

**BUNTS SANGHA'S
S.M. SHETTY COLLEGE OF SCIENCE, COMMERCE &
MANAGEMENT STUDIES (AUTONOMOUS),
POWAI, MUMBAI-76**



SUBJECT: Android Programming

CLASS: T.Y.B.Sc.I.T (2024-25)

SEMESTER: VI

SUBMITTED BY (Name): Sneha Raparti

ROLL NUMBER: 111

**SUBMITTED TO
DEPARTMENT OF INFORMATION TECHNOLOGY**

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Subject In-charge

Coordinator

External Examiner

**For Partial Fulfilment for Degree of
Bachelor of Science on IT (Information Technology) in 2024-25**

Index

Sr. No.	Topic	Date	Sign
0	Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals: a. Creating a Project, Android Components, Activities, Services, Content Providers, Broadcast Receivers, Interface overview, Creating Android Virtual device, USB debugging mode, Android Application Overview. Simple “Hello World” program.	22/11/24	
1	Programming Resources Android Resources: (Color, Theme, String, Drawable, Dimension, Image).	22/11/24	
2	Programming Activities and fragments: Activity Life Cycle, Activity methods, Multiple Activities, Life Cycle of fragments and multiple fragments.	29/11/24	
3	Programs related to different Layouts: Coordinate, Linear, Relative, Table, Absolute, Frame, List View, Grid View.	06/12/24	
4	Programming UI elements: AppBar, Fragments, UI Components.	20/12/24	
5	Programming menus, dialog, dialog fragments.	17/01/25	
6	Programs on Intents, Events, Listeners and Adapters: The Android Intent Class, Using Events and Event Listeners.	17/01/25	
7	Programs on Services, notification and broadcast receivers.	17/01/25	
8	Perform: a. Database Programming with SQLite b. Programming Network Communications and Services (JSON).	31/01/25	
9	Programming threads, handles and asynchronized programs.	31/01/25	
10	Perform: a. Programming Media API and Telephone API b. Programming Security and permissions	07/02/25	

ANDROID PROGRAMMING PRACTICAL

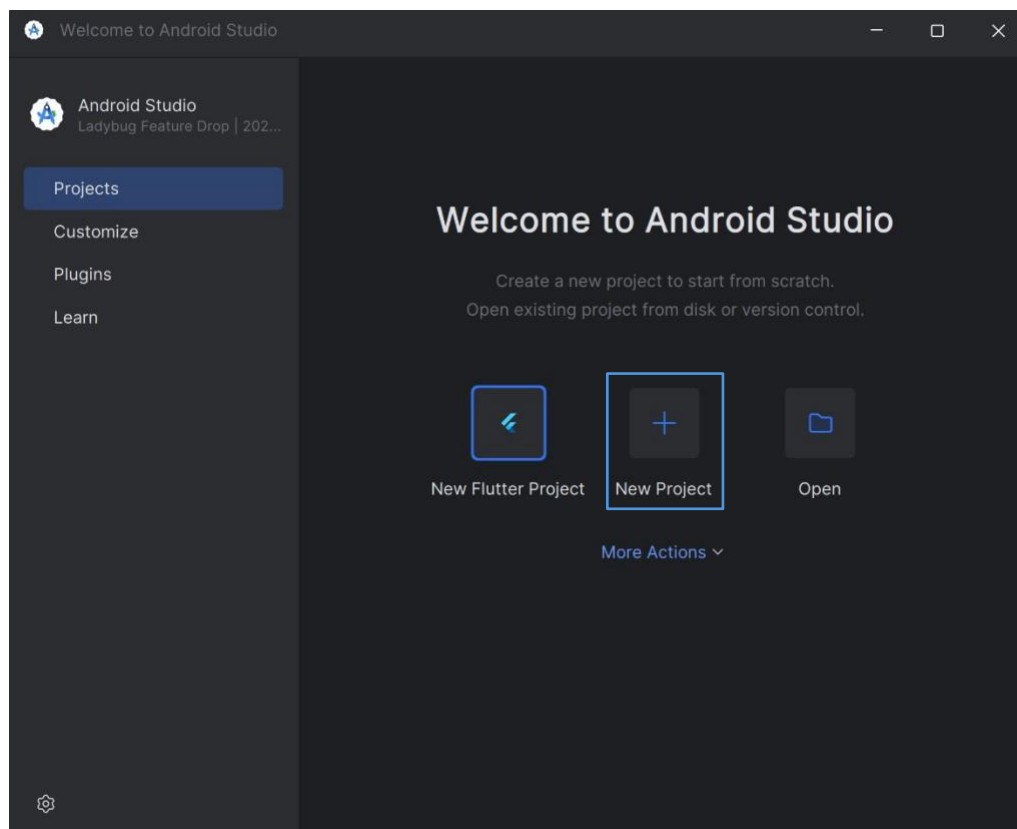
Practical 0

Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals

Aim: Creating a simple project with “Hello World” program.

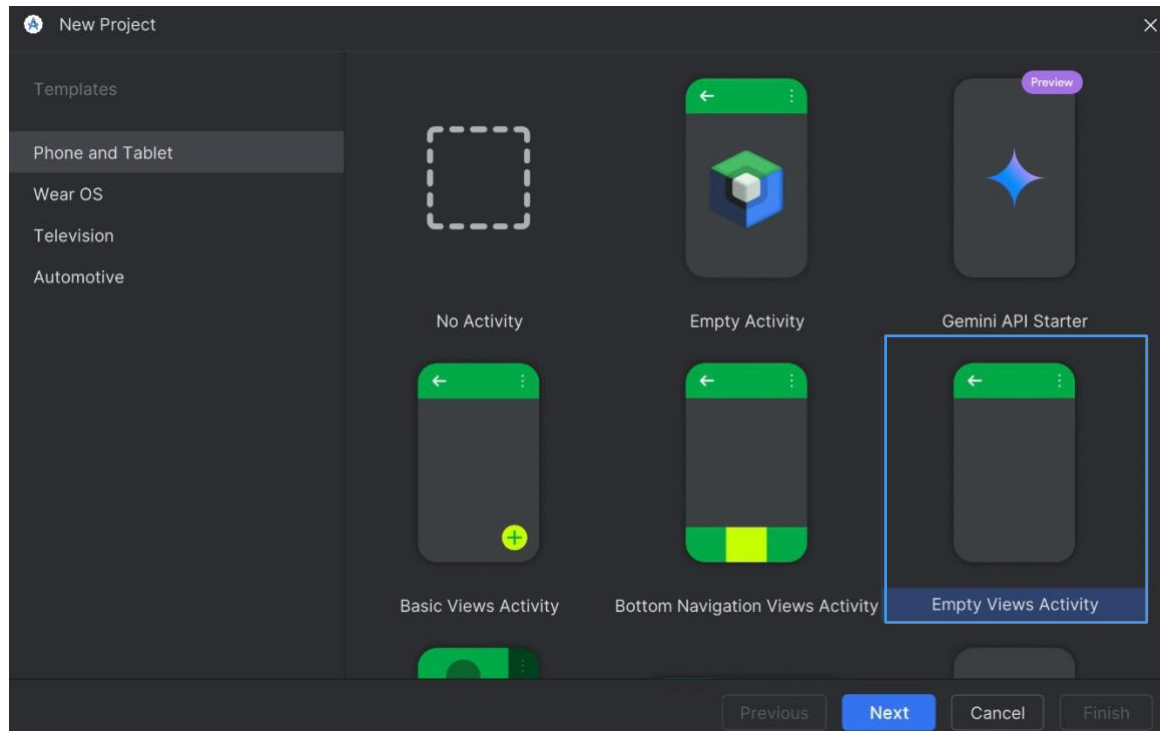
Steps to create Project:

1. Open Android Studio → Click on ‘New Project’.

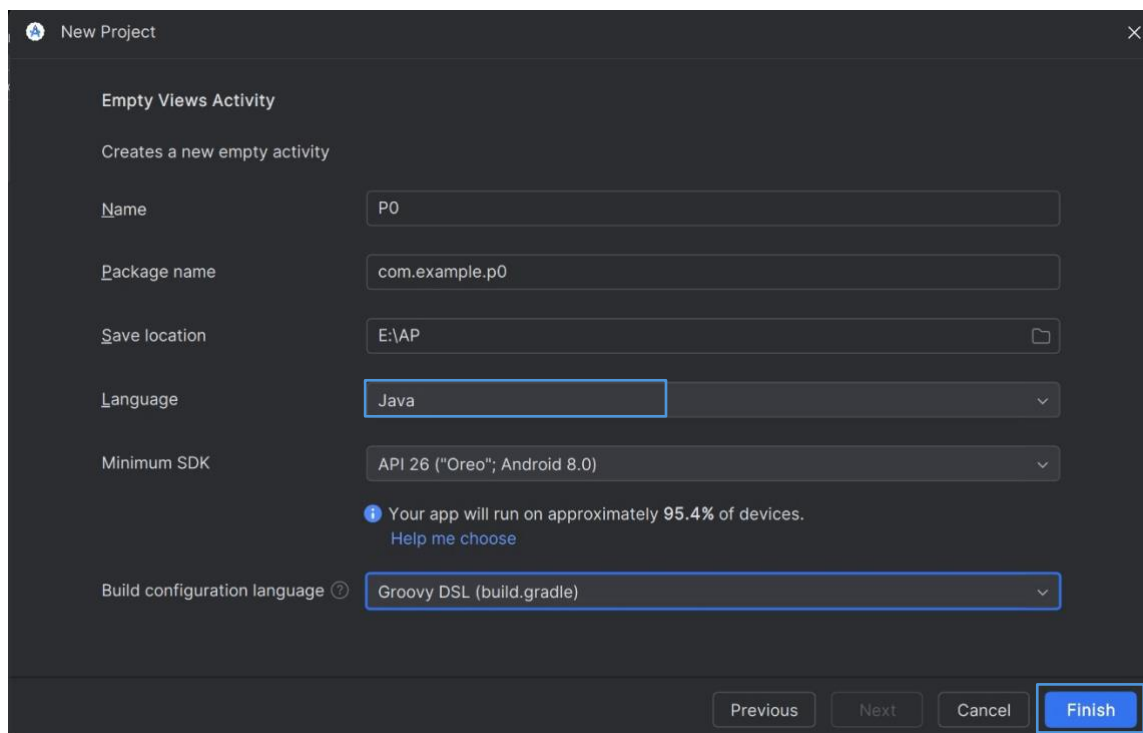


ANDROID PROGRAMMING PRACTICAL

2. Select 'Empty View Activity'.

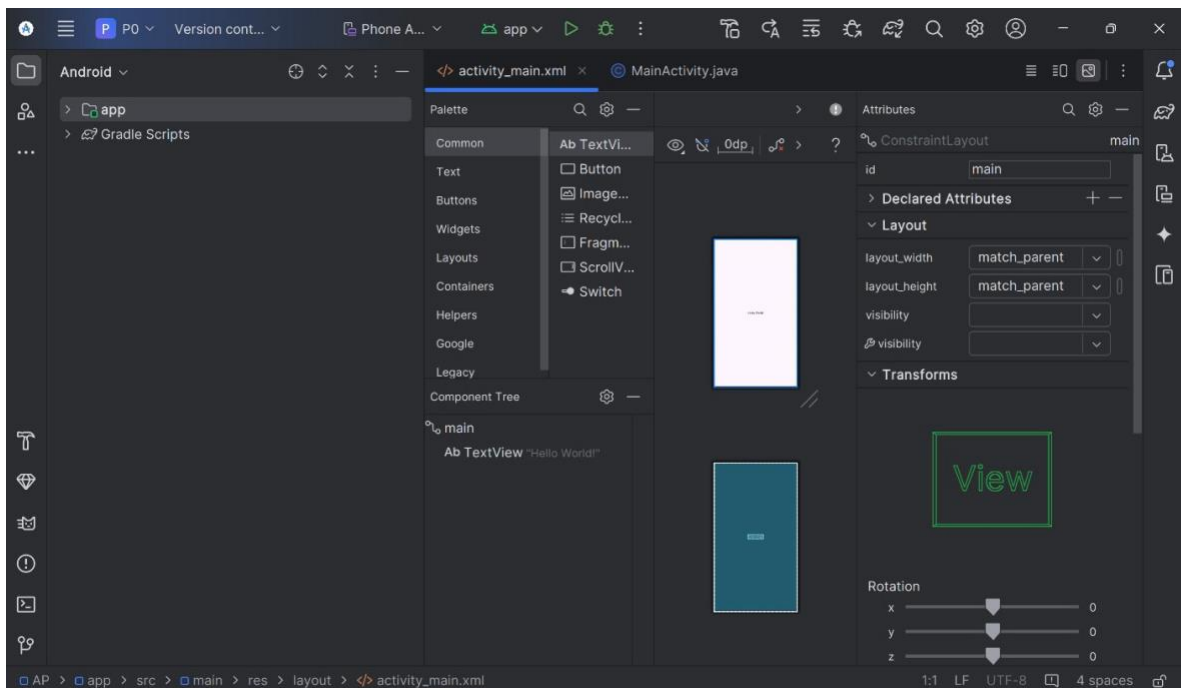
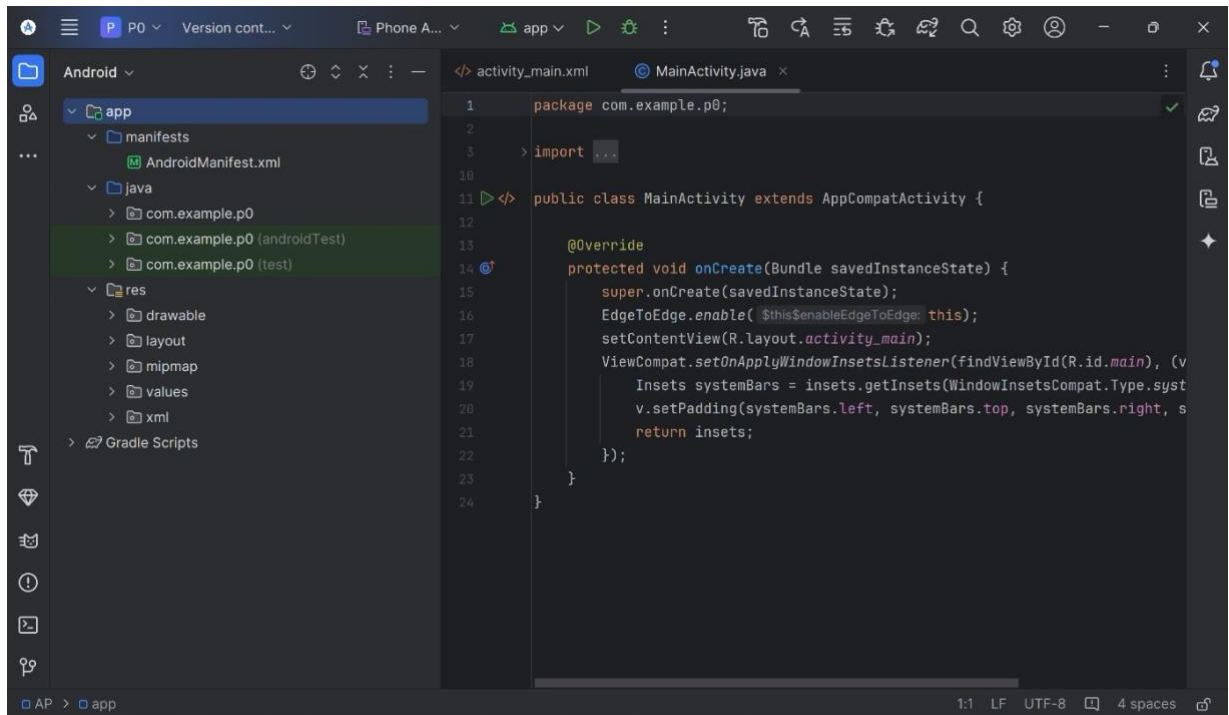


3. Give Project Name as 'P0' □ Select 'Java' in language. Click 'Finish'.



ANDROID PROGRAMMING PRACTICAL

4. 'Project (P0)' is successfully created.



ANDROID PROGRAMMING PRACTICAL

Code: MainActivity.java

```
package
com.example.prac_0;
import
android.os.Bundle;

import androidx.activity.EdgeToEdge;
import
androidx.appcompat.app.AppCompatActivity
; import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
insets) ->
{
    Insets systemBars =
insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom); return insets; }); }) }
```

activity_main.xml

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

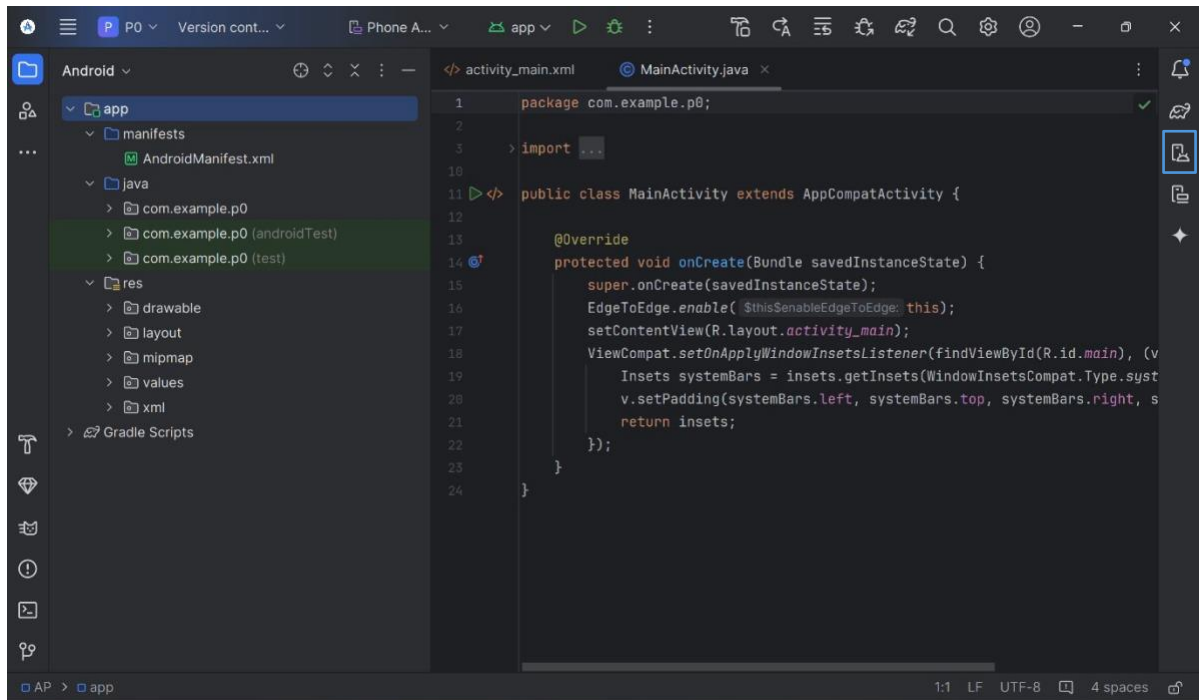
ANDROID PROGRAMMING PRACTICAL

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

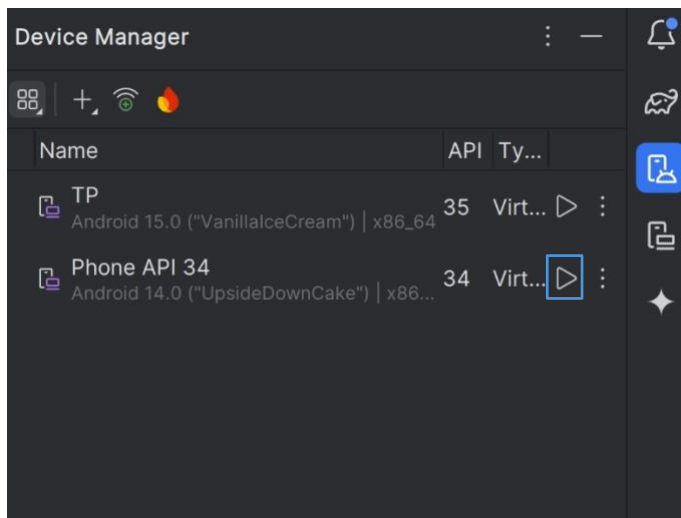
ANDROID PROGRAMMING PRACTICAL

Steps to run the project:

1. Open 'Device Manager'



2. Click on 'Play' button (which will turn on the device).



Practical No. 1

Practical 1

Aim: Android Programming Resources : (Colour, Theme, String, Dimension, Image).

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:id="@+id/textView"
        android:layout_width="@dimen/d1"
        android:layout_height="wrap_content"
        android:background="@color/d4"
        android:text="My application"
        android:textColor="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.022" />
    <TextView
        android:id="@+id/textView2"
        android:layout_width="@dimen/d2"
        android:layout_height="wrap_content"
        android:background="@color/d1"
        android:rotationX="4"
        android:text="@string/t1"
        android:textColor="#212121"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="135dp"
        android:layout_height="180dp"
        app:srcCompat="@drawable/circle" />
```

ANDROID PROGRAMMING PRACTICAL

```
<ImageView
    android:id="@+id/imageView3"
    android:layout_width="136dp"
    android:layout_height="181dp"
    app:srcCompat="@drawable/random" />
</LinearLayout>
```

strings.xml

```
<resources>
    <string name="app_name">pract1</string>
    <string name="t1">This Application will help You.</string>
</resources>
```

themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.Pract1" parent="Theme.Material3.DayNight.NoActionBar">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
    </style>
    <style name="Theme.Pract1" parent="Base.Theme.Pract1" >
        <item name="android:textColor">#ff0810</item>
        <item name="android:background">#aa9911</item>
    </style>
</resources>
```

colors.xml

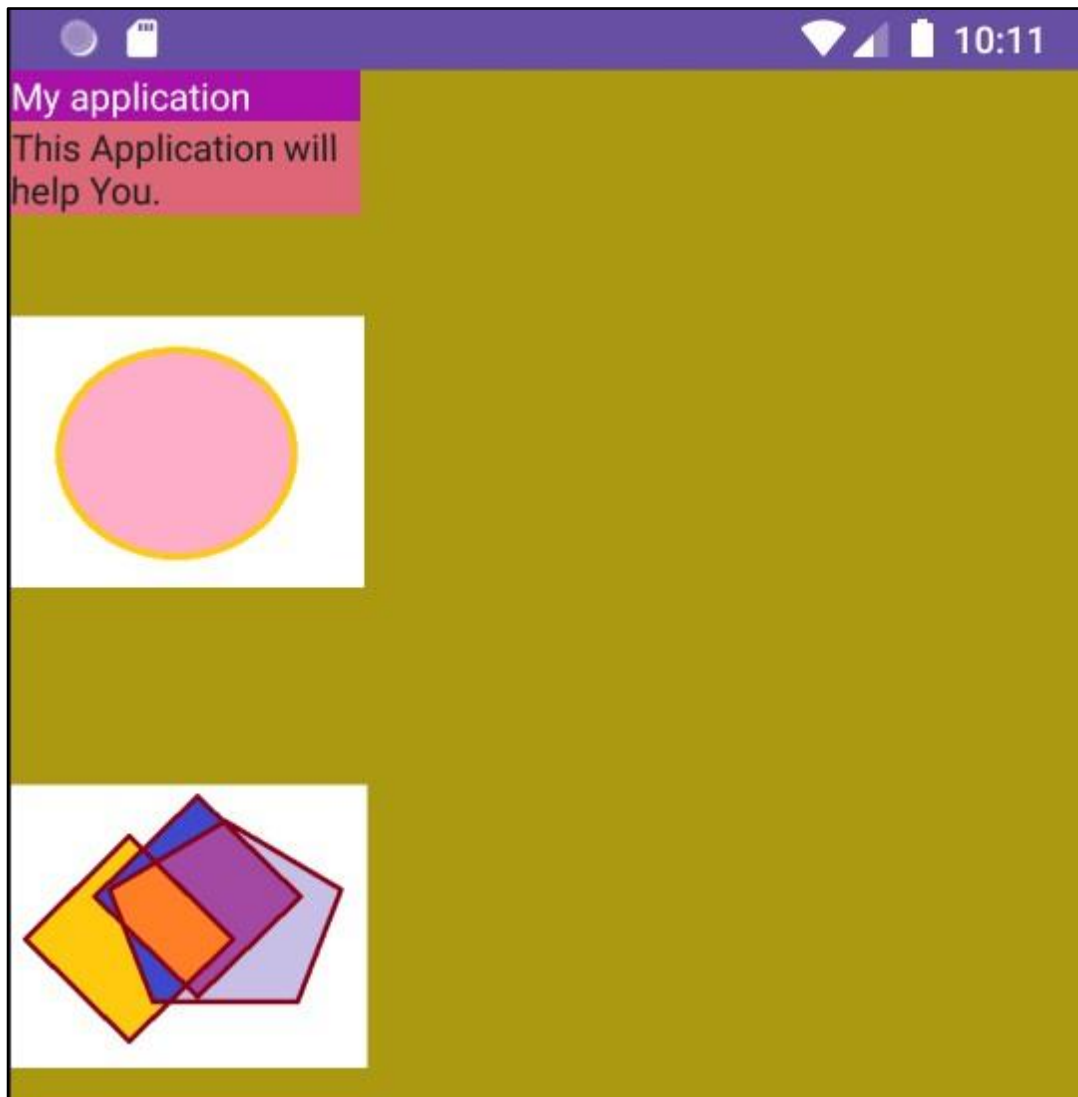
```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFF</color>
    <color name="d1">#dd6776</color>
    <color name="d2">#ddaacc</color>
    <color name="d3">#ff5566</color>
    <color name="d4">#aa11aa</color>
</resources>
```

dimens.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <dimen name="d1">350px</dimen>
    <dimen name="d2">350px</dimen>
</resources>
```

ANDROID PROGRAMMING PRACTICAL

Output:



Practical No. 2

Practical 2A

Aim: Life Cycle of Androids Activity

MainActivity.java

```
package com.example.prac2b;

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

public class MainActivity extends AppCompatActivity {

    String tag = "Lifecycle";

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        Log.d(tag, "In the onCreate() event");
    }

    @Override
    protected void onStart() {

        super.onStart();

        Log.d(tag, "In the onStart() event");
    }

    @Override
    protected void onRestart() {

        super.onRestart();

        Log.d(tag, "In the onRestart() event");
    }

    @Override
    protected void onResume() {

        super.onResume();
```

ANDROID PROGRAMMING PRACTICAL

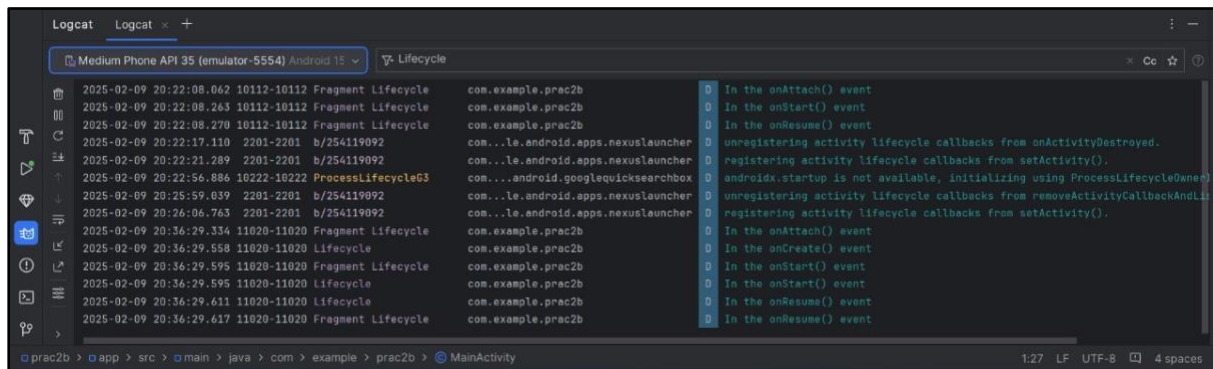
```
Log.d(tag, "In the onResume() event");
}

@Override
protected void onPause() {
    super.onPause();
    Log.d(tag, "In the onPause() event");
}

@Override
protected void onStop() {
    super.onStop();
    Log.d(tag, "In the onStop() event");
}

@Override
protected void onDestroy() {
    super.onDestroy();
    Log.d(tag, "In the onDestroy() event");
}
}
```

Output:



Practical 2B

Aim: Creating a Fragment

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">

    <!-- Take a fragment in our activity -->

    <fragment

        android:id="@+id/test_fragment"

        android:layout_width="match_parent"

        android:layout_height="match_parent"

        class="com.example.prac2b.BlankFragment"

        tools:layout="@layout/fragment_blank" />

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

MainActivity.java

```
package com.example.prac2b;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

}
```

ANDROID PROGRAMMING PRACTICAL

```
}
```

fragment_blank.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".BlankFragment">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:textSize="48dp"
        android:text="Check Logcat" />
</FrameLayout>
```

BlankFragment.java

```
package com.example.prac2b;
import android.content.Context;
import android.os.Bundle;
import androidx.annotation.NonNull;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.util.Log;
public class BlankFragment extends Fragment {
    String tag = "Fragment Lifecycle";
    @Override
    public void onAttach(@NonNull Context context) {
        super.onAttach(context);
        Log.d(tag, "In the onAttach() event");
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
}@Override

public void onStart() {

    super.onStart();

    Log.d(tag, "In the onStart() event");
}

@Override

public void onResume() {

    super.onResume();

    Log.d(tag, "In the onResume() event");
}

@Override

public void onPause() {

    super.onPause();

    Log.d(tag, "In the onPause() event");
}

@Override

public void onStop() {

    super.onStop();

    Log.d(tag, "In the onStop() event");
}

@Override

public void onDestroy() {

    super.onDestroy();

    Log.d(tag, "In the onDestroy() event");
}

private static final String ARG_PARAM1 = "param1";
private static final String ARG_PARAM2 = "param2";
private String mParam1;
private String mParam2;

public BlankFragment() {

    // Required empty public constructor
}

public static BlankFragment newInstance(String param1, String param2) {

    BlankFragment fragment = new BlankFragment();
```


ANDROID PROGRAMMING PRACTICAL

```
Bundle args = new Bundle();

args.putString(ARG_PARAM1, param1);
args.putString(ARG_PARAM2, param2);
fragment.setArguments(args);
return fragment;
}

@Override

public void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    if (getArguments() != null) {

        mParam1 = getArguments().getString(ARG_PARAM1);
        mParam2 = getArguments().getString(ARG_PARAM2);

    }}

@Override

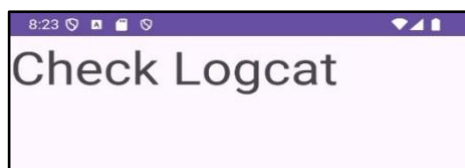
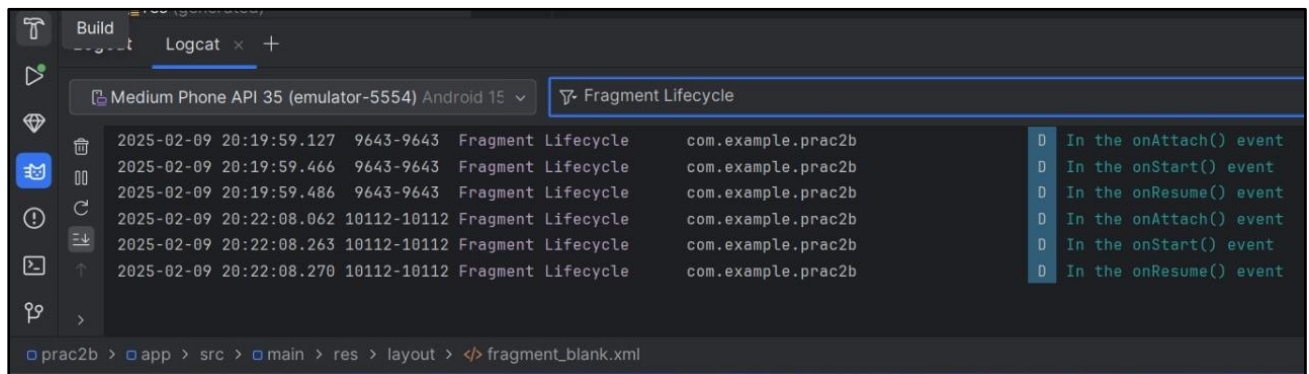
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {

        // Inflate the layout for this fragment

        return inflater.inflate(R.layout.fragment_blank, container, false)  }}


```

Output:



Practical No 3

1. Relative Layout

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/lblComments"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Comments"
        android:textSize="18sp"
        android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true"
        android:layout_marginLeft="16dp"
        android:layout_marginTop="16dp"/>
    <EditText
        android:id="@+id/txtComments"
        android:layout_width="match_parent"
        android:layout_height="170dp"
        android:textSize="18sp"
        android:layout_below="@id/lblComments"
        android:layout_marginTop="8dp"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="16dp"
        android:layout_centerHorizontal="true"
        android:hint="Enter your comment"/>
    <Button
        android:id="@+id/btnShow"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show"
        android:layout_below="@id/txtComments"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:onClick="show"
        tools:ignore="OnClick" /> <!-- Correct binding -->
    <Button
```

ANDROID PROGRAMMING PRACTICAL

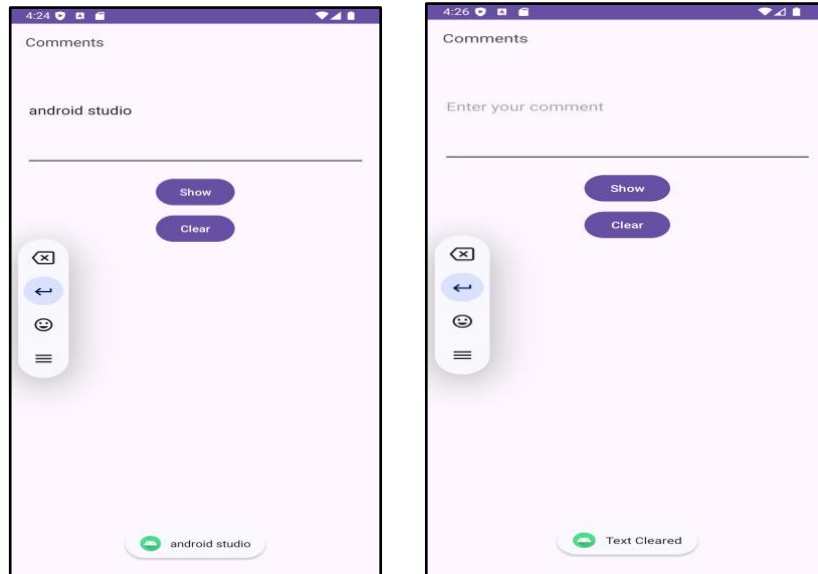
```
        android:id="@+id/btnClear"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Clear"
        android:layout_below="@id/btnShow"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="8dp"
        android:onClick="clear"
        tools:ignore="OnClick" /> <!-- Correct binding -->
</RelativeLayout>
```

MainActivity.java

```
package com.example.practical3;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
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);  }
    public void show(View view) {
        EditText data = findViewById(R.id.txtComments);
        String str = data.getText().toString();
        Toast.makeText(this, str, Toast.LENGTH_SHORT).show();}
    public void clear(View view) {
        EditText data = findViewById(R.id.txtComments);
        data.setText("");
        Toast.makeText(this, "Text Cleared", Toast.LENGTH_SHORT).show();}}
```

Output:

ANDROID PROGRAMMING PRACTICAL



2. Linear Layout

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:id="@+id/main"
    android:orientation="horizontal"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/b1"
        android:onClick="button1"
        android:text="@string/button1_text"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/b2"
        android:onClick="button2"
        android:text="@string/button2_text"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/b3"
        android:onClick="button3"
        android:text="@string/button3_text"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

ANDROID PROGRAMMING PRACTICAL

```
        android:id="@+id/b4"
        android:onClick="button4"
        android:text="@string/button4_text"/>
</LinearLayout>
```

MainActivity.java

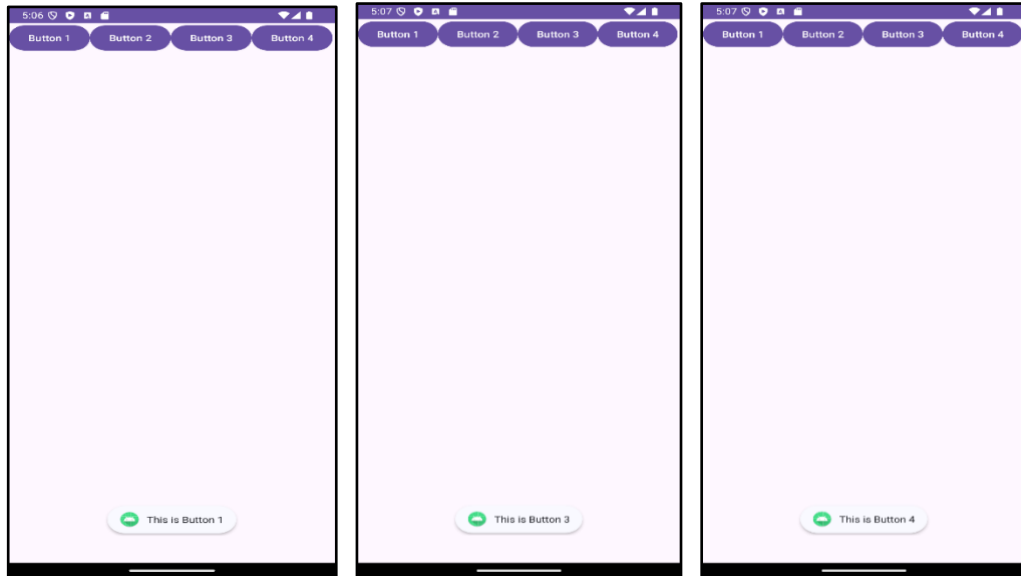
```
package com.example.linearlayout;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main); }
    public void button1(View view) {
        Toast.makeText(this, "This is Button 1", Toast.LENGTH_SHORT).show(); }
    public void button2(View view) {
        Toast.makeText(this, "This is Button 2", Toast.LENGTH_SHORT).show(); }
    public void button3(View view) {
        Toast.makeText(this, "This is Button 3", Toast.LENGTH_SHORT).show(); }
    public void button4(View view) {
        Toast.makeText(this, "This is Button 4", Toast.LENGTH_SHORT).show();
    }
}
```

strings.xml

```
<resources>
    <string name="app_name">LinearLayout</string>
    <string name="button1_text">Button 1</string>
    <string name="button2_text">Button 2</string>
    <string name="button3_text">Button 3</string>
    <string name="button4_text">Button 4</string>
</resources>
```

Output:

ANDROID PROGRAMMING PRACTICAL



3. VerticalLinearLayout

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:id="@+id/main"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:padding="16dp"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="button1"
        android:text="Button 1"
        android:padding="10dp"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="button2"
        android:text="Button 2"
        android:padding="10dp"
```

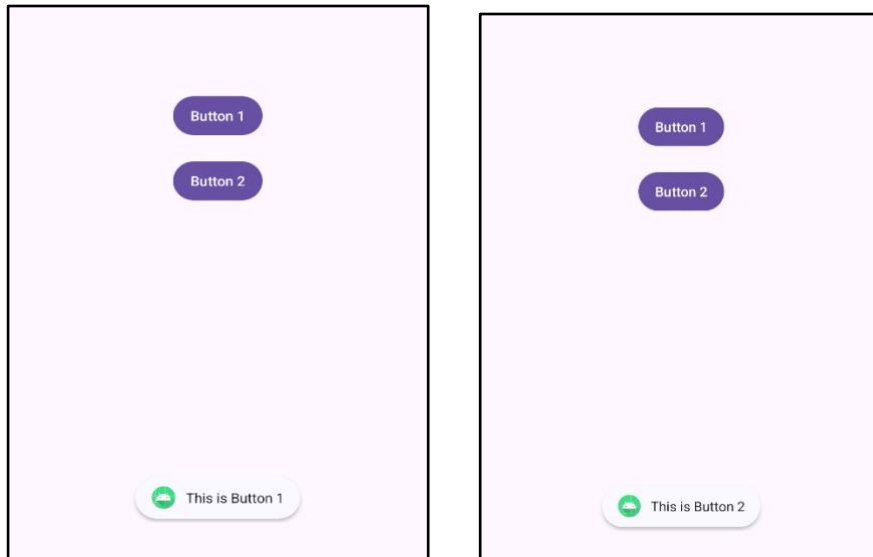
ANDROID PROGRAMMING PRACTICAL

```
        android:layout_margin="10dp" />
</LinearLayout>
```

MainActivity.java

```
package com.example.practical3;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void button1(View view) {
        Toast.makeText(this, "This is Button 1", Toast.LENGTH_SHORT).show();
    }
    public void button2(View view) {
        Toast.makeText(this, "This is Button 2", Toast.LENGTH_SHORT).show();
    }
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

4. TableLayout

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:id="@+id/main"
    Android:layout_width="match_parent"
    Android:layout_height="match_parent"
    Tools:context=".MainActivity">

    <TableRow>

        <TextView

            Android:text="User Name:"

            Android:layout_width="120dp"

            Android:layout_height="wrap_content"/>

        <EditText

            Android:id="@+id/txtUserName"

            Android:layout_width="200dp"

            Android:layout_height="wrap_content"/>

    </TableRow>

    <TableRow>

        <TextView

            Android:text="Password:"

            Android:layout_width="120dp"

            Android:layout_height="wrap_content"/>

        <EditText

            Android:id="@+id/txtPassword"

            Android:inputType="textPassword"

            Android:layout_width="200dp"

            Android:layout_height="wrap_content"/>

    </TableRow>

</TableLayout>
```


ANDROID PROGRAMMING PRACTICAL

```
</TableRow>
<TableRow>
    <TextView />
    <CheckBox
        Android:id="@+id/chkRememberPassword"
        Android:layout_width="wrap_content"
        Android:layout_height="wrap_content"
        Android:text="Remember Password"/>
</TableRow>
<TableRow>
    <Button
        Android:id="@+id/buttonSignIn"
        Android:onClick="login"
        Android:text="Log In"/>
</TableRow>
</TableLayout>
```

MainActivity.java

```
Package com.example.table_layout;

Import android.os.Bundle;
Import android.view.View;
Import android.widget.EditText;
Import android.widget.Toast;
Import androidx.appcompat.app.AppCompatActivity;

Public class MainActivity extends AppCompatActivity {    @Override
    Protected void onCreate(Bundle savedInstanceState) {
        Super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);}

    Public void login(View view) {
        // Correct the variable names
        EditText txtUserName = findViewById(R.id.txtUserName);
        EditText txtPassword = findViewById(R.id.txtPassword);
```

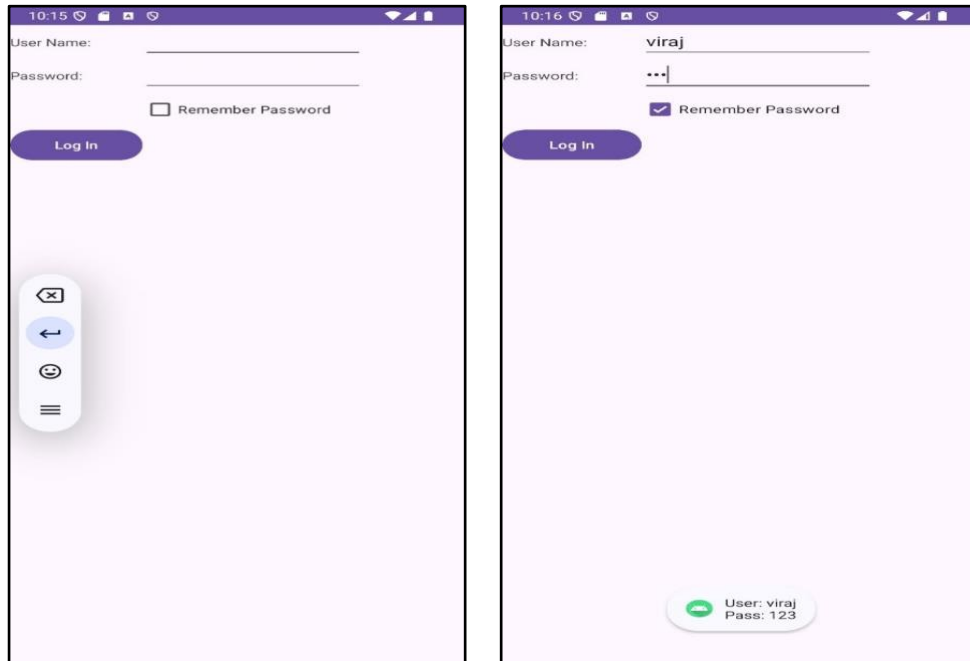
ANDROID PROGRAMMING PRACTICAL

// Display user input with Toast

```
Toast.makeText(this, "User: " + txtUserName.getText().toString() +
```

```
"\nPass: " + txtPassword.getText().toString(), Toast.LENGTH_SHORT).show();}}
```

Output:



5. Scroll Layout

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"

    android:scrollbarSize="10dp"

    tools:context=".MainActivity">
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Line1"
            android:textSize="48dp"/>
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

ANDROID PROGRAMMING PRACTICAL

```
        android:text="Line2"
        android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line3"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line4"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line5"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line6"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line7"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line8"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line9"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line10"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line11"
```

ANDROID PROGRAMMING PRACTICAL

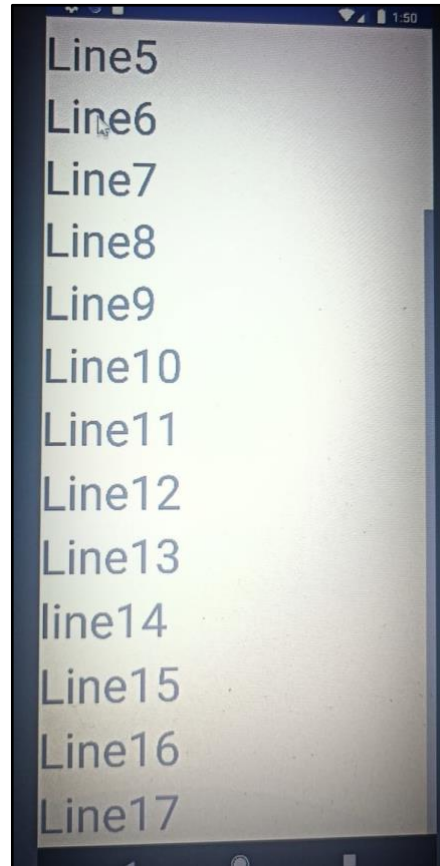
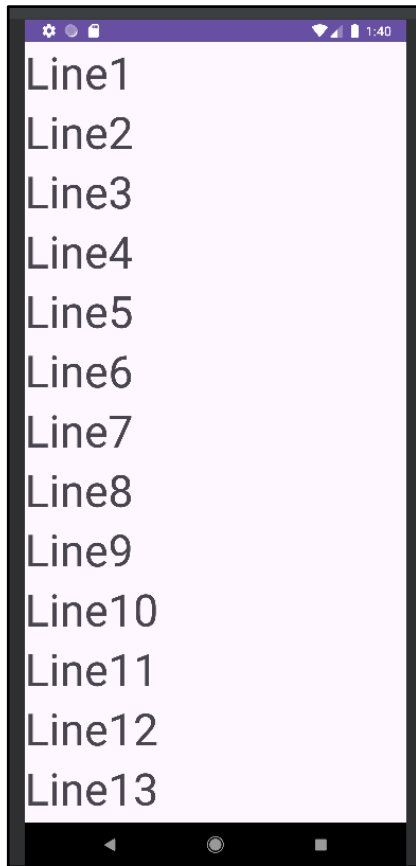
```
        android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line12"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line13"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="line14"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line15"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line16"
    android:textSize="48dp"/>
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Line17"
    android:textSize="48dp"/>
</LinearLayout>
</ScrollView>
```

MainActivity.java (No change)

```
package com.example.listview;
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);
    }
}
```

ANDROID PROGRAMMING PRACTICAL

Output:



6. Absolute Layout

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<AbsoluteLayout
    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:layout_width="188dp"
        android:layout_height="wrap_content"
        android:text="Button1"
        android:layout_x="50px"
        android:layout_y="30px"/>
    <Button
        android:layout_width="188dp"
        android:layout_height="wrap_content"
        android:text="Button2"
        android:layout_x="200px"
        android:layout_y="550px"/>
```

ANDROID PROGRAMMING PRACTICAL

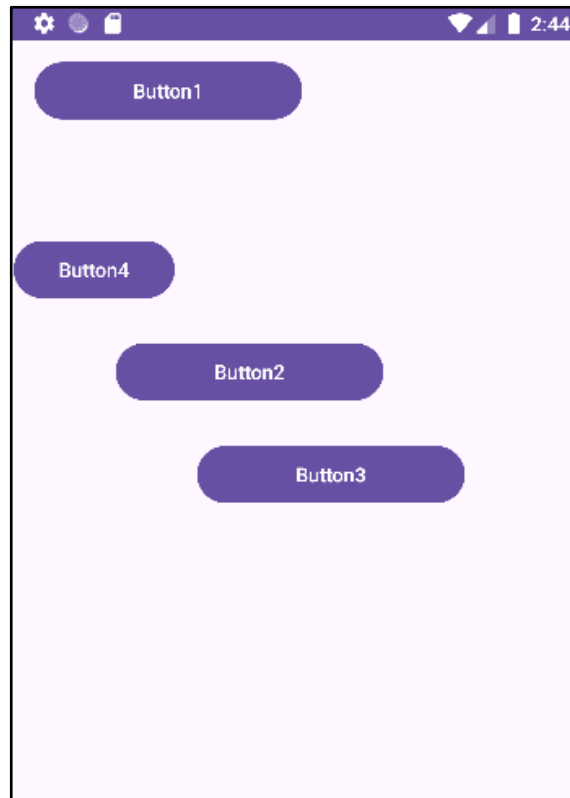
```
<Button
    android:layout_width="188dp"
    android:layout_height="wrap_content"
    android:text="Button3"
    android:layout_x="350px"
    android:layout_y="740px"/>
<Button
    android:layout_width="113dp"
    android:layout_height="wrap_content"
    android:text="Button4"
    android:layout_x="12px"
    android:layout_y="361px"/>
</AbsoluteLayout>
```

MainActivity.java

```
package com.example.absolute_layout;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;
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 button1(View view)
    {
        Toast.makeText(this,"This is Button 1",Toast.LENGTH_SHORT).show();
    }
    public void button2(View view)
    {
        Toast.makeText(this,"This is Button 2",Toast.LENGTH_SHORT).show();
    }
    public void button3(View view)
    {
        Toast.makeText(this,"This is Button 3",Toast.LENGTH_SHORT).show();
    }
    public void button4(View view)
    {
        Toast.makeText(this,"This is Button 4",Toast.LENGTH_SHORT).show();
    }
}
```

ANDROID PROGRAMMING PRACTICAL

Output:



7. ListView

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="wrap_content"
        android:layout_height="wrap_content"
        android:text="ListView"
        android:textSize="30dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:id="@+id/tvt"/>
    <ListView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/lv"
```

ANDROID PROGRAMMING PRACTICAL

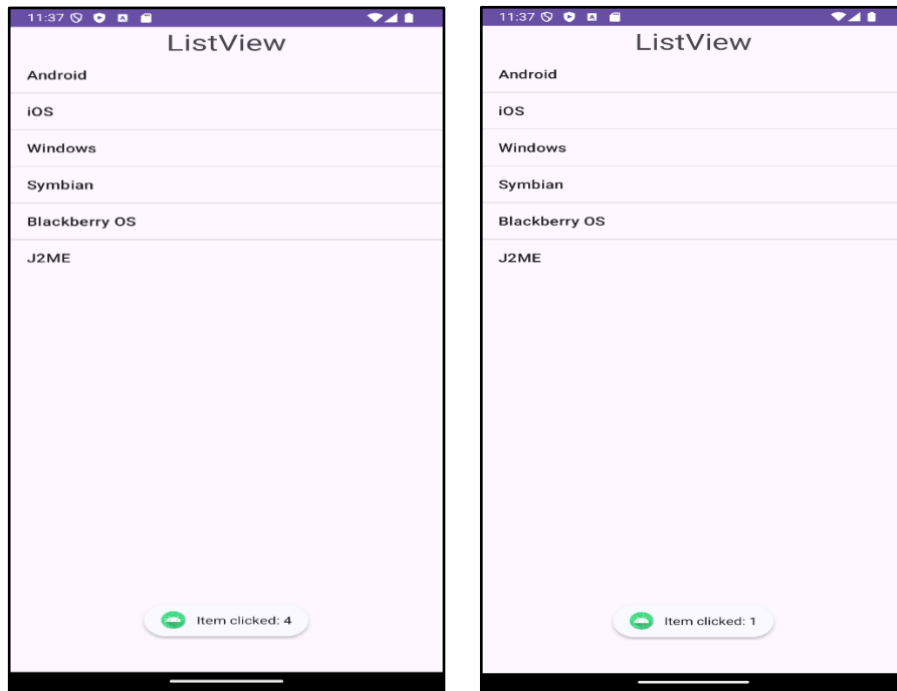
```
        android:layout_below="@id/tvt"/>
</RelativeLayout>
```

MainActivity.java

```
package com.example.practical3;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    ListView l;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final String[] s = {"Android", "iOS", "Windows", "Symbian", "Blackberry OS",
"J2ME"};
        l = findViewById(R.id.lv);
        ArrayAdapter<String> ada = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, s);
        l.setAdapter(ada);
        l.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                Toast.makeText(getApplicationContext(), "Item clicked: " + position,
Toast.LENGTH_LONG).show();
            }
        });
    }
}
```


ANDROID PROGRAMMING PRACTICAL

Output:



8. Gridview

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">
    <GridView
        android:id="@+id/gridview"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:numColumns="2"
        android:verticalSpacing="10dp"
        android:horizontalSpacing="10dp"
        android:columnWidth="90dp"
        android:stretchMode="columnWidth"
        android:gravity="center"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.gridview;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
```

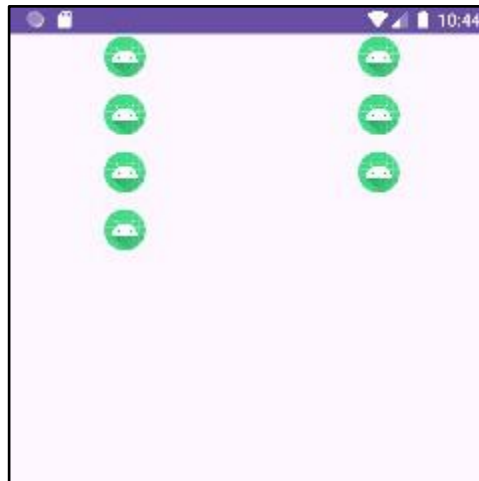
ANDROID PROGRAMMING PRACTICAL

```
import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    Integer[] imageIDs = {
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher,
        R.mipmap.ic_launcher
    };
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        GridView gridView = (GridView) findViewById(R.id.gridview);
        gridView.setAdapter(new ImageAdapter(this));
        gridView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            public void onItemClick(AdapterView<?> parent, View v, int position, long id) {
                Toast.makeText(getApplicationContext(),
                    "pic" + (position + 1) + " selected",
                    Toast.LENGTH_SHORT).show();
            }
        });
    }
    public class ImageAdapter extends BaseAdapter {
        private Context context;
        public ImageAdapter(Context c) {
            context = c;
        }
        public int getCount() {
            return imageIDs.length;
        }
        public Object getItem(int position) {
            return position;
        }
        public long getItemId(int position) {
            return position;
        }
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
public View getView(int position, View convertView, ViewGroup parent) {  
    ImageView imageView;  
    if (convertView == null) {  
        imageView = new ImageView(context);  
        imageView.setLayoutParams(new ViewGroup.LayoutParams(85, 85));  
        imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);  
        imageView.setPadding(5, 5, 5, 5);  
    } else {  
        imageView = (ImageView) convertView;  
    }  
    imageView.setImageResource(imageIDs[position]);  
    return imageView;  
}  
}  
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical No 4

Practical 4A

Aim: Programming UI elements: App Bar

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">
    <!-- Toolbar at the top -->
    <androidx.appcompat.widget.Toolbar
        android:id="@+id/toolbar"
        android:layout_width="match_parent"
        android:layout_height="?attr/actionBarSize"
        android:background="?attr/colorPrimary"
        android:elevation="4dp"
        android:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar"
        app:title="Simple AppBar" />
    <!-- Other UI elements can go below -->
    <!-- For example, a content area -->
</LinearLayout>
```

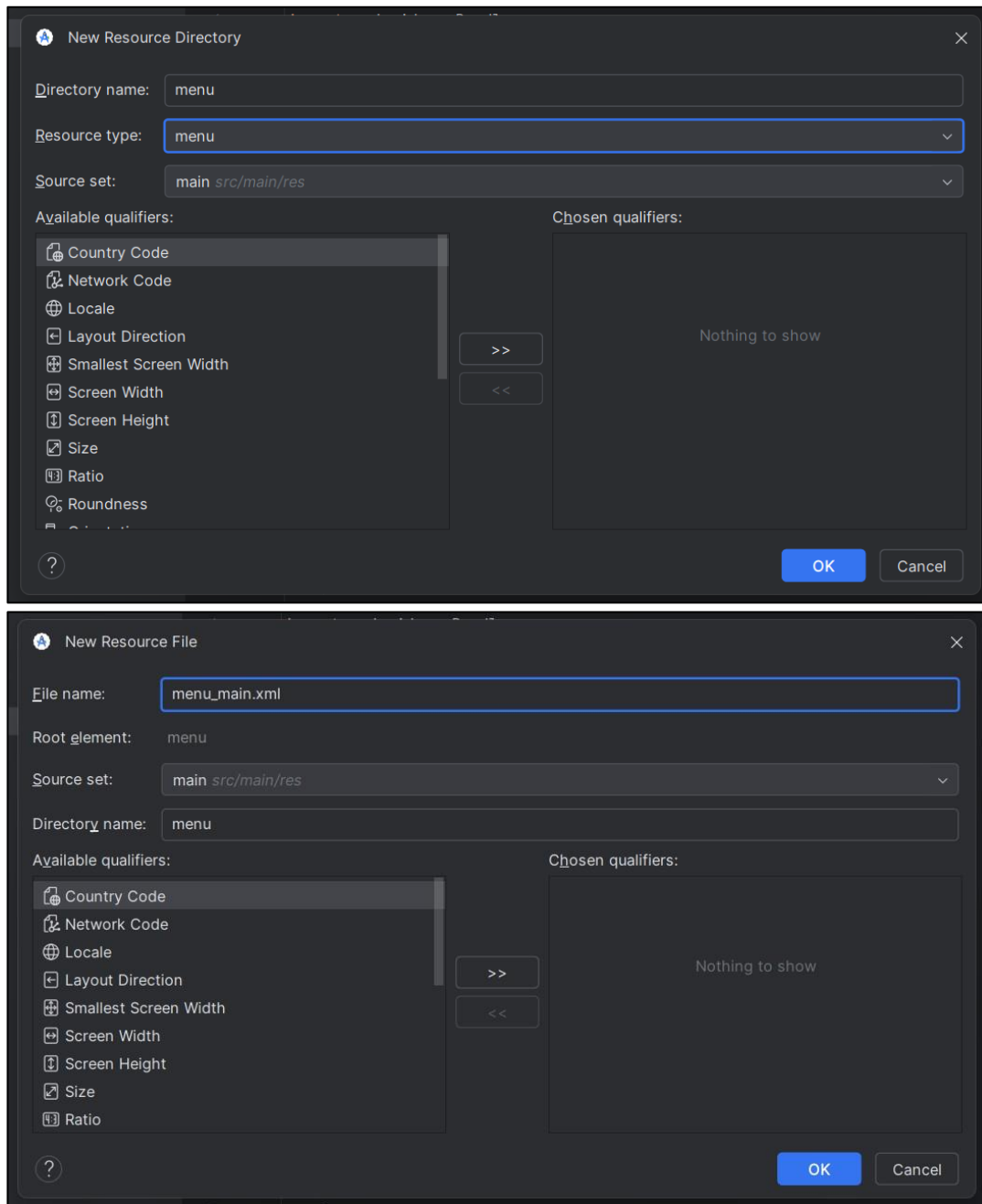
MainActivity.java

```
package com.example.appbar;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.text.SpannableString;
import android.text.style.ForegroundColorSpan;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;
import androidx.appcompat.widget.Toolbar;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

ANDROID PROGRAMMING PRACTICAL

```
        Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }
    @Override
    public boolean onPrepareOptionsMenu(Menu menu) {
        for (int i = 0; i < menu.size(); i++) {
            MenuItem item = menu.getItem(i);
            SpannableString s = new SpannableString(item.getTitle());
            s.setSpan(new ForegroundColorSpan(Color.BLACK), 0, s.length(), 0);
            item.setTitle(s);
        }
        return super.onPrepareOptionsMenu(menu);
    }
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            Toast.makeText(this, "Settings Clicked", Toast.LENGTH_SHORT).show();
            return true;
        }
        if (id == R.id.action_settings1) {
            Toast.makeText(this, "Settings1 Clicked", Toast.LENGTH_SHORT).show();
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

ANDROID PROGRAMMING PRACTICAL



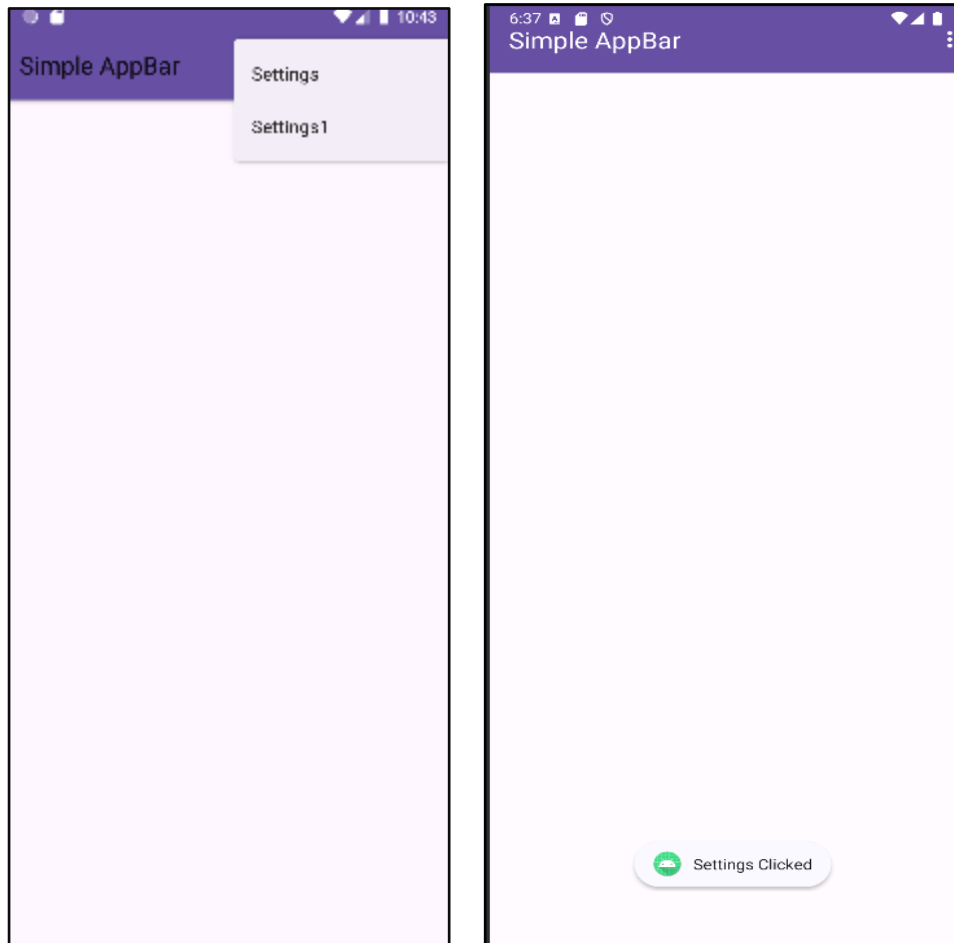
menu_main.xml

```
<?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">
    <!-- Menu item 1 -->
    <item
        android:id="@+id/action_settings"
        android:title="Settings"
        android:orderInCategory="100" />
    <!-- Menu item 2 -->
    <item
        android:id="@+id/action_settings1"
```

ANDROID PROGRAMMING PRACTICAL

```
android:title="Settings1"  
android:orderInCategory="100" />  
</menu>
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 4B

Aim: Programming Elements: Fragment

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button_load_fragment"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Load Fragment"/>

    <FrameLayout
        android:id="@+id/fragment_container"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="16dp"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.prac4b;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
```


ANDROID PROGRAMMING PRACTICAL

```
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button buttonLoadFragment = findViewById(R.id.button_load_fragment);
        buttonLoadFragment.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                loadFragment(new BlankFragment());
            }
        });
    }
    private void loadFragment(Fragment fragment) {
        // Create a FragmentManager
        FragmentManager fragmentManager = getSupportFragmentManager();
        // Create a FragmentTransaction to begin the transaction and replace the Fragment
        FragmentTransaction fragmentTransaction = fragmentManager.beginTransaction();
        fragmentTransaction.replace(R.id.fragment_container, fragment);
        // Commit the transaction
        fragmentTransaction.commit();
    }
}
```

fragment_blank.xml

```
<?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"
    android:orientation="horizontal"
    android:gravity="center">
    <TextView
```

ANDROID PROGRAMMING PRACTICAL

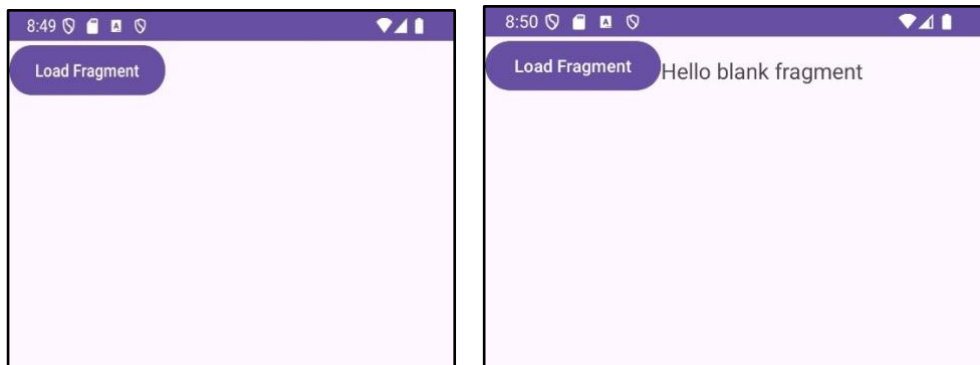
```
android:id="@+id/textView_fragment"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:text="@string/hello_blank_fragment"
android:textSize="18sp"/>
```

```
</LinearLayout>
```

BlankFragment.java

```
package com.example.prac4b;
import android.os.Bundle;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
public class BlankFragment extends Fragment {
    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_blank, container, false);
    }
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 4C

Aim: Programming UI elements : UI Components

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">
    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/btnSave"
        android:text="Save"
        android:layout_alignParentTop="true"/>
    <ImageButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/ib"
        android:src="@mipmap/ic_launcher"/>
    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="edit text"
        android:id="@+id/et"/>
    <CheckBox
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/cb1"
        android:text="Auto Save"/>
    <CheckBox
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/cbst"
        android:text=""
        style="?android:attr/starStyle"/>
    <RadioGroup
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/rg">
        <RadioButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

ANDROID PROGRAMMING PRACTICAL

```
        android:id="@+id/rb1"
        android:text="Option1"/>
    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/rb2"
        android:text="Option2"/>
</RadioGroup>
<ToggleButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/tb"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.uicomponents;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Display;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.CompoundButton;
import android.widget.EditText;
import android.widget.ImageButton;
import android.widget.RadioButton;
import android.widget.ToggleButton;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button btsave=(Button) findViewById(R.id.btnSave);
        ImageButton imgb=(ImageButton) findViewById(R.id.ib);
        EditText etext=(EditText) findViewById(R.id.et);
        CheckBox cb1=(CheckBox) findViewById(R.id.cb1);
        CheckBox cbst=(CheckBox) findViewById(R.id.cbst);
        RadioButton rb1=(RadioButton) findViewById(R.id.rb1);
        RadioButton rb2=(RadioButton) findViewById(R.id.rb2);
        ToggleButton tbutton =(ToggleButton) findViewById(R.id.tb);
        btsave.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
```

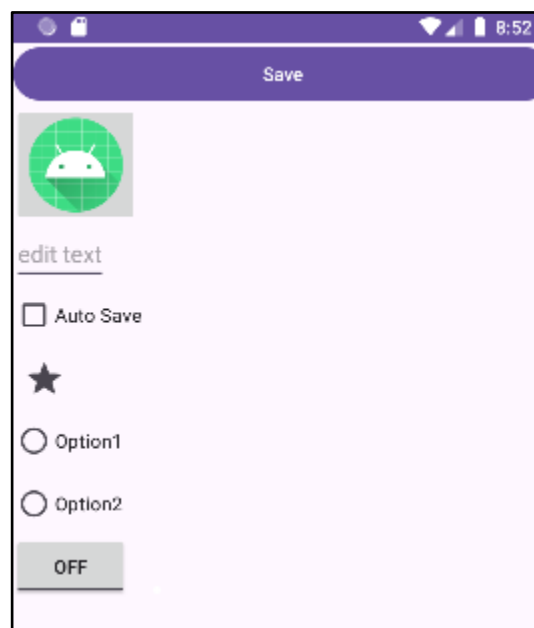
ANDROID PROGRAMMING PRACTICAL

```
        DisplayToast("Save Button clicked");
    }
});
imgb.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        DisplayToast("ImageButton Clicked");
    }
});
cb1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if(((CheckBox)v).isChecked())
            DisplayToast("CheckBox Option1 is checked");
        else
            DisplayToast(" CheckBox unchecked");
    }
});
cbst.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if(((CheckBox)v).isChecked())
            DisplayToast("CheckBox Option2 is checked");
        else
            DisplayToast(" CheckBox unchecked");
    }
});
cbst.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if(((CheckBox)v).isChecked())
            DisplayToast("CheckBox Option2 is checked");
        else
            DisplayToast(" CheckBox unchecked");
    }
});
rb1.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener()
{
    @Override
    public void onCheckedChanged(CompoundButton buttonView,boolean ischecked)
    {
        if(rb1.isChecked()) {
            DisplayToast("RadioButton 1 is checked");
        }
        else
            DisplayToast("RadioButton 1 is unchecked");
    }
});
```

ANDROID PROGRAMMING PRACTICAL

```
    }  
});  
rb2.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener()  
{  
    @Override  
    public void onCheckedChanged(CompoundButton buttonView,boolean ischecked)  
    {  
        if(rb2.isChecked()) {  
            DisplayToast("RadioButton 2 is checked");  
        }  
        else  
            DisplayToast("RadioButton 2 is unchecked");  
    }  
});  
  
tbutton.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        if(tbutton.isChecked()) {  
            DisplayToast("ToggleButton is on");  
        }  
        else  
            DisplayToast("ToggleButton is off");  
    }  
}); }  
public void DisplayToast(String s)  
{  
    Toast.makeText(this,s,Toast.LENGTH_SHORT).show();  
}}
```

Output:

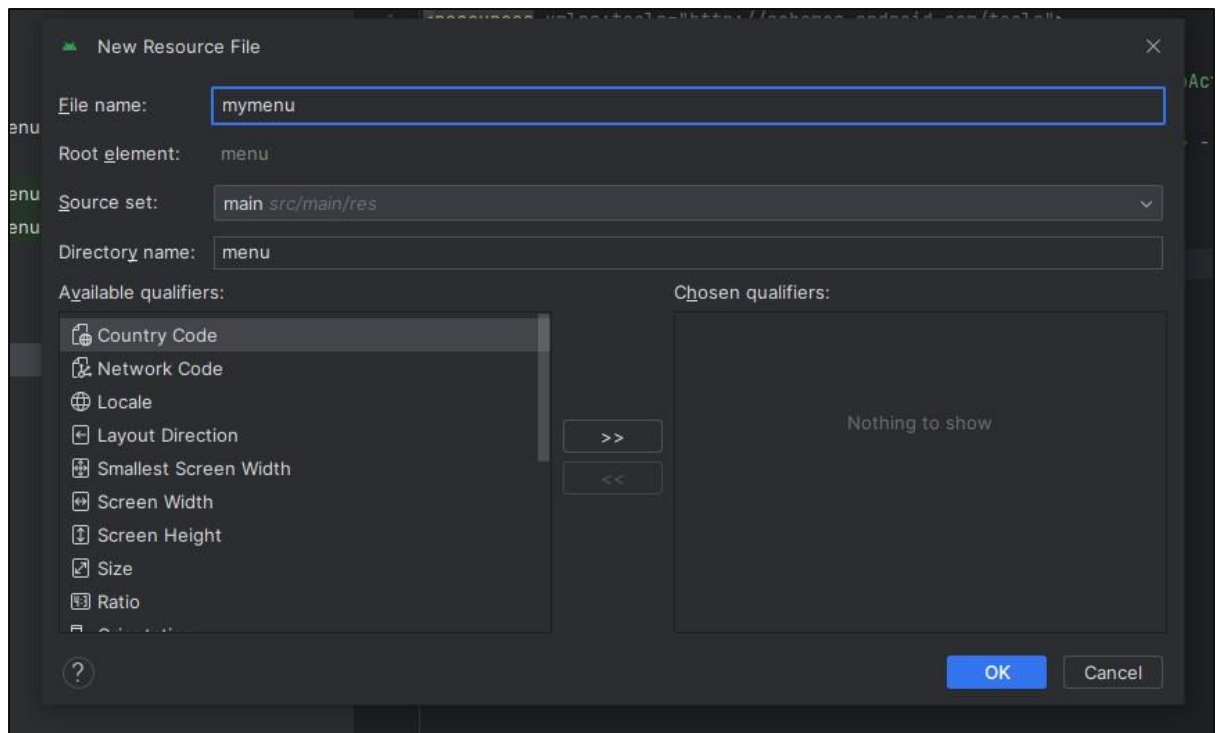


ANDROID PROGRAMMING PRACTICAL

Practical 5

Practical 5A

Aim: Creating Menus



themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.Menu" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
    </style>
    <style name="Theme.Menu" parent="Base.Theme.Menu" />
</resources>
```

Mymenu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/newb"
        android:title="Bookmarks"/>
    <item
        android:id="@+id/search"
        android:title="Search"/>
    <item
        android:id="@+id/save"
        android:title="Save"/>
</menu>
```

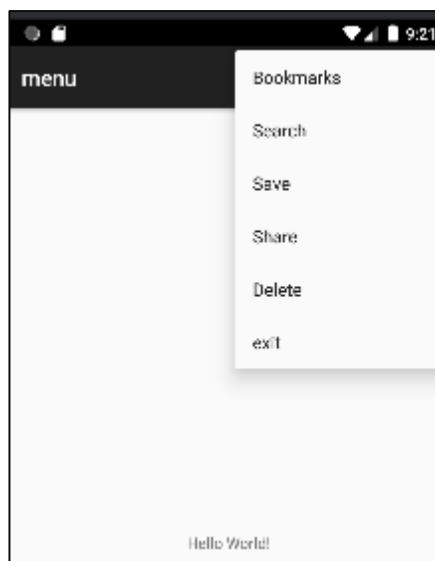
ANDROID PROGRAMMING PRACTICAL

```
        android:id="@+id/Share"
        android:title="Share"/>
    <item
        android:id="@+id/delete"
        android:title="Delete"/>
    <item
        android:id="@+id/exit"
        android:title="exit"/>
</menu>
```

MainActivity.java

```
package com.example.menu;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
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) {
        // Inflating the menu resource file
        MenuInflater mi = getMenuInflater();
        mi.inflate(R.menu.mymenu, menu);
        return true;
    }
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 5B

Aim: Creating Dialog

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:orientation="vertical"
    android:padding="20dp">
    <Button
        android:id="@+id/button_dialog"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="onClickDialog"
        android:text="Click to display an AlertDialog" />
    <Button
        android:id="@+id/button_progressdialog"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="onClickProgressDialog"
        android:text="Click to display a ProgressDialog" />
    <Button
        android:id="@+id/button_datedialog"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="onClickDateDialog"
        android:text="Click to display a DatePickerDialog" />
    <Button
        android:id="@+id/button_timedialog"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="onClickTimeDialog"
        android:text="Click to display a TimePickerDialog" />
    <TextView
        android:id="@+id/textView_date"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Selected Date:"
        android:textSize="20sp"
        android:paddingTop="10dp"/>
    <TextView
        android:id="@+id/textView_time"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

ANDROID PROGRAMMING PRACTICAL

```
        android:text="Selected Time:"
        android:textSize="20sp"
        android:paddingTop="10dp"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.practical5b;
import android.app.AlertDialog;
import android.app.DatePickerDialog;
import android.app.ProgressDialog;
import android.app.TimePickerDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.DatePicker;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    CharSequence[] items = {"Android", "Security", "Cloud"};
    boolean[] itemsChecked = new boolean[items.length];
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void onClickDialog(View v) {
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setTitle("This is a dialog with simple Text...");
        builder.setPositiveButton("OK", (dialog, id) ->
            Toast.makeText(getApplicationContext(), "OK Clicked",
Toast.LENGTH_SHORT).show());
        builder.setNegativeButton("CANCEL", (dialog, id) ->
            Toast.makeText(getApplicationContext(), "CANCEL Clicked",
Toast.LENGTH_SHORT).show());
        builder.setMultiChoiceItems(items, itemsChecked, (dialog, id, isChecked) ->
            Toast.makeText(getApplicationContext(), items[id] + (isChecked ? " checked" : "
unchecked"),
                Toast.LENGTH_SHORT).show());
        builder.show();
    }
    public void onClickProgressDialog(View v) {
        ProgressDialog pDialog = new ProgressDialog(this);
        pDialog.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);
```

ANDROID PROGRAMMING PRACTICAL

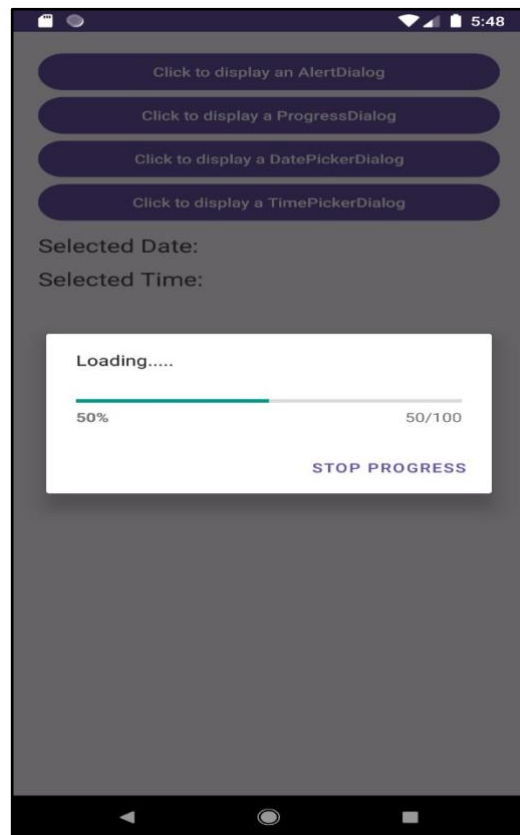
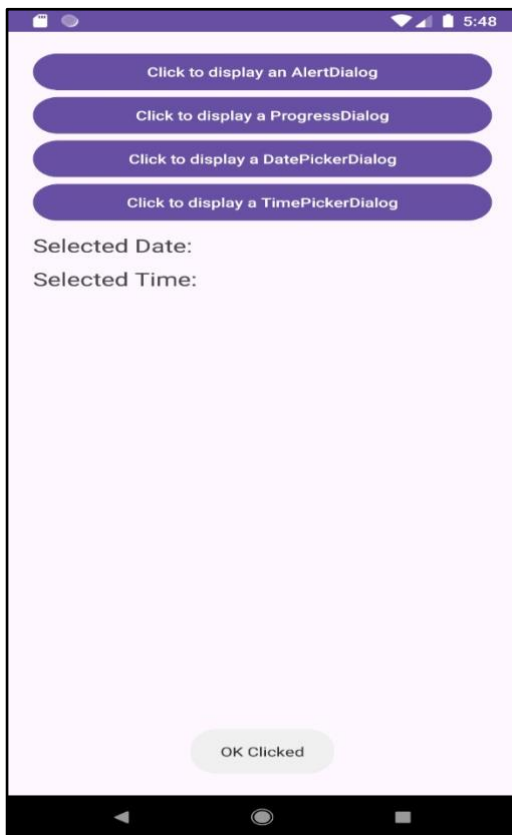
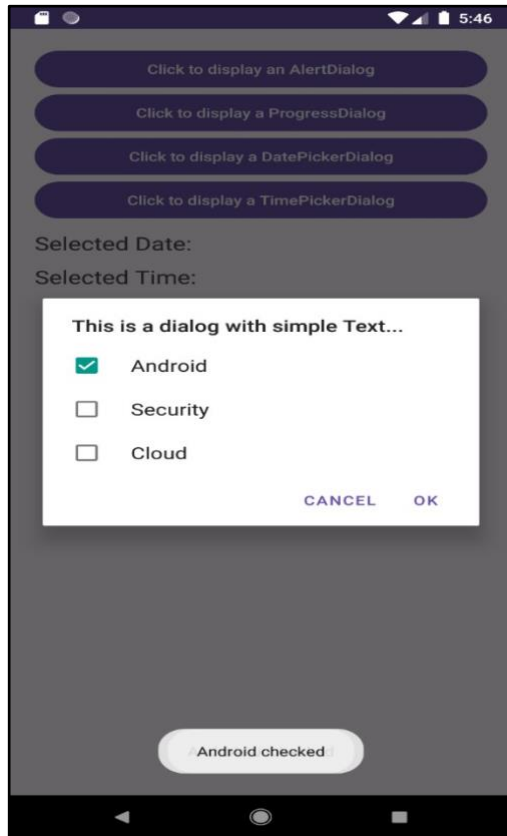
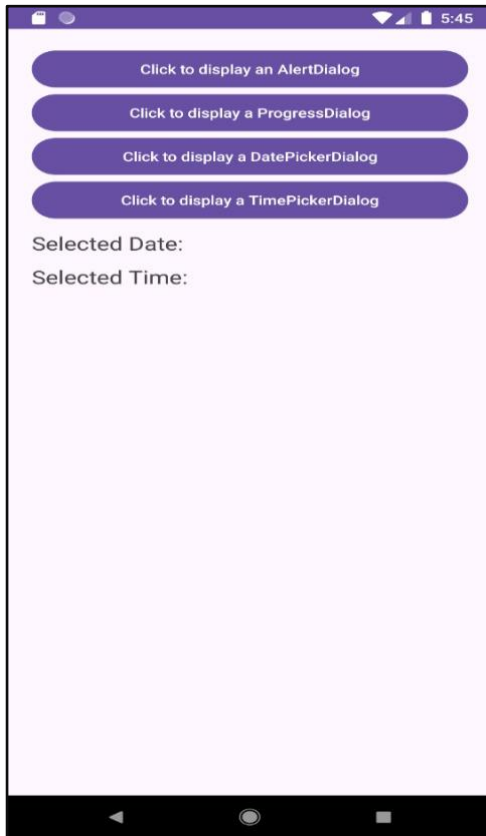
```
pDialog.setMessage("Loading..... ");
pDialog.setMax(100);
pDialog.setProgress(0);
pDialog.setCancelable(false);
pDialog.setButton(DialogInterface.BUTTON_POSITIVE, "STOP PROGRESS", (dialog,
id) -> pDialog.dismiss());
pDialog.show();
// Simulate progress update
new Thread(() -> {
    try {
        for (int i = 0; i <= 100; i += 10) {
            Thread.sleep(500); // Simulate loading time
            int finalI = i;
            runOnUiThread(() -> pDialog.setProgress(finalI));
        }
        pDialog.dismiss();
    } catch (InterruptedException e) {
        e.printStackTrace();
    }
}).start();
}

public void onClickDateDialog(View v) {
    final TextView dateDisplay = findViewById(R.id.textView_date);
    final Calendar c = Calendar.getInstance();
    int mYear = c.get(Calendar.YEAR);
    int mMonth = c.get(Calendar.MONTH);
    int mDay = c.get(Calendar.DAY_OF_MONTH);
    DatePickerDialog dateDialog = new DatePickerDialog(this,
        (view, year, month, day) ->
            dateDisplay.setText("Selected Date: " + (month + 1) + "-" + day + "-" + year),
        mYear, mMonth, mDay);
    dateDialog.show();
}

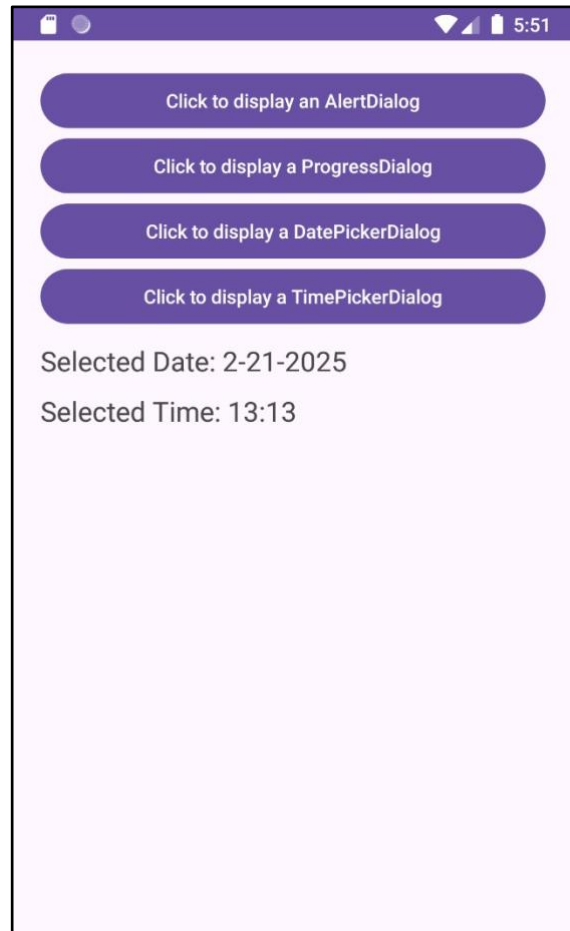
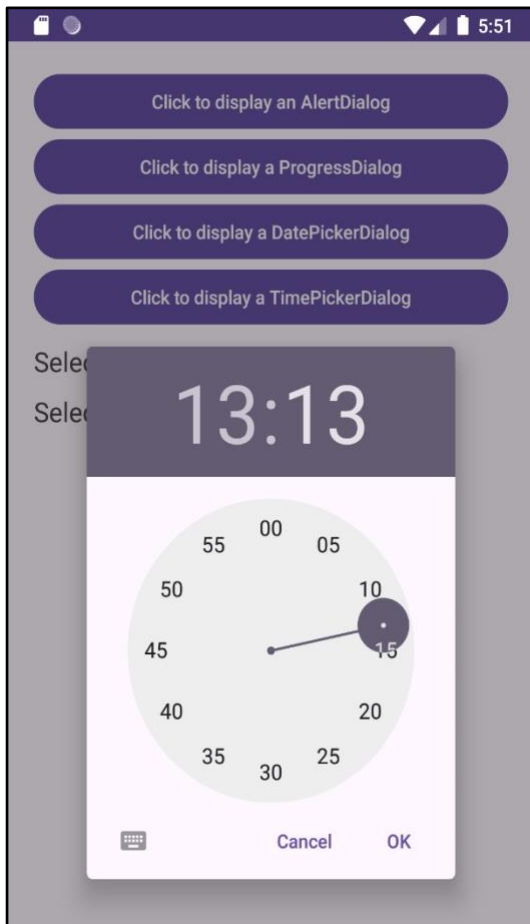
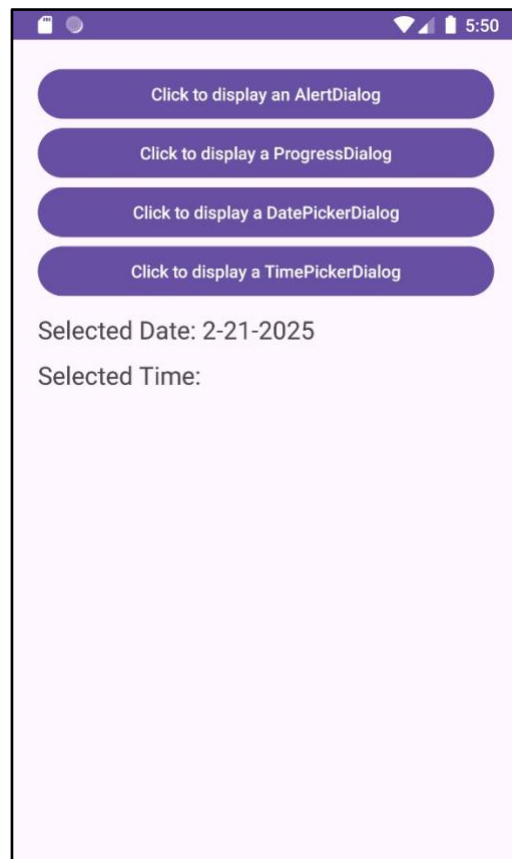
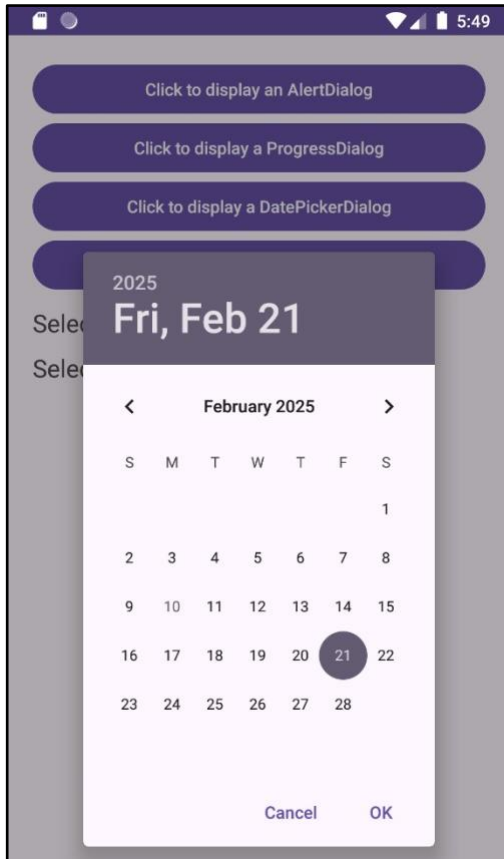
public void onClickTimeDialog(View v) {
    final TextView timeDisplay = findViewById(R.id.textView_time);
    final Calendar c = Calendar.getInstance();
    int mHour = c.get(Calendar.HOUR_OF_DAY);
    int mMinute = c.get(Calendar.MINUTE);
    TimePickerDialog timeDialog = new TimePickerDialog(this,
        (view, hour, minute) ->
            timeDisplay.setText("Selected Time: " + hour + ":" + String.format("%02d",
minute)),
        mHour, mMinute, true);
    timeDialog.show();
}
}
```

ANDROID PROGRAMMING PRACTICAL

Output:



ANDROID PROGRAMMING PRACTICAL



ANDROID PROGRAMMING PRACTICAL

Practical 5C

Aim: Creating Dialogs Fragments

DFragment.java

```
package com.example.practical5c;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.DialogFragment;
public class DFragment extends DialogFragment {
    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View rootView = inflater.inflate(R.layout.dialog_fragment, container, false);
        getDialog().setTitle("DialogFragment Test");
        return rootView;
    }
}
```

dialog_fragment.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"
    android:padding="20dp">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="This is a DialogFragment"
        android:textSize="18sp"/>
</RelativeLayout>
```

AlertDFragment.java

```
package com.example.practical5c;
import android.app.AlertDialog;
import android.app.Dialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.widget.Toast;
import androidx.annotation.NonNull;
```

ANDROID PROGRAMMING PRACTICAL

```
import androidx.fragment.app.AlertDialog;
public class AlertDFragment extends DialogFragment {
    @NonNull
    @Override
    public Dialog onCreateDialog(Bundle savedInstanceState) {
        return new AlertDialog.Builder(getActivity())
            .setIcon(android.R.mipmap.sym_def_app_icon) // Set Dialog Icon
            .setTitle("Alert Dialog Fragment")           // Set Dialog Title
            .setMessage("This is an AlertDialogFragment.") // Set Dialog Message
            .setPositiveButton("OK", (dialog, which) ->
                Toast.makeText(getContext(), "Ok Clicked", Toast.LENGTH_LONG).show())
            .setNegativeButton("Cancel", (dialog, which) ->
                Toast.makeText(getContext(), "Cancel Clicked",
                    Toast.LENGTH_LONG).show())
            .create();
    }
}
```

activity_main.xml

```
<?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">
    <Button
        android:id="@+id/button_dialog_fragment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Show Dialog Fragment"
        android:onClick="DialogFragment"/>
    <Button
        android:id="@+id/button_alert_fragment"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Show Alert Dialog Fragment"
        android:layout_below="@id/button_dialog_fragment"
        android:layout_marginTop="10dp"
        android:onClick="AlertFragment"/>
</RelativeLayout>
```

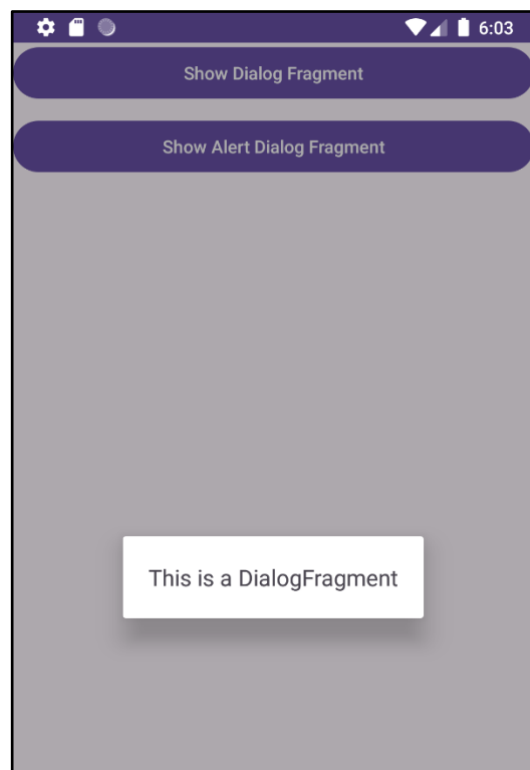
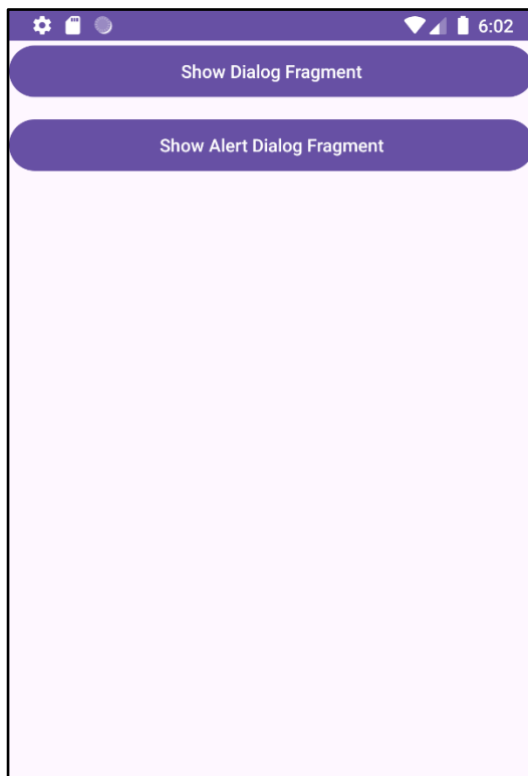
MainActivity.java

```
package com.example.practical5c;
import android.os.Bundle;
import android.view.View;
```

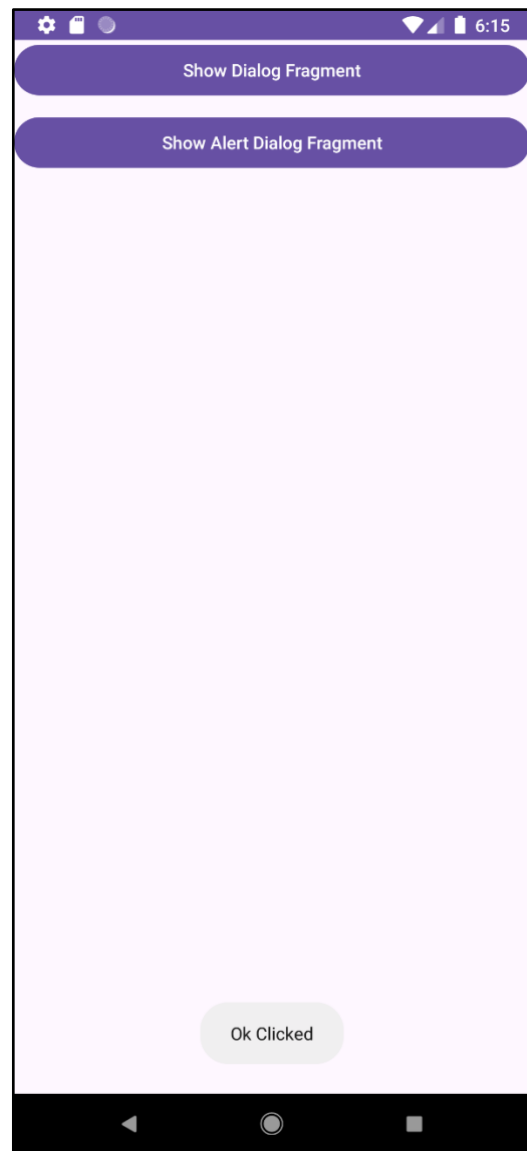
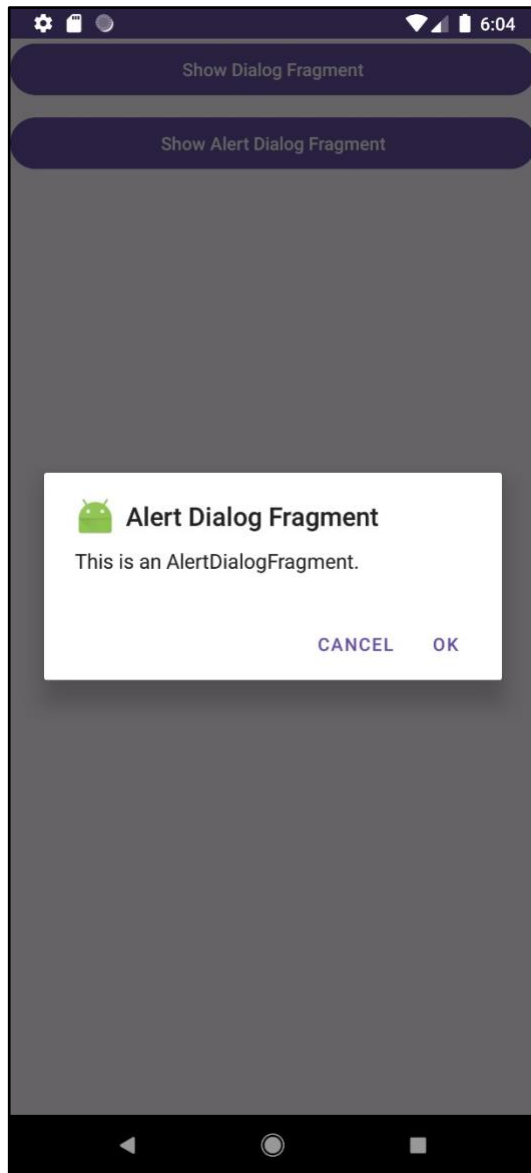
ANDROID PROGRAMMING PRACTICAL

```
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentManager
public class MainActivity extends AppCompatActivity {
    FragmentManager fm;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        fm = getSupportFragmentManager();
    }
    public void DialogFragment(View view) {
        DFragment dFragment = new DFragment();
        dFragment.show(fm, "Dialog Fragment");
    }
    public void AlertFragment(View view) {
        AlertDFragment alertDFragment = new AlertDFragment();
        alertDFragment.show(fm, "Alert Dialog Fragment");
    }
}
```

Output:



ANDROID PROGRAMMING PRACTICAL



ANDROID PROGRAMMING PRACTICAL

Practical No 6

Aim : The Android Intent Class

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"
    android:padding="16dp">

    <!-- EditText for user input -->

    <EditText

        android:id="@+id/editText_text"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter a value"
        android:textSize="48dp"
        android:inputType="text" />

    <!-- Button to trigger action -->

    <Button

        android:id="@+id/button_click"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click"
        android:layout_gravity="center"
        android:onClick="showntext" />

</LinearLayout>
```

ANDROID PROGRAMMING PRACTICAL

MainActivity.java

```
package com.example.prac6;

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

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

    // This method is triggered when the button is clicked

    public void showntext(View view) {

        // Get the EditText view

        EditText ed = findViewById(R.id.editText_text);

        // Get the text entered in the EditText

        String msg = ed.getText().toString();

        // Create an Intent to start the newpage activity

        Intent in = new Intent(this, newpage.class);

        // Pass the value to the new activity

        in.putExtra("my key", msg);

        // Start the new activity

        startActivity(in);

    }

}
```

activity_newpage.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"
```

ANDROID PROGRAMMING PRACTICAL

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

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

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

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

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

```
<!-- TextView to display some text -->
```

```
<TextView
```

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

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

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

```
    android:text="New Text"
```

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

```
    android:layout_centerInParent="true" />
```

```
</RelativeLayout>
```

newpage.java

```
package com.example.prac6;
```

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

```
import android.widget.TextView;
```

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

```
public class newpage extends AppCompatActivity {
```

```
    @Override
```

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

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

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

```
        // Find the TextView
```

```
        TextView tv1 = findViewById(R.id.textView_view);
```

```
        // Get the value passed through the intent
```

```
        String myvalue = getIntent().getStringExtra("my key");
```

```
        // Check if the value is null
```

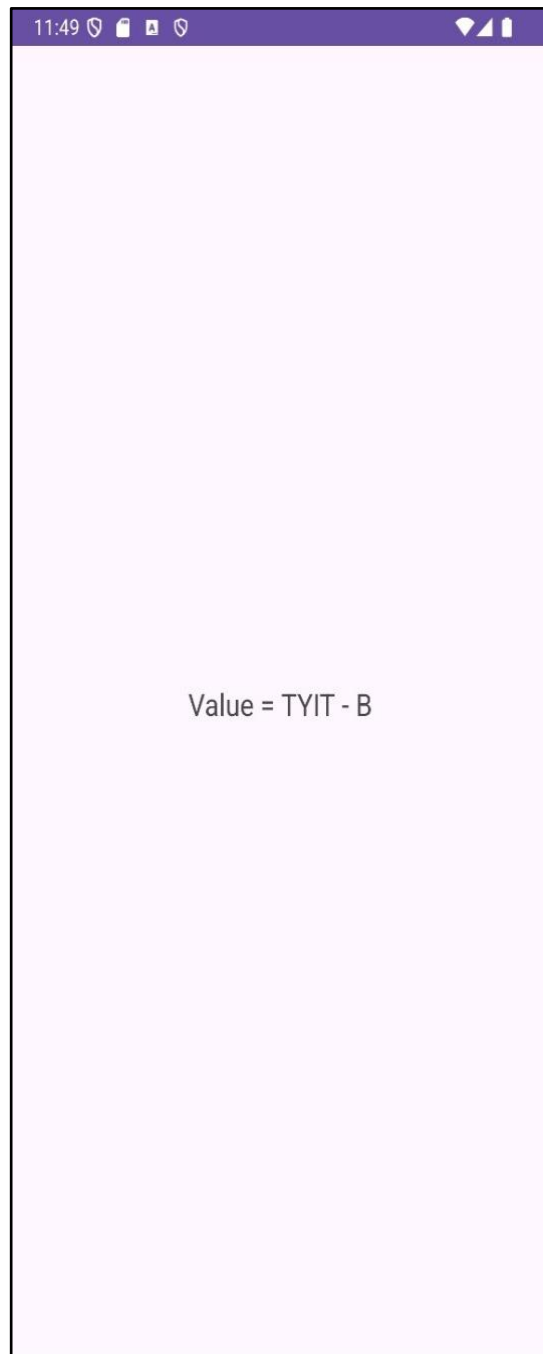
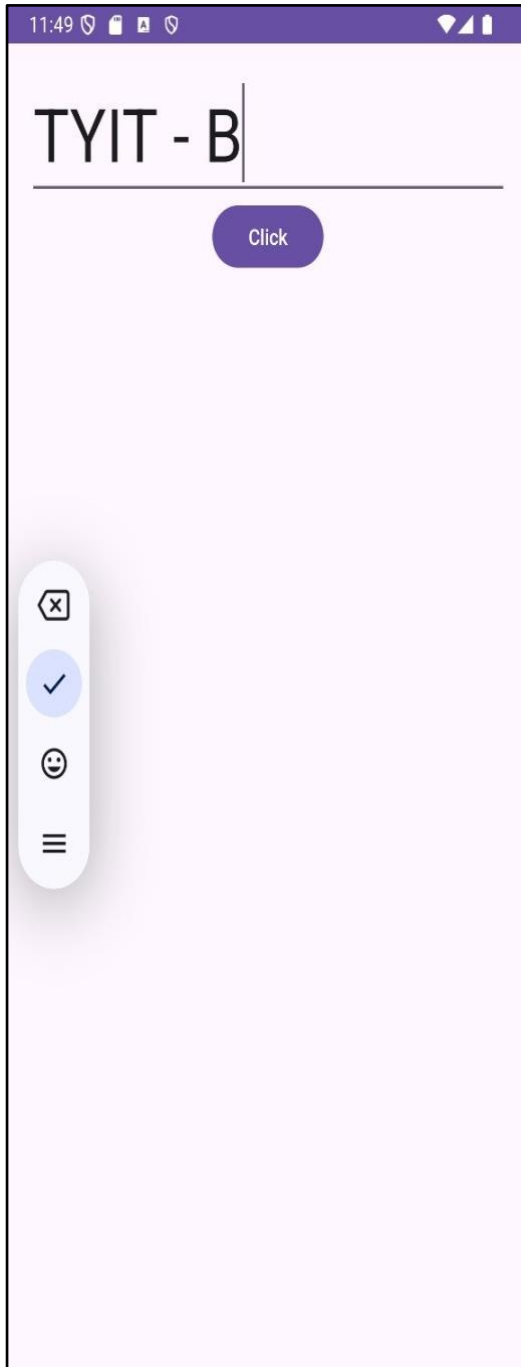
```
        if (myvalue != null) {
```

```
            tv1.setText("Value = " + myvalue);
```

ANDROID PROGRAMMING PRACTICAL

```
} else {  
    tv1.setText("No value passed");  
}  
}  
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical No 7

Practical 7A

Aim : Program on Services

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/btnStart"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Start Service"
    android:onClick="startService"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"></Button>
<Button
    android:id="@+id/btnStop"
    android:onClick="stopService"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Stop Service"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/btnStart">
</Button>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MyServices.java

```
package com.example.practical7a;
import android.app.Service;
import android.content.Intent;
import android.os.IBinder;
import android.widget.Toast;
import androidx.annotation.Nullable;
public class MyServices extends Service {
```

ANDROID PROGRAMMING PRACTICAL

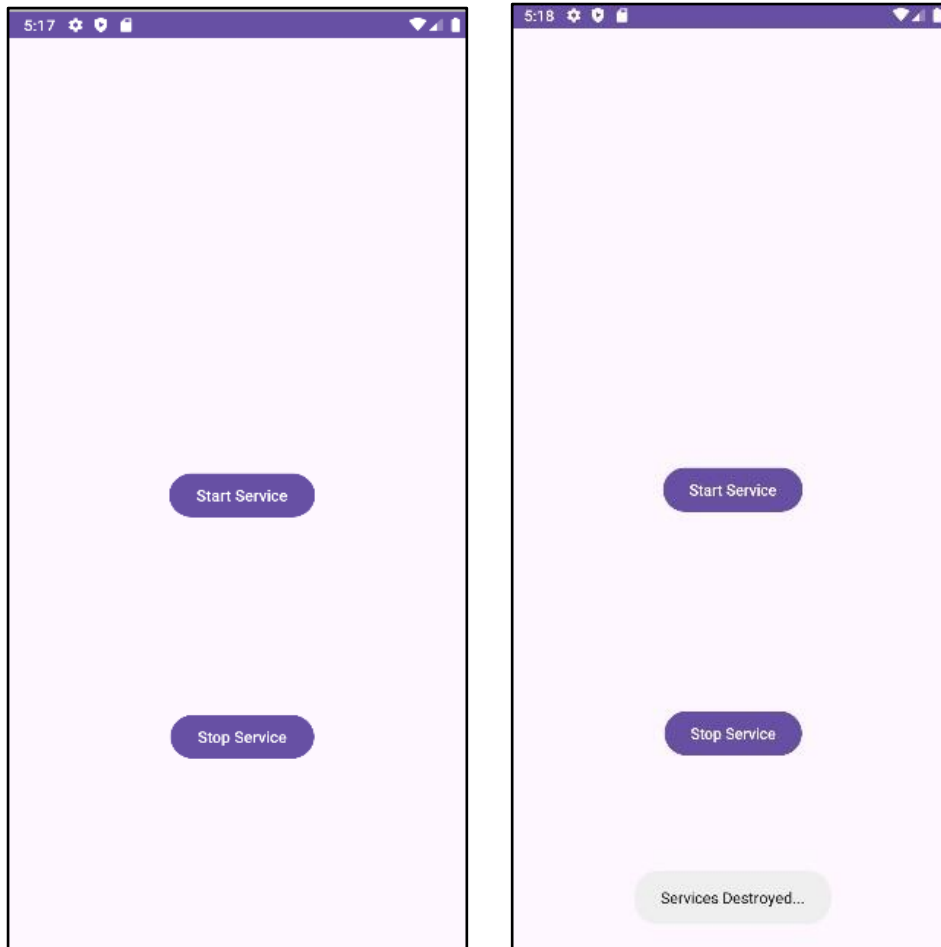
```
@Override
public void onCreate(){
    super.onCreate();
}
@Override
public int onStartCommand(Intent intent, int flags , int startId){
    Toast.makeText(this, "Services Started...", Toast.LENGTH_LONG).show();
    return START_STICKY;
}
public void onDestroy(){
    Toast.makeText(this, "Services Destroyed...", Toast.LENGTH_LONG).show();
}
@Nullable
@Override
public IBinder onBind (Intent intent){
    return null;
}
}
```

MainActivity.java

```
package com.example.practical7a;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.content.Intent;
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 startService(View view)
    {
        Intent intent=new Intent(this, MyServices.class);
        startService(intent);
    }
    public void stopService(View view)
    {
        Intent intent=new Intent(this, MyServices.class);
        stopService(intent);
    }
}
```

ANDROID PROGRAMMING PRACTICAL

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 7B

Aim : Programs on notification

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>
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
<uses-permission android:name="android.permission.POST_NOTIFICATIONS"/>
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Pract"
        tools:targetApi="31">
        <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>
```

ANDROID PROGRAMMING PRACTICAL

```
</application>
</manifest>
```

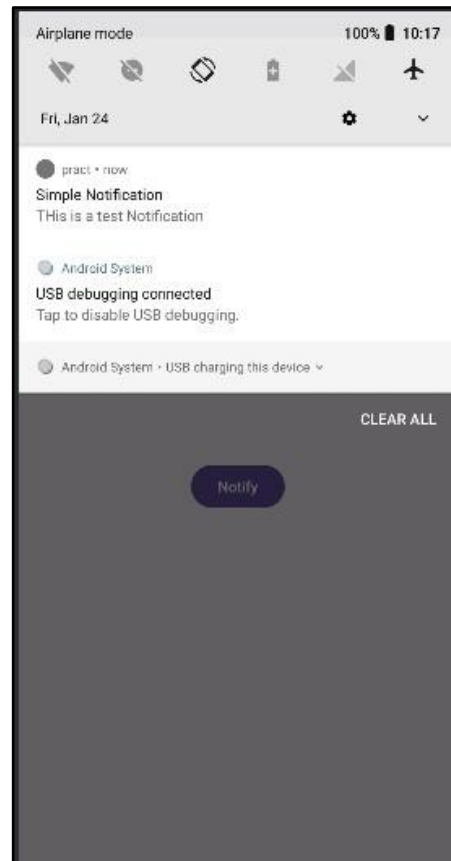
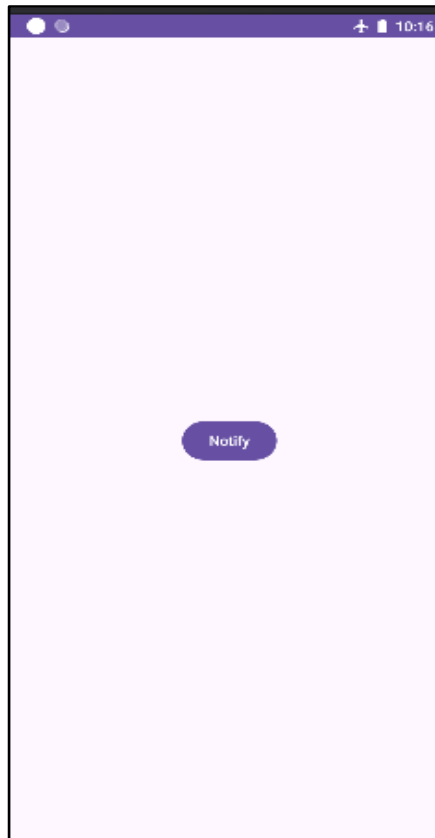
MainActivity.java

```
package com.example.pract;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;
import androidx.core.app.NotificationManagerCompat;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.os.Build;
import android.os.Bundle;
import android.widget.Toast;
import android.view.View;
public class MainActivity extends AppCompatActivity {
    public final String CHANNEL_ID="personal_notification";
    public final int NOTIFICATION_ID=001;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void displayNotification(View view)
    {
        createNotificationChannel();
        Toast.makeText(getApplicationContext(), "Hi", Toast.LENGTH_LONG).show();
        NotificationCompat.Builder builder=new
NotificationCompat.Builder(this,CHANNEL_ID);
        builder.setSmallIcon(R.mipmap.ic_launcher);
        builder.setContentTitle("Simple Notification");
        builder.setContentText("THis is a test Notification");
        builder.setPriority(NotificationCompat.PRIORITY_DEFAULT);
        NotificationManagerCompat
notificationManagerCompat=NotificationManagerCompat.from(this);
        notificationManagerCompat.notify(NOTIFICATION_ID,builder.build());
    }
    private void createNotificationChannel()
    {
        if(Build.VERSION.SDK_INT>=Build.VERSION_CODES.O)
        {
            CharSequence name="Personal Notification";
            String description="This is description";
            int importance= NotificationManager.IMPORTANCE_DEFAULT;
            NotificationChannel notificationChannel=new
NotificationChannel(CHANNEL_ID,name,importance);
            notificationChannel.setDescription(description);
```

ANDROID PROGRAMMING PRACTICAL

```
NotificationManager  
notificationManager=(NotificationManager)getSystemService(NOTIFICATION_SERVICE);  
notificationManager.createNotificationChannel(notificationChannel);  
}  
}  
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 7C

Aim : Programs on broadcast receivers

Manifest:

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

MainActivity.java

```
package com.example.broadcastb;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    AirplaneModeChangeReceiver airplaneModeChangeReceiver=new
    AirplaneModeChangeReceiver();
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    protected void onStart()
    {
        super.onStart();
        IntentFilter filter=new IntentFilter(Intent.ACTION_AIRPLANE_MODE_CHANGED);
        registerReceiver(airplaneModeChangeReceiver,filter);
    }
    @Override
    protected void onStop()
    {
        super.onStop();
        unregisterReceiver(airplaneModeChangeReceiver);
    }
}
```

Java Class –AirplaneModeChangeReceiver.java

```
package com.example.broadcastb;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.provider.Settings;
import android.widget.Toast;
public class AirplaneModeChangeReceiver extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent)
    {
```

ANDROID PROGRAMMING PRACTICAL

```
if(isAirplaneModeOn(context.getApplicationContext()))
{
    Toast.makeText(context, "AirPlane mode is on", Toast.LENGTH_LONG).show();
}
else {
    Toast.makeText(context, "AirPlane mode is off", Toast.LENGTH_LONG).show();
}
}
private static boolean isAirplaneModeOn(Context context)
{
    return Settings.System.getInt(context.getContentResolver(),
        Settings.Global.AIRPLANE_MODE_ON,0) !=0;
}
}
```

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:orientation="vertical"
    android:gravity="center"
    android:padding="20dp">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Toggle Airplane Mode to See Toast Message"
        android:textSize="18sp"
        android:textStyle="bold"
        android:gravity="center"/>

</LinearLayout>
```

ANDROID PROGRAMMING PRACTICAL

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 8

Practical 8A

Aim : Database Programming with SQLite

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:orientation="vertical"
    android:padding="16dp">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:gravity="center_vertical"
        android:paddingBottom="8dp">
        <TextView
            android:id="@+id/user"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Username:" />
        <EditText
            android:id="@+id/etun"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:hint="Enter username"
            android:inputType="textPersonName"
            android:layout_marginStart="8dp" />
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:gravity="center_vertical"
        android:paddingBottom="16dp">
        <TextView
            android:id="@+id/ipass"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Password:" />
        <EditText
            android:id="@+id/etp"
```

ANDROID PROGRAMMING PRACTICAL

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:hint="Enter password"
        android:inputType="textPassword"
        android:layout_marginStart="8dp" />
    </LinearLayout>
    <Button
        android:id="@+id/reg"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Register" />
    <Button
        android:id="@+id/lg"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="Login" />
    <Button
        android:id="@+id/dr"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="Drop" />
</LinearLayout>
```

MainActivity.java

```
package com.example.prac_8a;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteException;
import android.database.sqlite.SQLiteOpenHelper;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
class MyDB extends SQLiteOpenHelper {
    MyDB(Context c) {
        super(c, "logindb", null, 1);
    }    @Override
    public void onCreate(SQLiteDatabase db) {
        String str = "CREATE TABLE login(username TEXT, password TEXT)";
        db.execSQL(str);
    }
}
```


ANDROID PROGRAMMING PRACTICAL

```
}
@Override
public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
    String dr = "DROP TABLE IF EXISTS login";
    db.execSQL(dr);
    onCreate(db);
}

public class MainActivity extends AppCompatActivity {
    MyDB mdb;
    EditText u, p;
    Button breg, bdr, blg;
    SQLiteDatabase db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        u = findViewById(R.id.etun);
        p = findViewById(R.id.etp);
        blg = findViewById(R.id.lg);
        breg = findViewById(R.id.reg);
        bdr = findViewById(R.id.dr);
        mdb = new MyDB(this);
        // Set click listeners for buttons
        blg.setOnClickListener(this::login_fun);
        breg.setOnClickListener(this::reg_fun);
        bdr.setOnClickListener(this::dr_fun);
    }
    public void login_fun(View v) {
        String un = u.getText().toString();
        String pas = p.getText().toString();
        db = mdb.getReadableDatabase();
        String q = "SELECT * FROM login WHERE username=? AND password=?";
        try (Cursor c = db.rawQuery(q, new String[]{un, pas})) {
            if (c.getCount() == 0) {
                Toast.makeText(getApplicationContext(), "Username or password wrong or user doesn't exist", Toast.LENGTH_SHORT).show();
            } else {
                while (c.moveToNext()) {
                    String uname = c.getString(0);
                    String passw = c.getString(1);
                    Toast.makeText(getApplicationContext(), "Username: " + uname + "\nPassword: " + passw, Toast.LENGTH_LONG).show();
                    if (un.equals(uname) && pas.equals(passw)) {
                        Toast.makeText(getApplicationContext(), "Welcome user: " + un, Toast.LENGTH_LONG).show();
                    }
                }
            }
        }
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
} catch (SQLException sqle) {
    sqle.printStackTrace();
}
}

public void reg_fun(View v) {
    String un = u.getText().toString();
    String pas = p.getText().toString();
    db = mdb.getWritableDatabase();
    String q = "INSERT INTO login VALUES(?, ?)";
    db.execSQL(q, new Object[]{un, pas});
    Toast.makeText(getApplicationContext(), "User registered",
    Toast.LENGTH_LONG).show();
}

public void dr_fun(View v) {

    u.setText("");
    p.setText("");

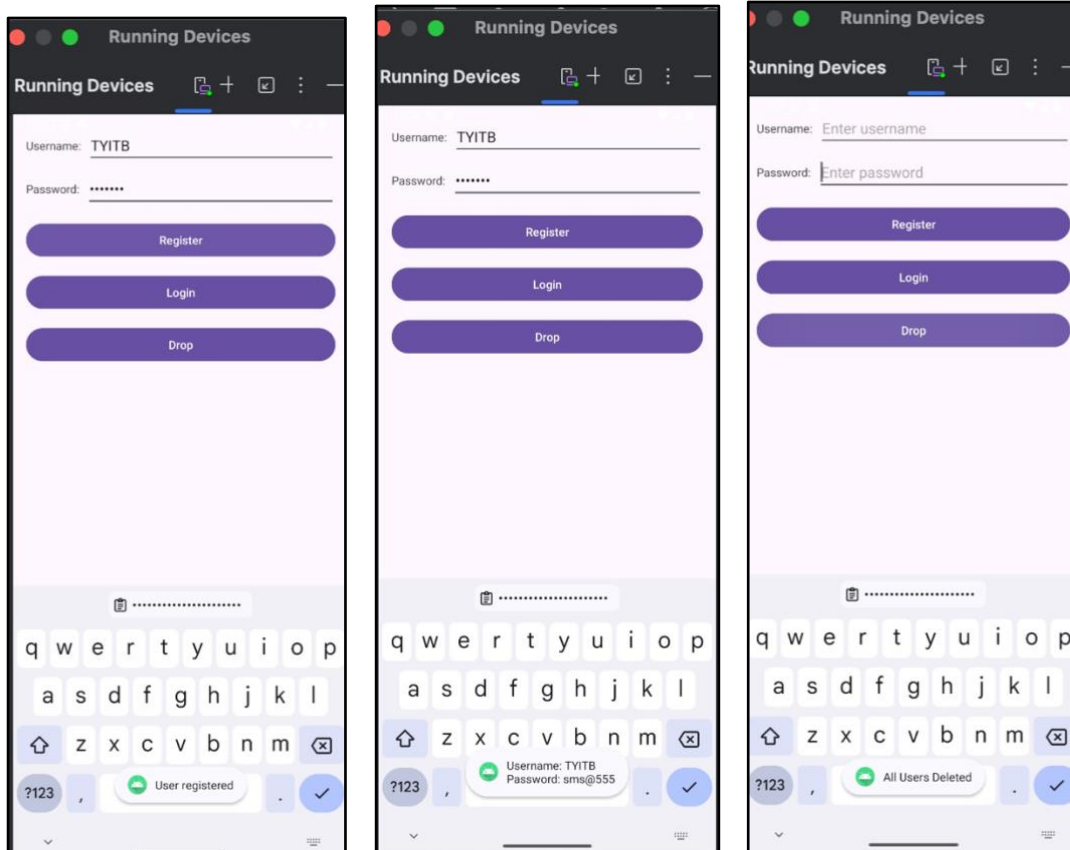
    db = mdb.getWritableDatabase();

    mdb.onUpgrade(db, 1, 2);

    Toast.makeText(getApplicationContext(), "All Users Deleted",
    Toast.LENGTH_SHORT).show();

}}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 8B

Aim : Programming Network Communications and Services (JSON)

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">
    <Button
        android:id="@+id/button_fetch"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fetch JSON"/>
    <TextView
        android:id="@+id/textView_result"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="JSON data will appear here"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.json;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import com.android.volley.Request;
import com.android.volley.RequestQueue;
import com.android.volley.toolbox.Volley;
import com.android.volley.toolbox.JsonObjectRequest;
import com.android.volley.Response;
import com.android.volley.VolleyError;
import org.json.JSONObject;
public class MainActivity extends AppCompatActivity {
    TextView textViewResult; // Declare TextView here for consistency
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button buttonFetch = findViewById(R.id.button_fetch);
```

ANDROID PROGRAMMING PRACTICAL

```
textViewResult = findViewById(R.id.textView_result); // Assign the TextView
correctly
buttonFetch.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        fetchJSON();
    }
});
}
private void fetchJSON() {
    String url = "https://jsonplaceholder.typicode.com/todos/1";
    RequestQueue queue = Volley.newRequestQueue(this);
    JsonObjectRequest jsonObjectRequest = new JsonObjectRequest(
        Request.Method.GET, url, null,
        new Response.Listener<JSONObject>() {
            @Override
            public void onResponse(JSONObject response) {
                try {
                    // Extracting all fields from the JSON response
                    String userId = response.getString("userId");
                    String id = response.getString("id");
                    String title = response.getString("title");
                    String completed = response.getString("completed");
                    // Displaying all the fields in the TextView
                    textViewResult.setText("User ID: " + userId + "\nID: " + id + "\nTitle: " +
title + "\nCompleted: " + completed);
                } catch (Exception e) {
                    textViewResult.setText("Error: " + e.getMessage());
                }
            }
        },
        new Response.ErrorListener() {
            @Override
            public void onErrorResponse(VolleyError error) {
                textViewResult.setText("Error: " + error.getMessage());
            }
        }
    );
    queue.add(jsonObjectRequest);
}
```

build.gradle(module:app)

```
dependencies {
    implementation "com.android.volley:volley:1.2.1"
```

AndroidManifest.xml

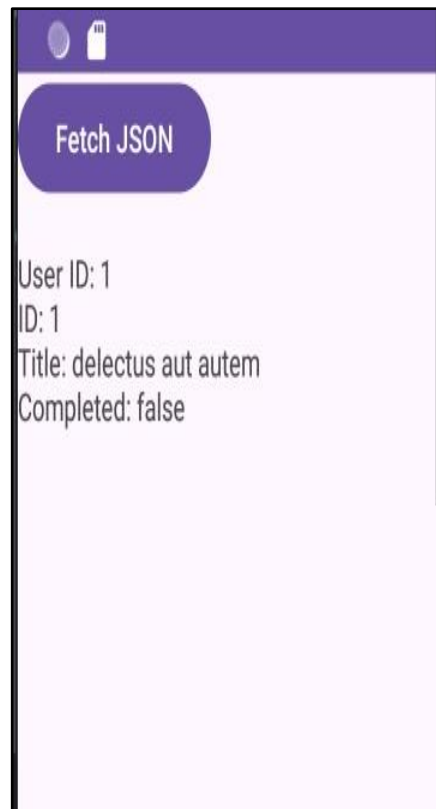
Sneha Raparti

Roll No. 111

ANDROID PROGRAMMING PRACTICAL

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

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 9

Practical 9A

Aim : Threads

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">
    <ProgressBar
        android:id="@+id/progressBar1"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:indeterminate="false"
        android:max="10"
        android:padding="4dip"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        android:onClick="startProgress"/>
</LinearLayout>
```

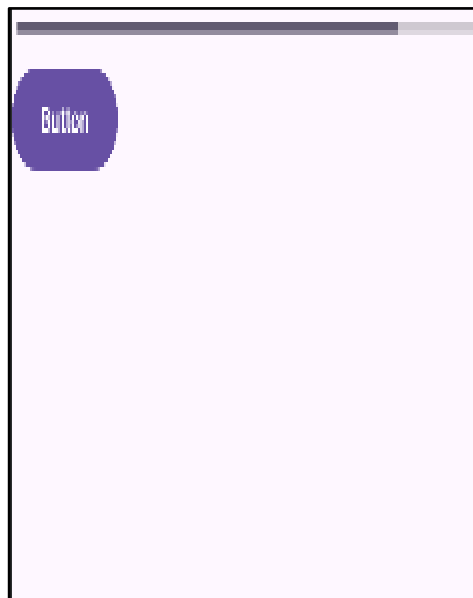
MainActivity.java

```
package com.example.practical8a;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ProgressBar;
public class MainActivity extends AppCompatActivity {
    private ProgressBar bar;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bar=(ProgressBar) findViewById(R.id.progressBar1);
    }
    public void startProgress(View view){
        bar.setProgress(0);
        new Thread(new Task()).start();
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
}  
class Task implements Runnable{  
    public void run(){  
        for(int i=0;i<=10;i++)  
        {  
            final int value=i;  
            try{  
                Thread.sleep(1000);  
            }catch (InterruptedException e){  
                e.printStackTrace();  
            }  
            bar.setProgress(value);  
        }  
    }  
}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 9B

Aim : Handler

activity_main.xml

```
package com.example.practical9b;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.TextView;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
public class MainActivity extends AppCompatActivity {
    TextView textView;
    private int stopLoop=30;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
        {
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
        textView=(TextView) findViewById(R.id.textView);
    }
    public void timer(View view){
        final Handler handler=new Handler();
        handler.post(new Runnable(){
            public void run(){
                if(stopLoop>0){
                    stopLoop--;
                    textView.setText("Time:"+stopLoop);
                    handler.postDelayed(this,1000);
                }
            }
        });
    }
}
```


ANDROID PROGRAMMING PRACTICAL

```
        }
        else{
        }
    public void nonTimer(View view){
        int i=0;

        for(i=0;i<3;i++){
            textView.setText("Time:"+i);
            try{
                Thread.sleep(1000);
            }catch(InterruptedException e){
                e.printStackTrace();
            }
        }
    }
}
```

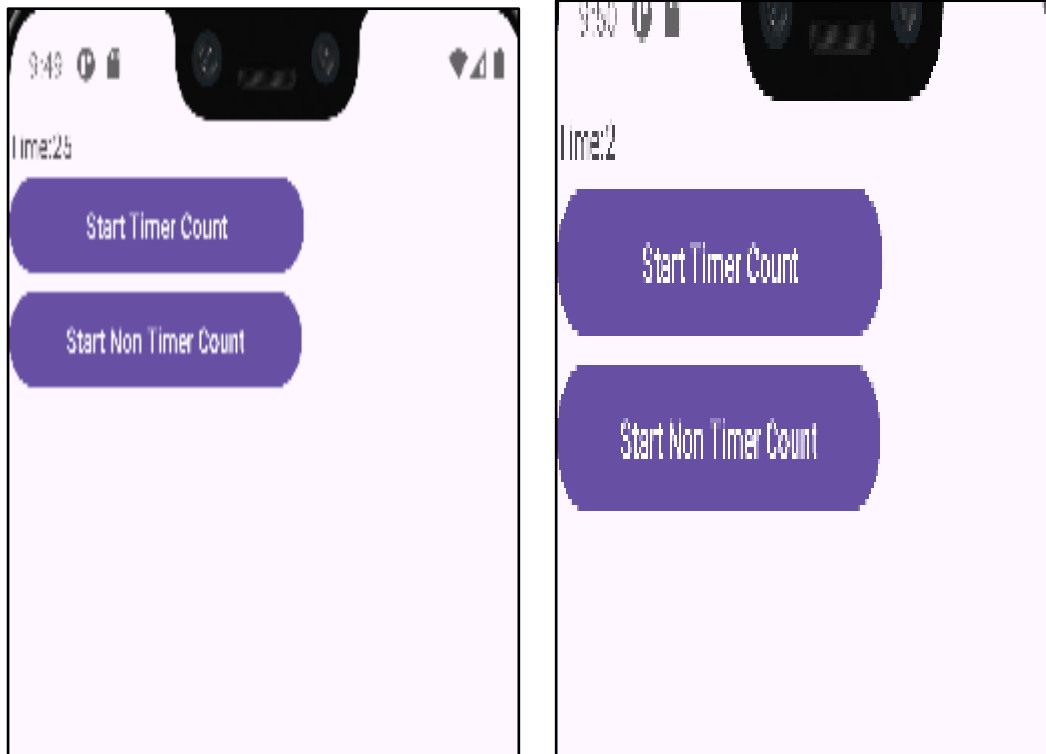
MainActivity.java

```
package com.example.practical9b;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.TextView;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
public class MainActivity extends AppCompatActivity {
    TextView textView;
    private int stopLoop=30;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
    {
```

ANDROID PROGRAMMING PRACTICAL

```
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom); return
insets;
});
    textView=(TextView) findViewById(R.id.textView);
}
    public void timer(View view){
final Handler handler=new Handler();
handler.post(new Runnable(){
    public void run(){
    if(stopLoop>0){
stopLoop--; textView.setText("Time:"+stopLoop);
handler.postDelayed(this,1000);
    }});} }else{ }
    public void nonTimer(View view){ int i=0;
    for(i=0;i<3;i++){ textView.setText("Time:"+i); try{
    hread.sleep(1000);
    }catch(InterruptedException e){ e.printStackTrace();
    }}}}
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 9C

Aim : Programming AsyncTask

activity_main.xml

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

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

    android:id="@+id/main"

    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:text="Hello World!"

        app:layout_constraintBottom_toBottomOf="parent"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintLeft_toLeftOf="parent"

        app:layout_constraintRight_toRightOf="parent"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent"

        app:layout_constraintVertical_bias="0.168"/>

    <Button

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:id="@+id/button"

        android:layout_marginTop="112dp"

        android:text="Button"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent"
```

ANDROID PROGRAMMING PRACTICAL

```
        app:layout_constraintTop_toTopOf="parent"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.prac_9c;

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 textView;

    Button button;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        textView = findViewById(R.id.textView);

        button = findViewById(R.id.button);

        button.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View v) {

                MyTask myTask = new MyTask(MainActivity.this, textView, button);

                myTask.execute();

                button.setEnabled(false);

            }

        });
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
}  
}
```

MyTask.java

```
package com.example.prac_9c;  
  
import android.app.ProgressDialog;  
import android.content.Context;  
import android.os.AsyncTask;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class MyTask extends AsyncTask<Void, Integer, String> {  
    Context context;  
    Button button;  
    TextView textView;  
    ProgressDialog progressDialog;  
    MyTask(Context context, TextView textView, Button button) {  
        this.context = context;  
        this.textView = textView;  
        this.button = button;  
    }  
    @Override  
    protected void onPreExecute() {  
        super.onPreExecute();  
        progressDialog = new ProgressDialog(context);  
        progressDialog.setTitle("Download in Progress");  
        progressDialog.setMax(10);  
        progressDialog.setProgress(0);  
        progressDialog.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);  
        progressDialog.show();  
    }  
    @Override
```

ANDROID PROGRAMMING PRACTICAL

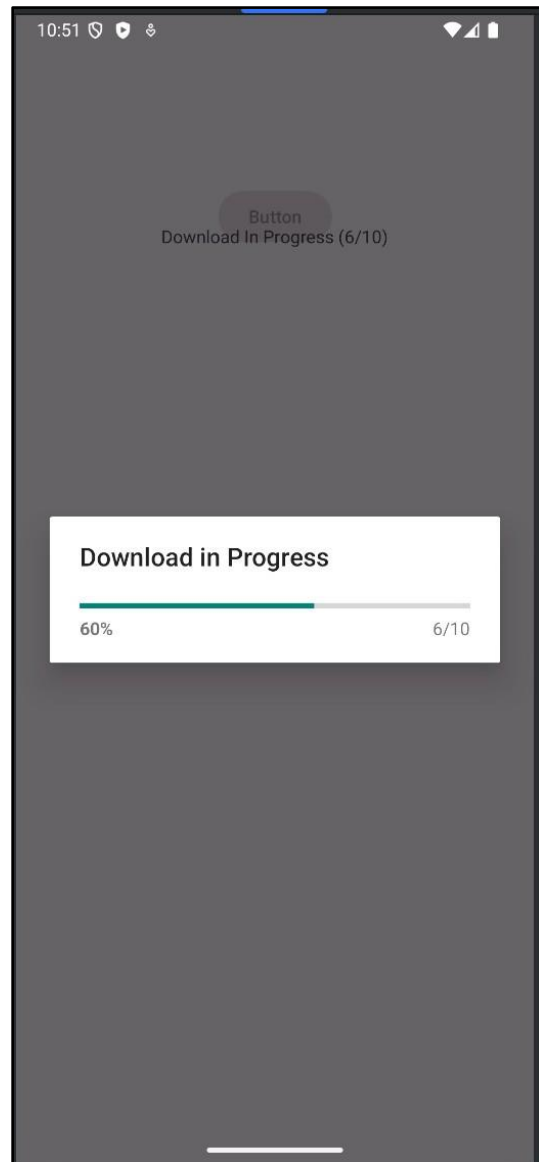
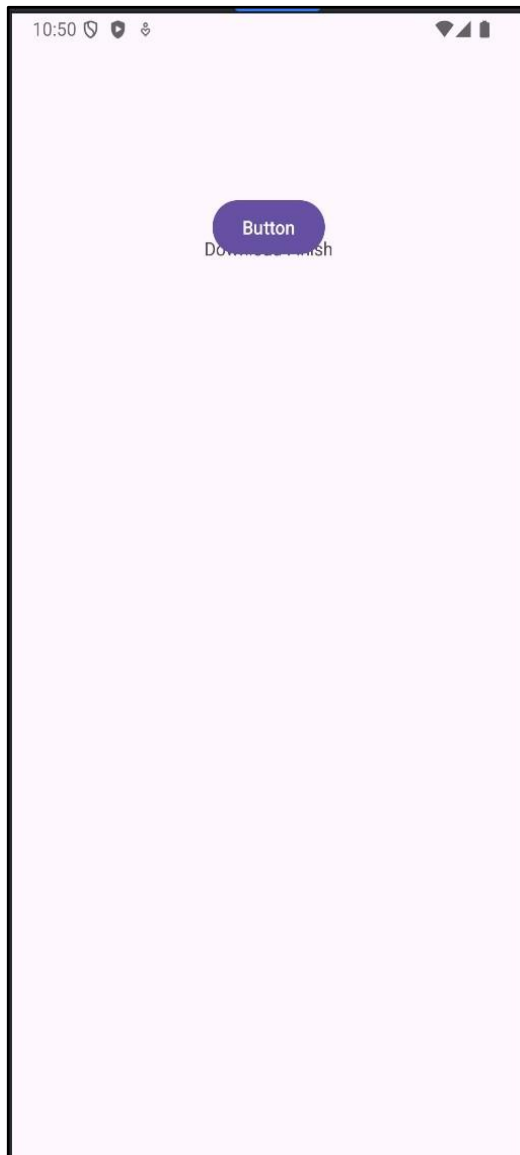
```
protected void onPostExecute(String s) {
    super.onPostExecute(s);
    progressDialog.dismiss(); // Dismiss progress dialog after completion
    textView.setText("Download Finish");
    button.setEnabled(true);
}

@Override
protected void onProgressUpdate(Integer... values) {
    super.onProgressUpdate(values);
    int progress = values[0];
    progressDialog.setProgress(progress);
    textView.setText("Download In Progress (" + progress + "/10)");
}

@Override
protected String doInBackground(Void... voids) {
    for (int i = 1; i <= 10; i++) {
        try {
            Thread.sleep(1000); // Corrected the issue (previously used wait())
            publishProgress(i);
        } catch (InterruptedException e) {
            e.printStackTrace();
            return "Download Interrupted"; // Handle interruption properly
        }
    }
    return "Download Finish";
}
```

Output:

ANDROID PROGRAMMING PRACTICAL



ANDROID PROGRAMMING PRACTICAL

Practical 10

Practical 10A

Aim : Programming Media API

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <!-- Button with id for reference -->
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Start"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

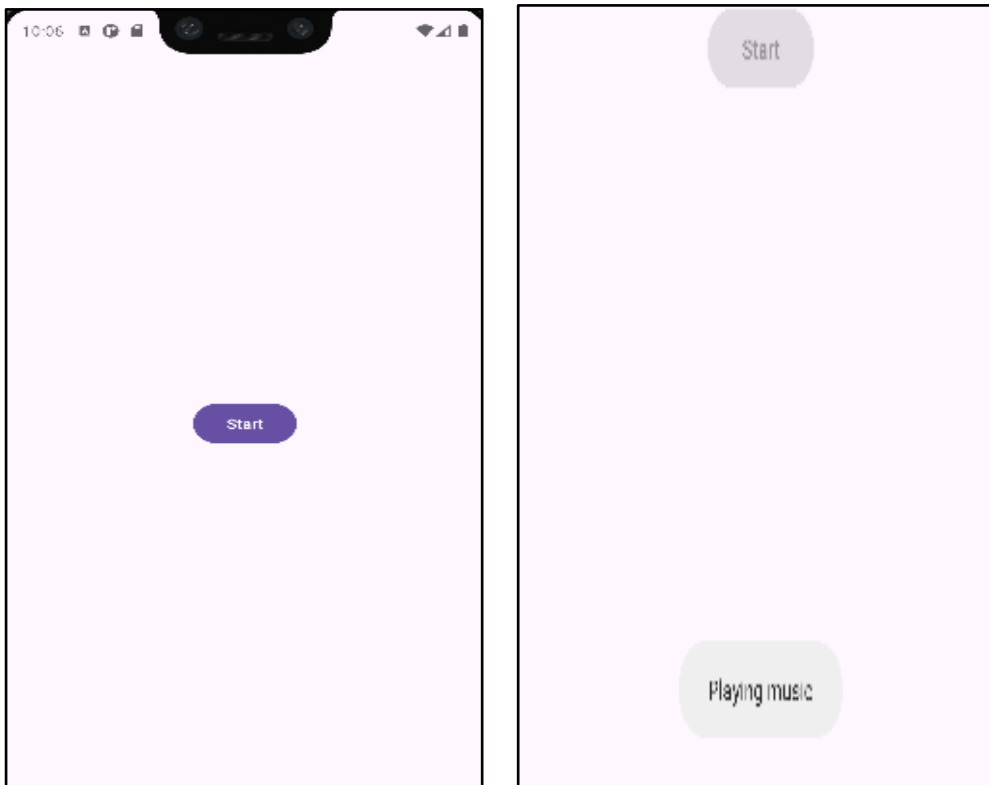
MainActivity.java

```
package com.example.practical10a;
import android.os.Bundle;
import android.media.MediaPlayer;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
public class MainActivity extends AppCompatActivity {
    private Button bn;
    private MediaPlayer mediaPlayer;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        // Apply window insets for edge-to-edge display
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
        {
```


ANDROID PROGRAMMING PRACTICAL

```
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
return insets;
}); // Initialize the button
bn = findViewById(R.id.button);
bn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mediaPlayer = MediaPlayer.create(getApplicationContext(), R.raw.song);
        mediaPlayer.start();
        bn.setEnabled(false);
        Toast.makeText(getApplicationContext(), "Playing music",
Toast.LENGTH_SHORT).show();
        // Set a completion listener for the media player
        mediaPlayer.setOnCompletionListener(new MediaPlayer.OnCompletionListener()
{
    @Override
    public void onCompletion(MediaPlayer mp) {
        mediaPlayer.release();
        mediaPlayer = null;
        Toast.makeText(getApplicationContext(), "Playing Done",
Toast.LENGTH_SHORT).show();
        bn.setEnabled(true);
    }
}); }
}); }
```

Output:



ANDROID PROGRAMMING PRACTICAL

Practical 10B

Aim : Programming Telephone API

activity_main.xml

```
<?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">
    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:hint="Enter Phone Number"
        android:inputType="phone"/>
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_below="@id/editText"
        android:layout_marginTop="20dp"
        android:text="Make Call"/>
</RelativeLayout>
```

AndroidManifest.xml

```
<!-- Corrected permission declaration -->
<uses-permission android:name="android.permission.CALL_PHONE" />
<!-- Declare telephony as an optional feature -->
<uses-feature android:name="android.hardware.telephony" android:required="false" />
```

MainActivity.java

```
package com.example.practical10b;
import android.Manifest;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
```

Sneha Raparti

Roll No. 111

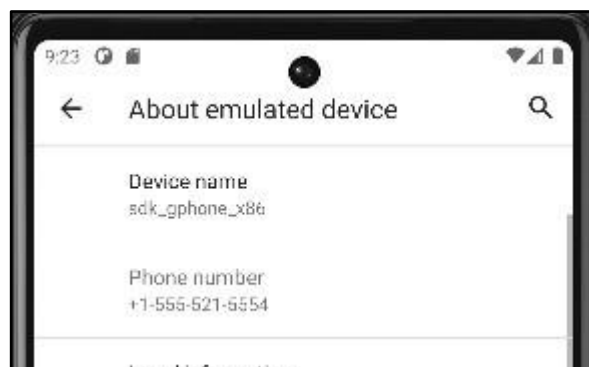
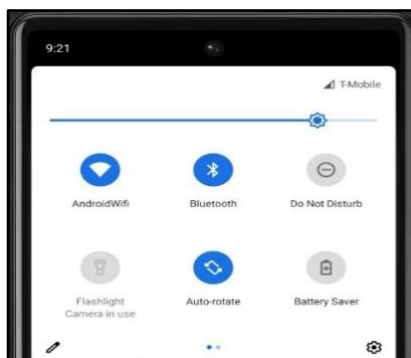
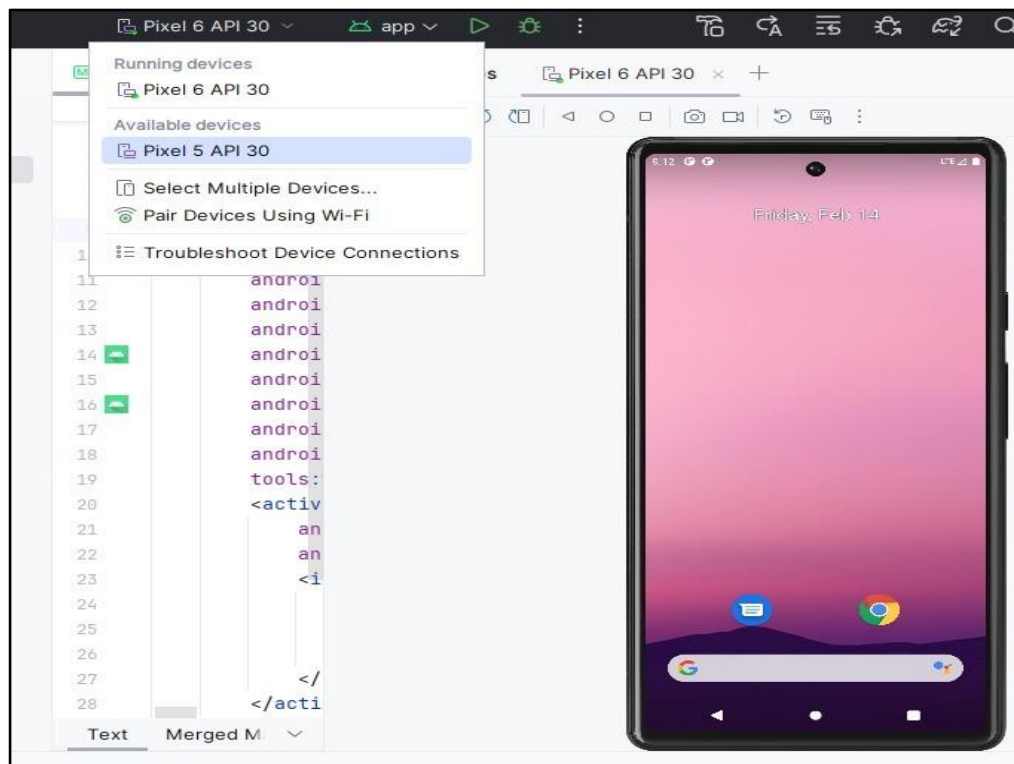
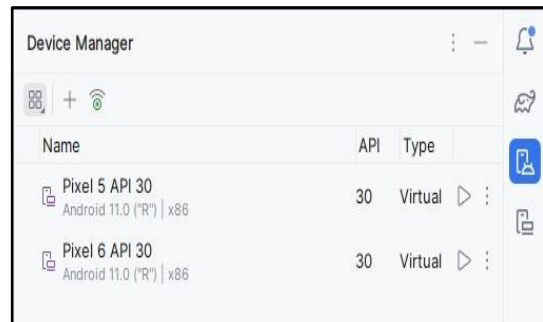
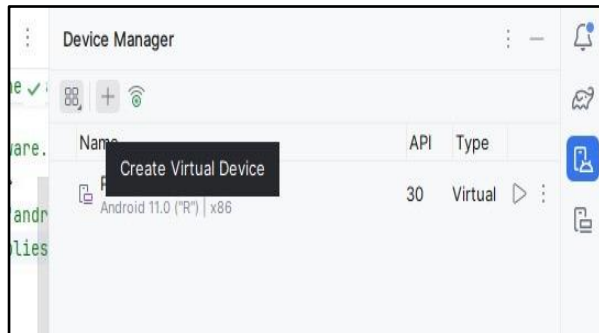
ANDROID PROGRAMMING PRACTICAL

```
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;
public class MainActivity extends AppCompatActivity {
    EditText editText;
    Button button;
    private static final int REQUEST_CALL_PERMISSION = 1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editText = findViewById(R.id.editText);
        button = findViewById(R.id.button);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                makePhoneCall();
            }
        });
    }
    private void makePhoneCall() {
        String phoneNumber = editText.getText().toString();
        if (phoneNumber.isEmpty()) {
            Toast.makeText(this, "Enter a phone number", Toast.LENGTH_SHORT).show();
            return;
        }
        Intent phoneIntent = new Intent(Intent.ACTION_CALL);
        phoneIntent.setData(Uri.parse("tel:" + phoneNumber));
        if (ContextCompat.checkSelfPermission(MainActivity.this,
Manifest.permission.CALL_PHONE)
            != PackageManager.PERMISSION_GRANTED) {
            ActivityCompat.requestPermissions(MainActivity.this,
                new String[]{Manifest.permission.CALL_PHONE},
REQUEST_CALL_PERMISSION);
        } else {
            startActivity(phoneIntent);
        }
    }
    @Override
    public void onRequestPermissionsResult(int requestCode, String[] permissions, int[]
grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);
        if (requestCode == REQUEST_CALL_PERMISSION) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                makePhoneCall();
            }
        }
    }
}
```

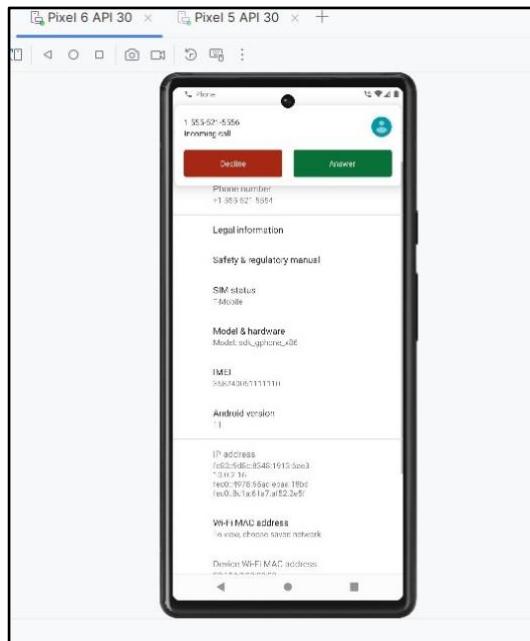
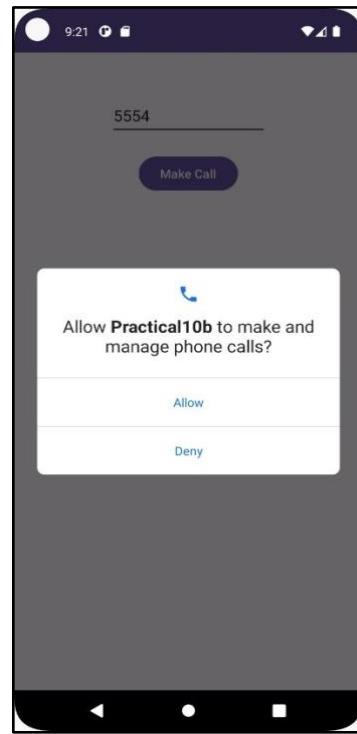
ANDROID PROGRAMMING PRACTICAL

```
} else {  
    Toast.makeText(this, "Permission Denied", Toast.LENGTH_SHORT).show();  
}}}}
```

Output:



ANDROID PROGRAMMING PRACTICAL



ANDROID PROGRAMMING PRACTICAL

Practical 10C

Aim : Programming Security and permissions

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <!-- A TextView example -->
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello, World!"
        android:textSize="48sp"
        android:layout_centerInParent="true" />
    <!-- A Button example -->
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click Me"
        android:layout_below="@id/textView"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="30dp" />
</RelativeLayout>
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-permission android:name="android.permission.CAMERA"
        tools:ignore="PermissionImpliesUnsupportedChromeOsHardware" />
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
    <uses-permission
        android:name="android.permission.ACCESS_COARSE_LOCATION"/>
```

MainActivity.java

```
package com.example.practical10c;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.view.View;
Sneha Raparti
```

ANDROID PROGRAMMING PRACTICAL

```
import android.widget.Button;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

public class MainActivity extends AppCompatActivity {
    private static final int CAMERA_PERMISSION_CODE = 100;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // Check if the app already has camera permission
        if (ContextCompat.checkSelfPermission(this, android.Manifest.permission.CAMERA)
            == PackageManager.PERMISSION_GRANTED) {
            // Permission is already granted
            Toast.makeText(this, "Permission is already granted",
                Toast.LENGTH_SHORT).show();
        } else {
            // Request camera permission
            Toast.makeText(this, "Requesting Permission", Toast.LENGTH_SHORT).show();
            requestCameraPermission();
        }
    }
    // Method to request camera permission
    public void requestCameraPermission() {
        ActivityCompat.requestPermissions(this,
            new String[]{android.Manifest.permission.CAMERA},
            CAMERA_PERMISSION_CODE);
    }
    // Handle the result of the permission request
    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull String[]
        permissions, @NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);
        if (requestCode == CAMERA_PERMISSION_CODE) {
            if (grantResults.length > 0 && grantResults[0] ==
                PackageManager.PERMISSION_GRANTED) {
                // Permission was granted
                Toast.makeText(this, "Camera Permission Granted",
                    Toast.LENGTH_SHORT).show();
            } else {
                // Permission was denied
                Toast.makeText(this, "Camera Permission Denied",
                    Toast.LENGTH_SHORT).show();
            }
        }
    }
}
```

ANDROID PROGRAMMING PRACTICAL

```
}  
}  
}
```

Output:

