.this, "All tasks deleted",
Toast.LENGTH_SHORT).show();
        }
        else{
            Toast.makeText(MainActivity.this,"No tasks to
delete",Toast.LENGTH_SHORT).show();
        }
    }

}
```

activity_main.xml

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

    <EditText
        android:id="@+id/et1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="25dp"
        android:layout_marginRight="10dp"
        android:layout_marginLeft="10dp"
        android:hint="Enter your task..."
        android:cursorVisible="false"
        />
    <Button
        android:id="@+id/btn"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add Task"
        android:textColor="#FAFAFA"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:layout_marginTop="10dp"
        android:background="#0A0A0A"
```

```
        android:onClick="addTask"/>
    <Button
        android:id="@+id/btn1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View all"
        android:textColor="#FAFAFA"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:layout_marginTop="10dp"
        android:background="#0A0A0A"
        android:onClick="viewTasks"/>
    <Button
        android:id="@+id/btn2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Reset"
        android:textColor="#FAFAFA"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:layout_marginTop="10dp"
        android:background="#0A0A0A"
        android:onClick="clearData"/>
    <ListView
        android:id="@+id/lv"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        />
</LinearLayout>
```

DBHelper.java

```
package com.example.docket;

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

import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {
    public DBHelper(Context context) {
        super(context, "Tasks.db", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table TaskList(taskname TEXT Primary key)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("drop table if exists TaskList");
    }

    public Boolean insertTask(String task){
        SQLiteDatabase db=this.getWritableDatabase();
        ContentValues contentValues=new ContentValues();
```

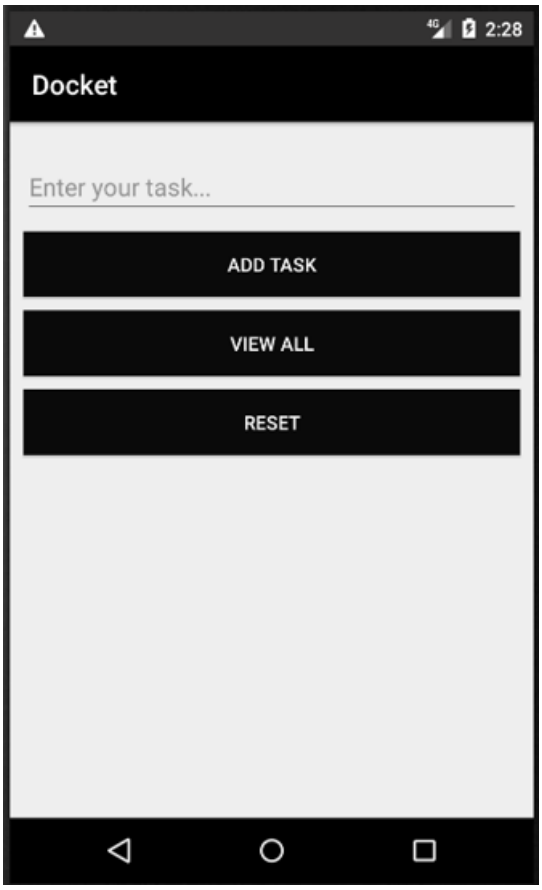
```
        contentValues.put("taskname",task);
        long result=db.insert("TaskList",null,contentValues);
        if(result==-1){
            return false;
        }
        else{
            return true;
        }
    }
    public Cursor getData(){
        SQLiteDatabase db=this.getWritableDatabase();
        Cursor cursor=db.rawQuery("select * from TaskList",null);
        return cursor;
    }

    public Boolean deleteTask(String taskname){
        SQLiteDatabase db=this.getWritableDatabase();
        Cursor cursor=db.rawQuery("select * from TaskList where taskname=?",new
String[]{taskname});
        if (cursor.getCount()>0){
            long result=db.delete("TaskList","taskname=?",new String[]{taskname});
            if(result==-1){
                return false;
            }
            else {
                return true;
            }
        }
        else{
            return false;
        }
    }

    public Boolean reset(){
        SQLiteDatabase db=this.getWritableDatabase();
        Cursor cursor=db.rawQuery("select * from TaskList",null);
        if(cursor.getCount()>0){
            long result=db.delete("TaskList",null,null);
            if(result==-1){
                return false;
            } else {
                return true;
            }
        } else {
            return false;
        }
    }
}
```

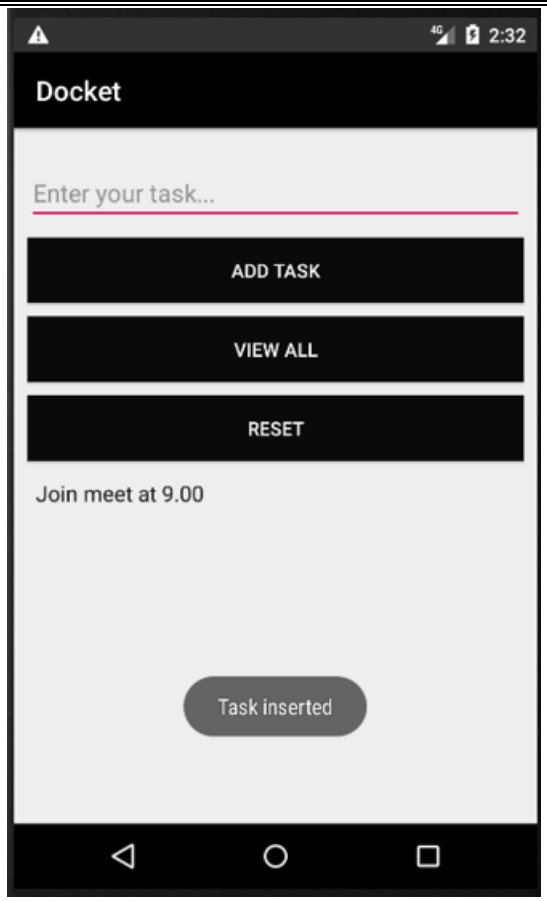
AndroidManifest.xml

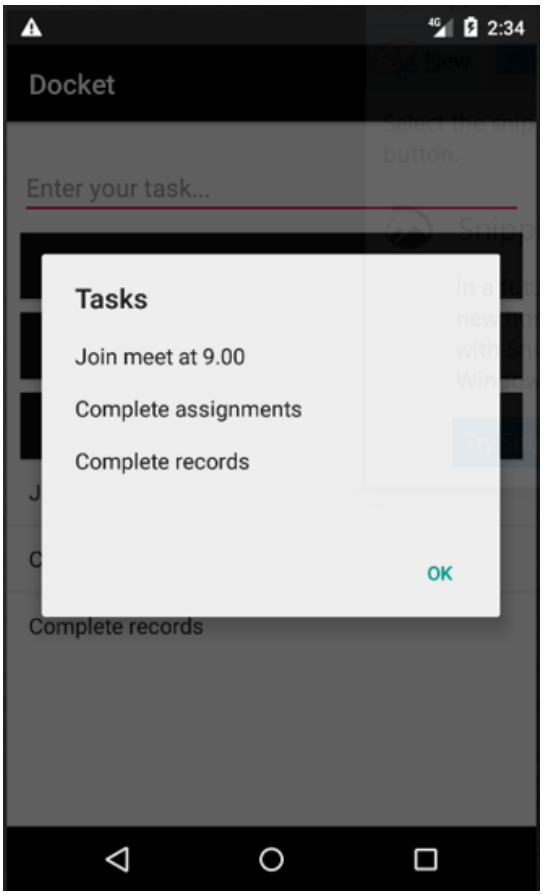
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.docket">

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

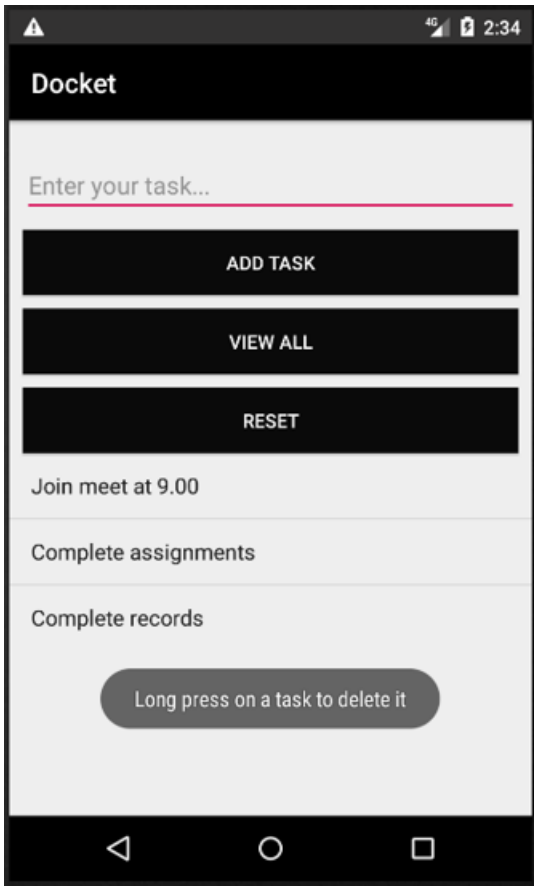
```
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

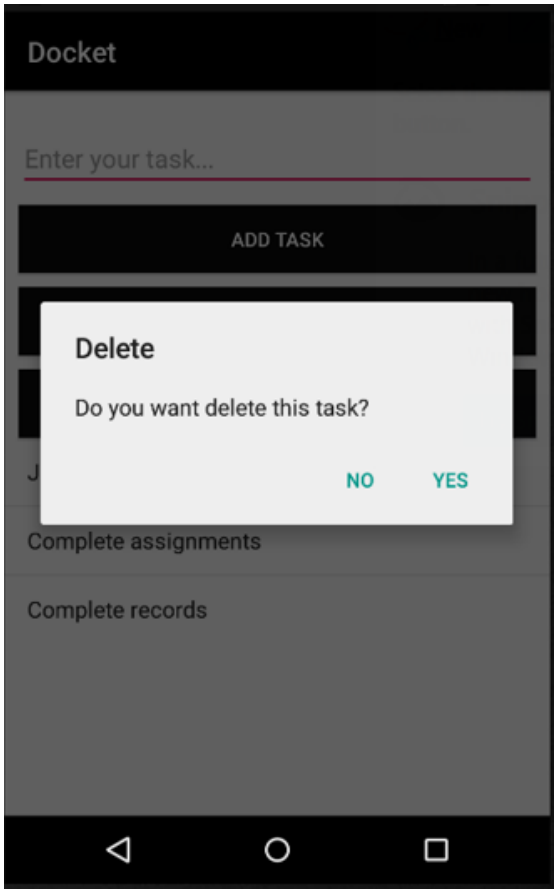
Output:

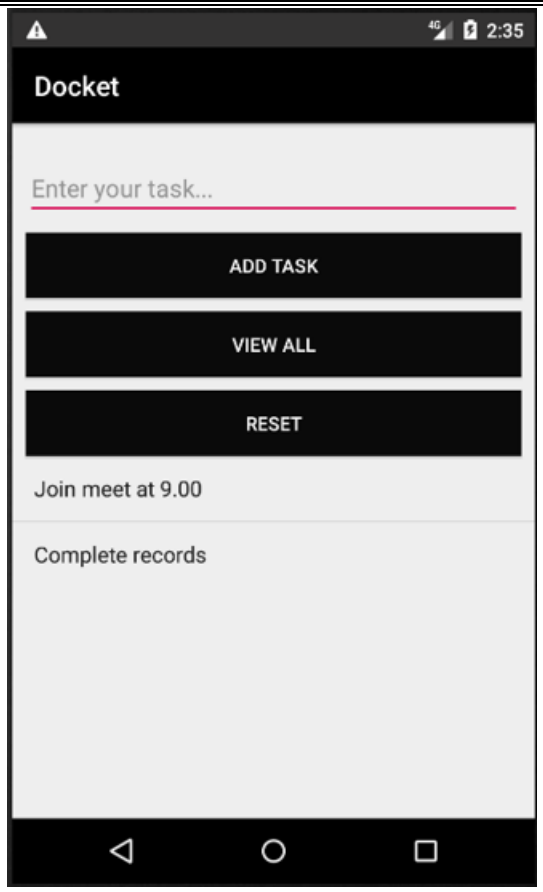


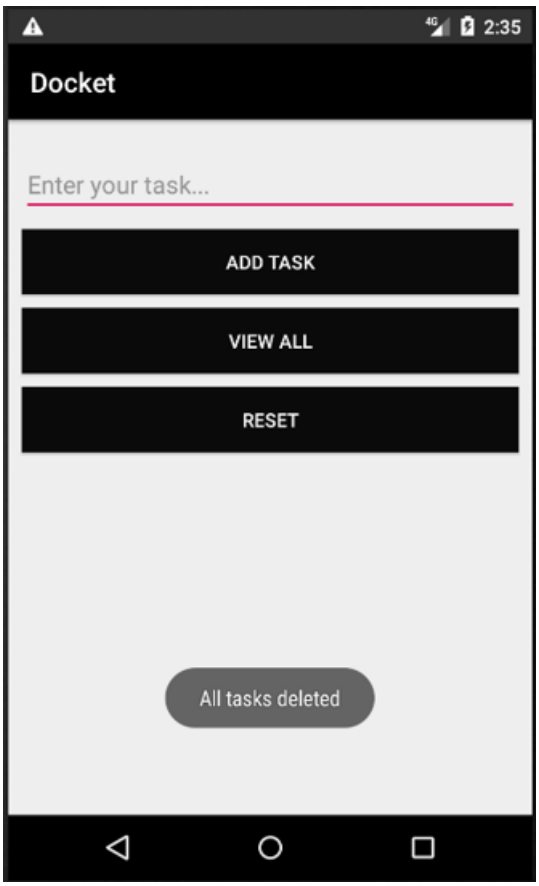

2:32
Docket
Enter your task...
ADD TASK
VIEW ALL
RESET
Join meet at 9.00
Task inserted


2:34
Docket
Enter your task...
Tasks
Join meet at 9.00
Complete assignments
Complete records
OK
Complete records


2:34
Docket
Enter your task...
ADD TASK
VIEW ALL
RESET
Join meet at 9.00
Complete assignments
Complete records
Long press on a task to delete it


Docket
Enter your task...
ADD TASK
Delete
Do you want delete this task?
NO
YES
Complete assignments
Complete records


2:35
Docket
Enter your task...
ADD TASK
VIEW ALL
RESET
Join meet at 9.00
Complete records


2:35
Docket
Enter your task...
ADD TASK
VIEW ALL
RESET
All tasks deleted