MAD PRACTICALS

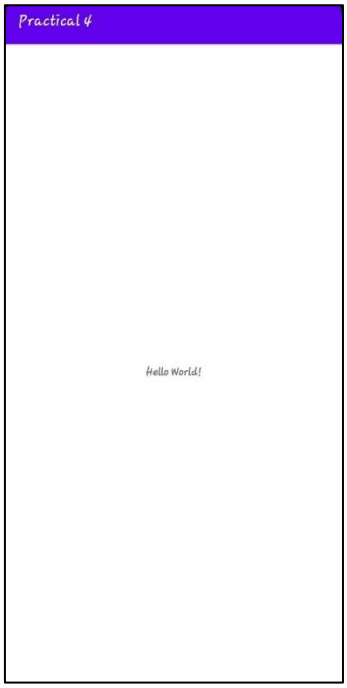
Practical No. 4 Develop a program to display Hello World on screen

4.1: Write a program to display Hello World.

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/text1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

OUTPUT

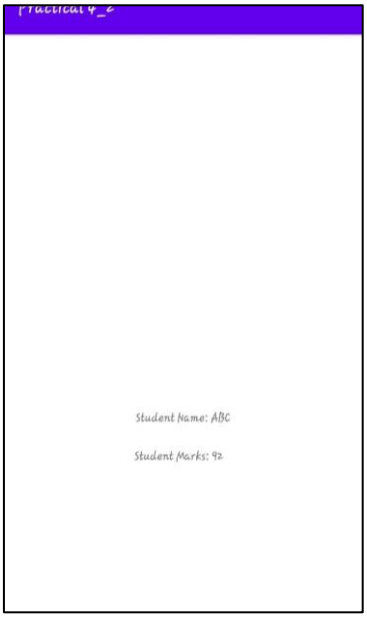


4.2: Write a program to display student name and marks.

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Student Name: ABC"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/t2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Student Marks: 92"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintHorizontal_bias="0.484"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/t1"
        app:layout_constraintVertical_bias="0.062" />

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

OUTPUT



Practical No. 5. Develop a program to implement linear layout and absolute layout.

5.1: Write a program to place name, age and mobile number linearly (Vertical) on the display screen using 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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:orientation="vertical"
    android:padding="40dp">

    <TextView
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="NAME: ABC"
        android:textSize="20sp" />

    <TextView
        android:id="@+id/age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="AGE: 18"
        android:textSize="20sp" />

    <TextView
        android:id="@+id/mobile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="MOBILE NO.: 9175980453"
        android:textSize="20sp" />
</LinearLayout>
```

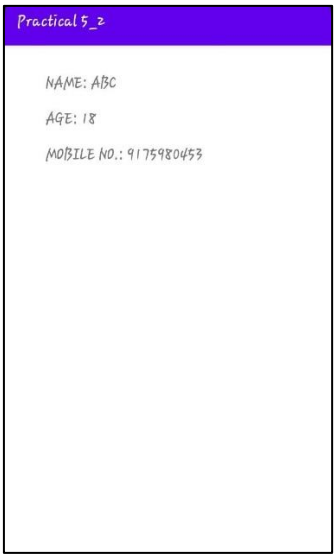
OUTPUT

5.2: Write a program to place name, age and mobile number centrally on the display screen using 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">

    <TextView
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="NAME: ABC"
        android:textSize="20sp"
        android:layout_x="50dp"
        android:layout_y="30dp"/>

    <TextView
        android:id="@+id/age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="AGE: 18"
        android:textSize="20sp"
        android:layout_x="50dp"
        android:layout_y="70dp"/>

    <TextView
        android:id="@+id/mobile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="MOBILE NO.: 9175980453"
        android:textSize="20sp"
        android:layout_x="50dp"
        android:layout_y="110dp"/>

</AbsoluteLayout>
```

OUTPUT



Practical No. 6. Develop a program to implement frame layout, table layout and relative layout.

6.1: Write a program to display 10 students' basic information in a table form using Table layout.

ACTIVITY_MAIN.XML

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TABLE LAYOUT"
        android:gravity="center"
        android:textStyle="bold"
        android:textSize="30sp"
        android:layout_marginBottom="30dp"/>

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp"
        android:background="@color/teal_200">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="STUDENT NAME    "
            android:textSize="20sp"
            android:gravity="center"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="    STUDENT ROLL NO"
            android:textSize="20sp"
            android:gravity="center"/>

    </TableRow>

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="NUPUR"
            android:gravity="center"/>

        <TextView
```

```
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="190314"
            android:gravity="center"/>

    </TableRow>

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="PRIYANKA "
            android:gravity="center"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="190308"
            android:gravity="center"/>

    </TableRow>

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="SAKSHI"
            android:gravity="center"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="190311"
            android:gravity="center"/>

    </TableRow>

    <TableRow
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="SURAJ"
            android:gravity="center"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="190355"
            android:gravity="center"/>
```

```
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="10dp">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="RITESH"
        android:gravity="center"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="190347"
        android:gravity="center"/>

</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="10dp">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="JIGAR"
        android:gravity="center"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="190345"
        android:gravity="center"/>

</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="10dp">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="NIKITA"
        android:gravity="center"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="190328"
        android:gravity="center"/>

</TableRow>

<TableRow
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="10dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="MRUNAL"
            android:gravity="center"/>

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="190361"
            android:gravity="center"/>

    </TableRow>

        <TableRow
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:padding="10dp">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="SAYALI"
                android:gravity="center"/>

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="190348"
                android:gravity="center"/>

        </TableRow>

        <TableRow
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:padding="10dp">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="SMITAL"
                android:gravity="center"/>

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="190321"
                android:gravity="center"/>

        </TableRow>
    </TableLayout>
```

OUTPUT

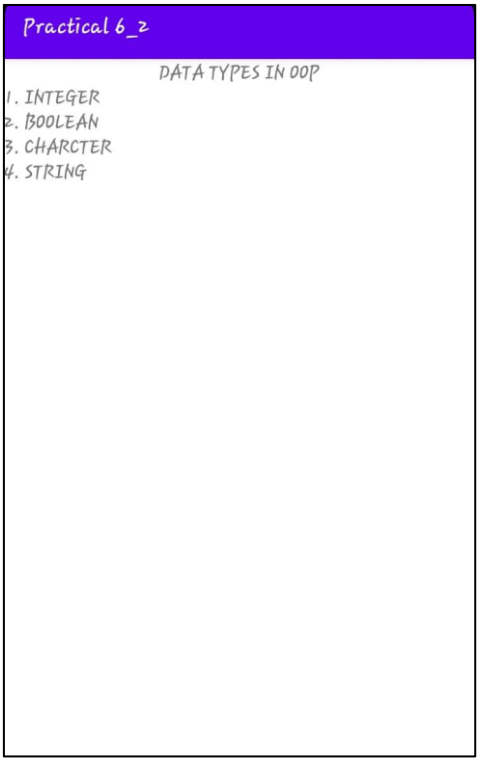
6.2 Write a program to display all the data types in object-oriented programming using Frame layout.

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:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <FrameLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="DATA TYPES IN OOP"
            android:textSize="18sp"
            android:layout_gravity="center_horizontal"/>
```

```
    </FrameLayout>

    <FrameLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="1. INTEGER"
            android:textSize="18sp"/>

    </FrameLayout>

    <FrameLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textSize="18sp"
            android:text="2. BOOLEAN"/>

    </FrameLayout>

    <FrameLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textSize="18sp"
            android:text="3. CHARCTER"/>

    </FrameLayout>

    <FrameLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textSize="18sp"
            android:text="4. STRING"/>

    </FrameLayout>
</LinearLayout>
```

OUTPUT


Practical 6_2
DATA TYPES IN OOP
1. INTEGER
2. BOOLEAN
3. CHARCTER
4. STRING

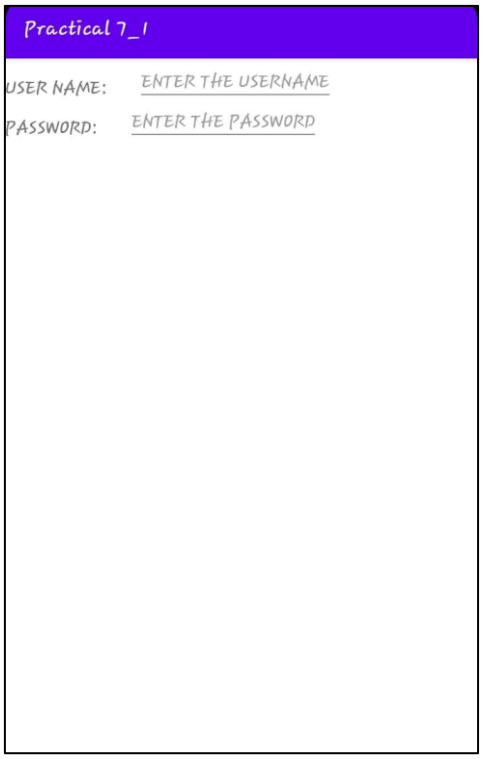
7. Develop a program to implement Text View and Edit Text

7.1: Write a program to accept username and password from the end user using Text View and Edit Text.

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="USER NAME: "
        android:layout_marginTop="18sp"
        android:textSize="18sp"/>

    <EditText
        android:id="@+id/e1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="ENTER THE USERNAME"
        android:layout_marginStart="20dp"
        android:layout_toRightOf="@+id/t1"/>

    <TextView
        android:id="@+id/t2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PASSWORD: "
        android:layout_marginTop="18sp"
        android:layout_below="@+id/t1"
        android:textSize="18sp"/>

    <EditText
        android:id="@+id/e2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="ENTER THE PASSWORD"
        android:layout_marginStart="20dp"
        android:layout_below="@+id/t1"
        android:layout_toRightOf="@+id/t2"/>

</RelativeLayout>
```

OUTPUT



7.2: Write a program to accept and display personal information of the student.

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="NAME: "
        android:layout_marginTop="18sp"
        android:textSize="18sp"/>

    <EditText
        android:id="@+id/e1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="ENTER THE NAME"
        android:layout_marginStart="20dp"
        android:layout_toRightOf="@+id/t1"/>

    <TextView
        android:id="@+id/t2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PHONE NO.: "
```

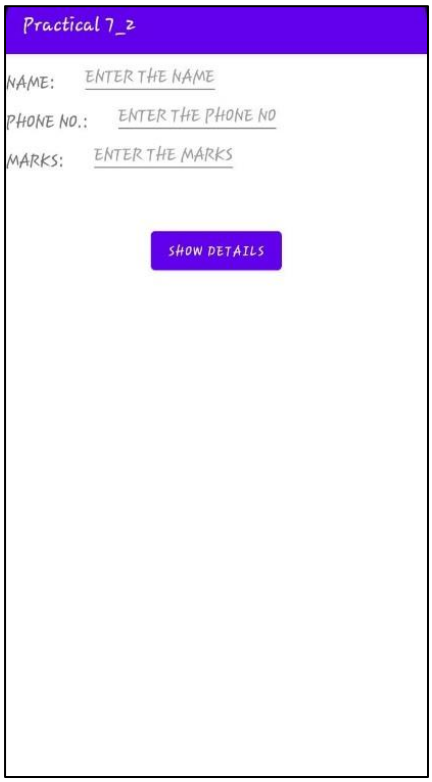
```
        android:layout_marginTop="18sp"
        android:layout_below="@+id/t1"
        android:textSize="18sp"/>

    <EditText
        android:id="@+id/e2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="ENTER THE PHONE NO"
        android:layout_marginStart="20dp"
        android:layout_below="@+id/t1"
        android:layout_toRightOf="@+id/t2"/>

    <TextView
        android:id="@+id/t3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="MARKS: "
        android:layout_marginTop="18sp"
        android:layout_below="@+id/t2"
        android:textSize="18sp"/>

    <EditText
        android:id="@+id/e3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:hint="ENTER THE MARKS"
        android:layout_marginStart="20dp"
        android:layout_below="@+id/t2"
        android:layout_toRightOf="@+id/t3"/>

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SHOW DETAILS"
        android:layout_below="@id/t3"
        android:layout_marginTop="50dp"
        android:layout_centerHorizontal="true"/>
</RelativeLayout>
```

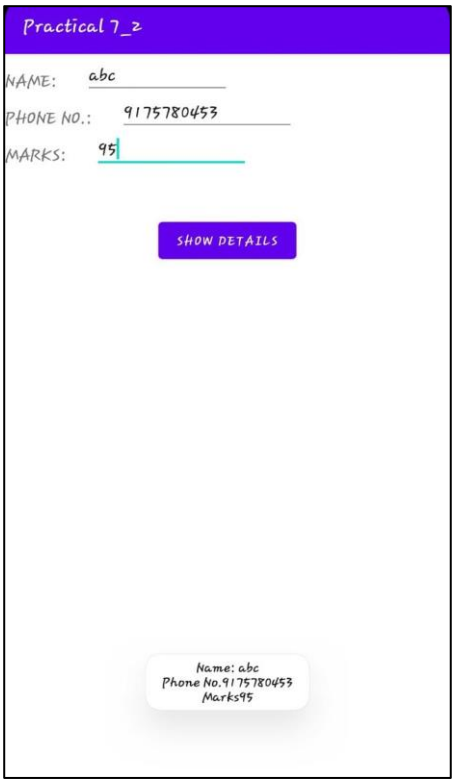
MAINACTIVITY.JAVA

```
package com.example.practical7_2;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    TextView t1, t2, t3;
    EditText e1, e2, e3;
    Button b1;
```

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

        t1 = findViewById(R.id.t1);
        t2 = findViewById(R.id.t2);
        t3 = findViewById(R.id.t3);
        e1 = findViewById(R.id.e1);
        e2 = findViewById(R.id.e2);
        e3 = findViewById(R.id.e3);
        b1 = findViewById(R.id.b1);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String n = e1.getText().toString();
                String p = e2.getText().toString();
                String m = e3.getText().toString();

                Toast.makeText(MainActivity.this, "Name: "+n+"\nPhone
No."+p+ "\nMarks: "+m, Toast.LENGTH_LONG).show();
            }
        });

    }
}
```

OUTPUT





8. Develop a program to implement Auto complete Text View

8.1: Write a program to create a first display screen of any search engine using Auto Complete Text View.

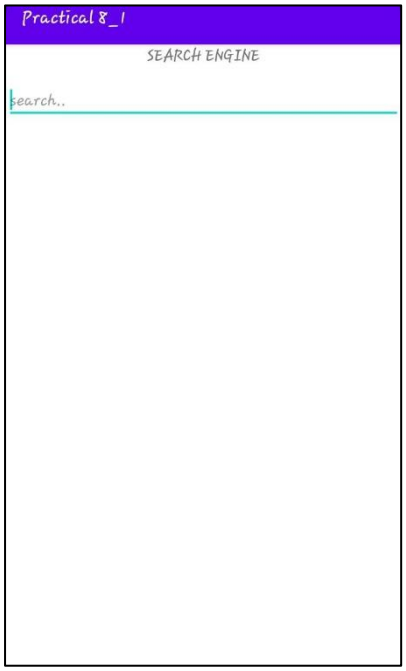
ACTIVITY_MAIN.XML

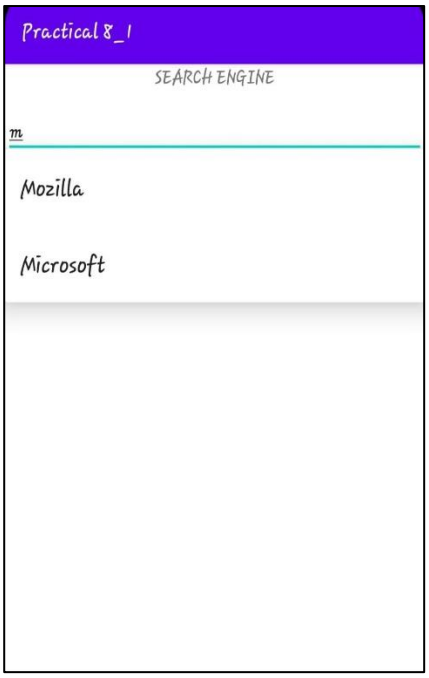
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SEARCH ENGINE"
        android:textSize="18sp"
        android:layout_centerHorizontal="true"/>
    <AutoCompleteTextView
        android:id="@+id/a1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="search.."
        android:layout_marginTop="15dp"
        android:layout_below="@+id/t1"/>
</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical8_1;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView t1;
    AutoCompleteTextView a1;
    String[] search = {"Google", "Yahoo", "Mozilla", "Microsoft"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        t1 =findViewById(R.id.t1);
        a1 = findViewById(R.id.a1);

        ArrayAdapter<String> ad = new ArrayAdapter<String>(this,
android.R.layout.select_dialog_item, search);
        AutoCompleteTextView ac = findViewById(R.id.a1);
        ac.setAdapter(ad);
        ac.setThreshold(1);
    }   }
```

OUTPUT





8.2: Write a program to display all the subjects of sixth semester using Auto Complete Text View.

ACTIVITY_MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#F7C8FF"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SIXTH SEMESTER"
        android:layout_gravity="center_horizontal"
        android:textSize="35dp"
        android:layout_marginTop="30dp"
        android:textColor="@color/black"
        android:textStyle="bold"/>

    <AutoCompleteTextView
        android:id="@+id/autocomplete"
        android:layout_width="227dp"
        android:layout_height="48dp"
        android:layout_gravity="center"
        android:layout_marginBottom="90dp"
        android:drawableEnd="@drawable/search"
        android:hint="Search..."
```

```
        android:textStyle="bold"
        android:textColor="@color/black"
        android:textColorHint="@color/white" />

</FrameLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical8_2;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;

public class MainActivity extends AppCompatActivity {
    String[] search={"MAD","MAN", "ETI", "EDE", "NIS", "PWP", "CS"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        ArrayAdapter<String> ad=new ArrayAdapter<String>(this,
android.R.layout.select_dialog_item,search);
        AutoCompleteTextView ac=(AutoCompleteTextView)
findViewById(R.id.autocomplete);
        ac.setAdapter(ad);
        ac.setThreshold(0);
    }
}
```

OUTPUT

Practical No. 9. Develop a program to implement Button, Image Button and Toggle Button

9.1: Write a program to create a toggle button to display ON / OFF Bluetooth on the display screen.

ACTIVITY_MAIN.XML

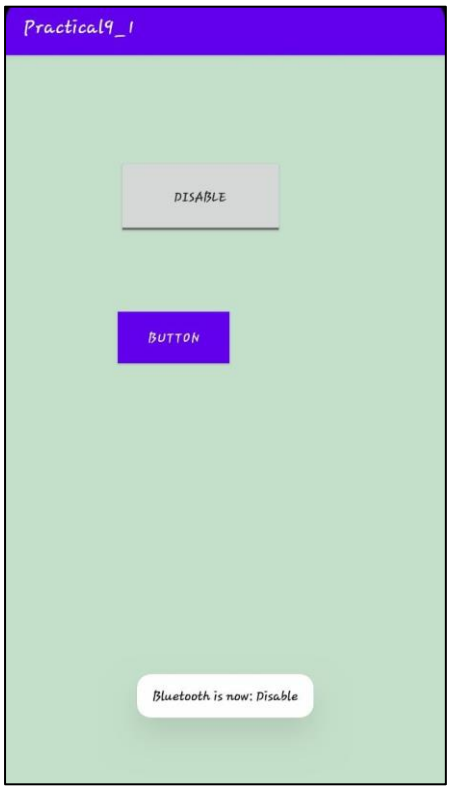
```
<?xml version="1.0" encoding="utf-8"?>
<AbsoluteLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#c4e0ca"
    tools:context=".MainActivity">

    <ToggleButton
        android:id="@+id/t1"
        android:layout_width="148dp"
        android:layout_height="76dp"
        android:layout_x="100dp"
        android:layout_y="100dp"
        android:checked="false"
        android:textOff="Disable"
        android:textOn="Enable" />

    <Button
        android:id="@+id/b1"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_x="100dp"
        android:layout_y="250dp"
        android:background="@android:color/background_light"
        android:text="Button" />

</AbsoluteLayout>
```

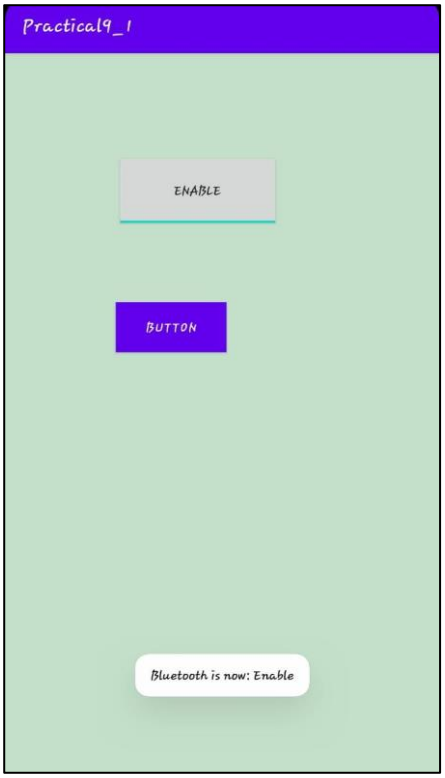
MAINACTIVITY.JAVA

```
package com.example.practical9_1;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    ToggleButton t1;
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
```

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

        t1=findViewById(R.id.t1);
        b1=findViewById(R.id.b1);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String s="Bluetooth is now: "+ t1.getText();

Toast.makeText(getApplicationContext(),s,Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

OUTPUT





9.2: Write a program to create a simple calculator.

ACTIVITY_MAIN.XML

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

```
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent" >
    <TextView
        android:id="@+id/t1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="Calculator"
        android:textAlignment="center"
        android:textSize="34sp"
        android:textStyle="bold"
        android:layout_marginBottom="30dp"
        android:textColor="#852727"/>
</TableRow>


<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <EditText
        android:id="@+id/no1"
        android:hint="Enter 1st Number:  "
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:textAlignment="textStart"
        android:textSize="20sp"
        android:inputType="number"/>
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <EditText
        android:id="@+id/no2"
        android:hint="Enter 2nd Number:  "
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:textAlignment="textStart"
        android:textSize="20sp"
        android:inputType="number"/>
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <TextView
        android:id="@+id/result"
        android:layout_width="match_parent"
        android:layout_height="70dp"
        android:layout_weight="1"
        android:textAlignment="textStart"
        android:textSize="20sp"
        android:textColor="@color/black"
        android:textStyle="bold|italic"
```

```
            android:text=""/>
    </TableRow>

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

        <Button
            android:id="@+id/add1"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="Addition" />

        <Button
            android:id="@+id/sub1"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="Subtraction" />

        <Button
            android:id="@+id/mul1"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="Multiplication" />

        <Button
            android:id="@+id/div1"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="Division" />

    </LinearLayout>
</TableLayout>
```

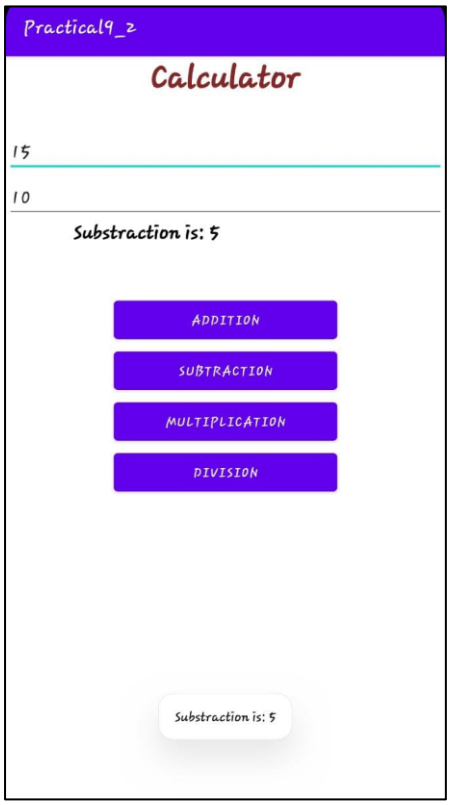
MAINACTIVITY.JAVA

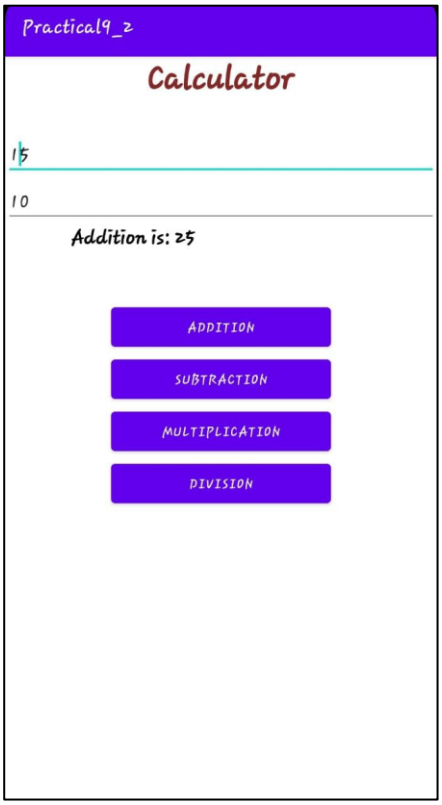
```
package com.example.practical9_2;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.text.Editable;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText no1 ,no2;
    Button add1,sub1,mul1, div1;
    TextView result;
```

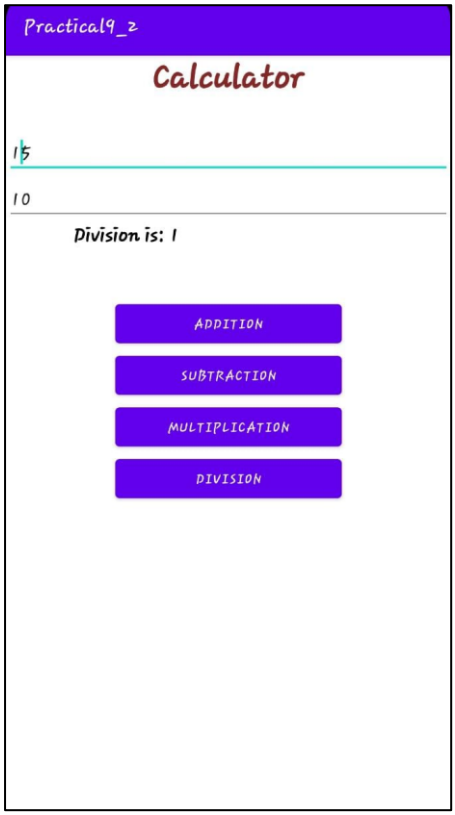
```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        no1 = findViewById(R.id.no1);
        no2 = findViewById(R.id.no2);
        add1 = findViewById(R.id.add1);
        sub1 = findViewById(R.id.sub1);
        mul1 = findViewById(R.id.mul1);
        div1 = findViewById(R.id.div1);
        result = findViewById(R.id.result);

        add1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int num1 = Integer.parseInt(no1.getText().toString());
                int num2 = Integer.parseInt(no2.getText().toString());
                int Result = num1+num2;
                result.setText("Addition is: "+Integer.toString(Result));
            }
        });

        sub1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int num1 = Integer.parseInt(no1.getText().toString());
                int num2 = Integer.parseInt(no2.getText().toString());
                int Result = num1-num2;
                Toast.makeText(MainActivity.this,"Substraction is:
"+Integer.toString(Result),Toast.LENGTH_LONG).show();
                result.setText("Substraction is:
"+Integer.toString(Result));
//
            }
        });

        mul1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int num1 = Integer.parseInt(no1.getText().toString());
                int num2 = Integer.parseInt(no2.getText().toString());
                int Result = num1*num2;
                result.setText("Multiplication is:
"+Integer.toString(Result));

            }
        });

        div1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int num1 = Integer.parseInt(no1.getText().toString());
                int num2 = Integer.parseInt(no2.getText().toString());
                int Result = num1/num2;
                result.setText("Division is: " + Integer.toString(Result));

            }
        });
```

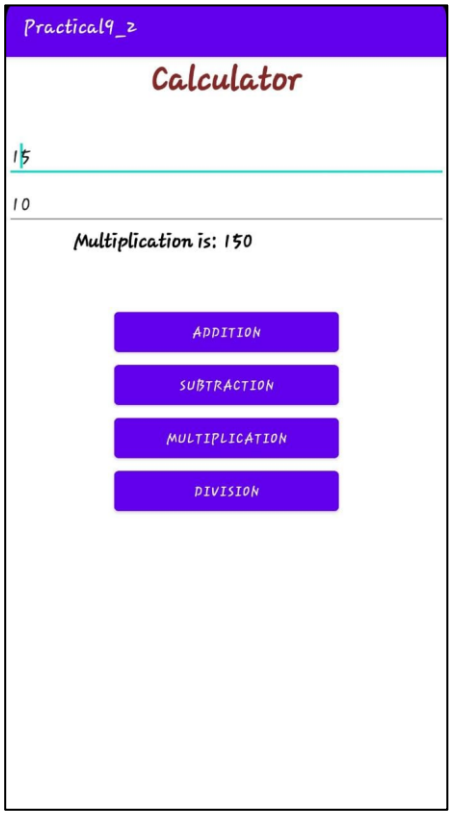
```
        }
}
```

OUTPUT


Practical9_2
Calculator
15
10
Substraction is: 5
ADDITION
SUBTRACTION
MULTIPLICATION
DIVISION
Substraction is: 5


Practical9_2
Calculator
15
10
Addition is: 25
ADDITION
SUBTRACTION
MULTIPLICATION
DIVISION


Practical9_2
Calculator
15
10
Division is: 1
ADDITION
SUBTRACTION
MULTIPLICATION
DIVISION


Practical9_2
Calculator
15
10
Multiplication is: 150
ADDITION
SUBTRACTION
MULTIPLICATION
DIVISION

Practical No. 10. Develop a program to implement login window using above UI control

10.1: Write a program to create a login form for a social networking site.

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"
    android:background="@color/teal_200"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/Title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Social Networking Site"
        android:textSize="28dp"
        android:textStyle="bold"
        android:layout_marginTop="80dp"
        android:layout_centerHorizontal="true"/>

    <TextView
        android:id="@+id/Name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="20sp"
        android:layout_below="@+id/Title"
        android:layout_marginLeft="20sp"
        />

    <EditText
        android:id="@+id/EditName"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="Nupur"
        android:layout_below="@+id/Title"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <TextView
        android:id="@+id/Password"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Password:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="20sp"
        android:layout_below="@+id/Name"
        android:layout_marginLeft="20sp"/>
```

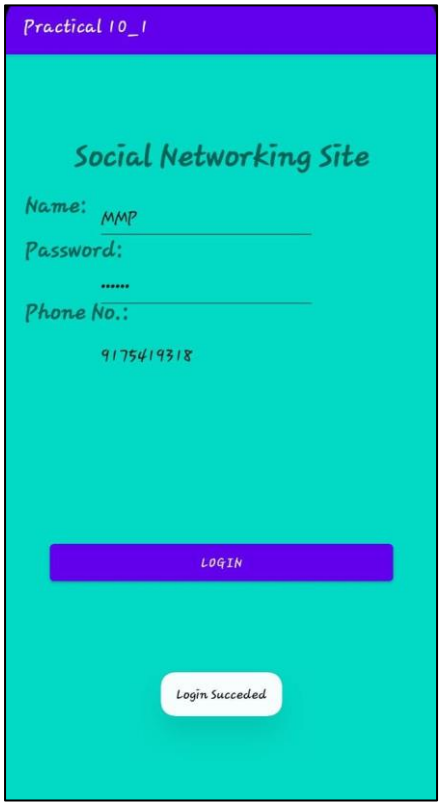
```
    <EditText
        android:id="@+id/EditPassword"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="1234"
        android:inputType="numberPassword"
        android:layout_below="@+id/EditName"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <TextView
        android:id="@+id/Phone"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Phone No.:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="40sp"
        android:layout_below="@+id/Password"
        android:layout_marginLeft="20sp"/>

    <EditText
        android:id="@+id/EditPhone"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="1234567890"
        android:layout_below="@+id/EditPassword"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <Button
        android:id="@+id/Login"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="150dp"/>

</RelativeLayout>
```

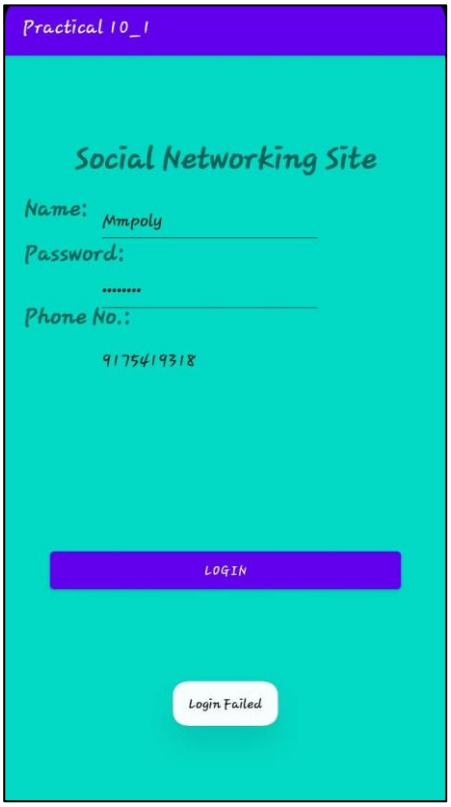
MAINACTIVITY.JAVA

```
package com.example.practical10_1;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    TextView Name, Password, Phone;
```

```
    EditText EditName, EditPassword, EditPhone;
    Button Login;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Name = findViewById(R.id.Name);
        Password = findViewById(R.id.Password);
        Phone = findViewById(R.id.Phone);
        EditName = findViewById(R.id.EditName);
        EditPassword = findViewById(R.id.EditPassword);
        EditPhone = findViewById(R.id.EditPhone);
        Login = findViewById(R.id.Login);

        Login.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String s1= Name.getText().toString();
                String s2= Password.getText().toString();
                if (s1.equals("Nupur") && (s2.equals("1234"))){
                    Toast.makeText(MainActivity.this, "Login Succeded",
Toast.LENGTH_SHORT).show();
                }
                else {
                    Toast.makeText(MainActivity.this, "Login Failed",
Toast.LENGTH_SHORT).show();
                }       }       });    }       }
```

OUTPUT





10.2: Write a program to create a login form for student registration system.

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"
    android:background="@color/teal_200"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/Title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Student Registration Form"
        android:textSize="28dp"
        android:textStyle="bold"
        android:layout_marginTop="50dp"
        android:layout_centerHorizontal="true"/>

    <TextView
        android:id="@+id/Name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Student Name:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="20sp"
        android:layout_below="@+id/Title"
        android:layout_marginLeft="20sp"
        />

    <EditText
        android:id="@+id/EditName"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="Nupur"
        android:layout_below="@+id/Title"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <TextView
        android:id="@+id/Password"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Create Password:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="20sp"
        android:layout_below="@+id/Name"
        android:layout_marginLeft="20sp"/>

    <EditText
```

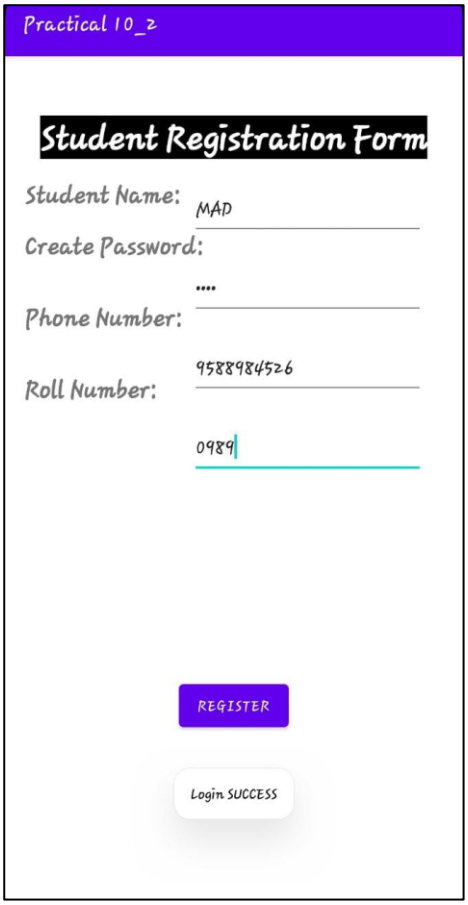
```
        android:id="@+id/EditPassword"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="1234"
        android:inputType="numberPassword"
        android:layout_below="@+id/EditName"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <TextView
        android:id="@+id/Phone"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Phone Number:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="40sp"
        android:layout_below="@+id/Password"
        android:layout_marginLeft="20sp"/>

    <EditText
        android:id="@+id/EditPhone"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="1234567890"
        android:layout_below="@+id/EditPassword"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <TextView
        android:id="@+id/Rollno"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Roll Number:"
        android:textSize="20dp"
        android:textStyle="bold"
        android:layout_marginTop="40sp"
        android:layout_below="@+id/Phone"
        android:layout_marginLeft="20sp"/>

    <EditText
        android:id="@+id/EditRoll"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="190314"
        android:layout_below="@+id/EditPhone"
        android:layout_toRightOf="@+id/Name"
        android:layout_marginTop="20sp"
        android:layout_marginLeft="10sp"/>

    <Button
        android:id="@+id/Login"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Register"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="150dp"/>
</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical10_2;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    TextView Name, Password, Phone, Rollno;
    EditText EditName, EditPassword, EditPhone, EditRoll;
    Button Login;

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

        Name = findViewById(R.id.Name);
        Password = findViewById(R.id.Password);
        Phone = findViewById(R.id.Phone);
        EditName = findViewById(R.id.EditName);
        EditPassword = findViewById(R.id.EditPassword);
        EditPhone = findViewById(R.id.EditPhone);
        Rollno = findViewById(R.id.Rollno);
        EditRoll = findViewById(R.id.EditRoll);
        Login = findViewById(R.id.Login);

        Login.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String s1= Name.getText().toString();
                String s2= Rollno.getText().toString();
                if (s1.equals("MAD") && (s2.equals("0989"))){
                    Toast.makeText(MainActivity.this, "Login Succeded",
Toast.LENGTH_SHORT).show();
                }
                else {
                    Toast.makeText(MainActivity.this, "Login Failed",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

OUTPUT


Practical 10_2
Student Registration Form
Student Name:
MAD
Create Password:
....
Phone Number:
9588984526
Roll Number:
190314
REGISTER
Login Failed


Practical 10_2
Student Registration Form
Student Name:
MAD
Create Password:
....
Phone Number:
9588984526
Roll Number:
0989
REGISTER
Login SUCCESS

Practical No. 11. Develop a program to implement Checkbox

11.1: Write a program to show five checkboxes and toast selected checkboxes.

ACTIVITY_MAIN.XML

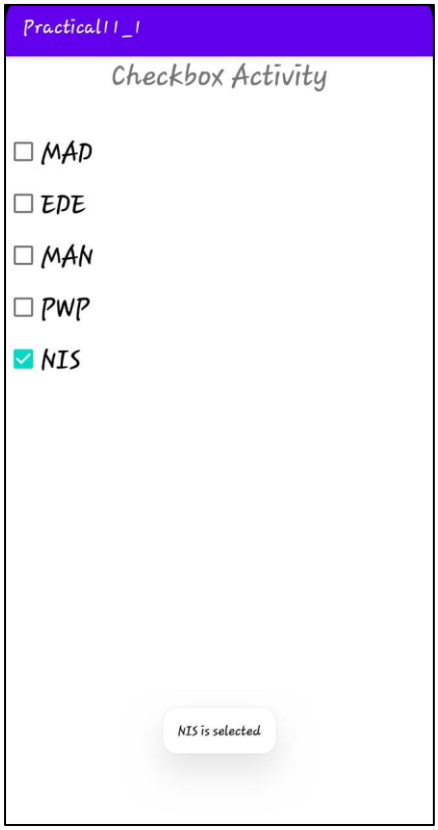
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Checkbox Activity"
        android:layout_gravity="center_horizontal"
        android:textSize="30sp"
        android:layout_marginBottom="30dp"/>

    <CheckBox
        android:id="@+id/ch1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="MAD"
        android:textSize="28sp"/>

    <CheckBox
        android:id="@+id/ch2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="EDE"
        android:textSize="28sp"/>

    <CheckBox
        android:id="@+id/ch3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="MAN"
        android:textSize="28sp"/>

    <CheckBox
        android:id="@+id/ch4"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="PWP"
        android:textSize="28sp"/>

    <CheckBox
        android:id="@+id/ch5"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="NIS"
        android:textSize="28sp"/>

</LinearLayout>
```

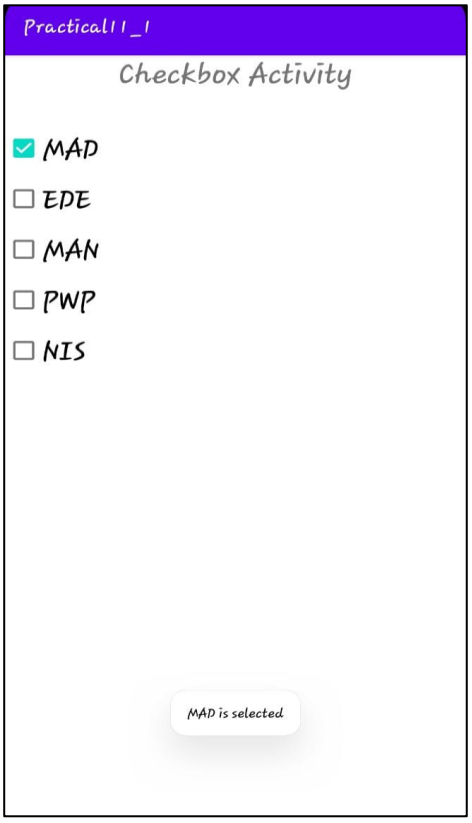
MAINACTIVITY.JAVA

```
package com.example.practical11_1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.CheckBox;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    CheckBox ch1, ch2, ch3, ch4, ch5;

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

        ch1= findViewById(R.id.ch1);
        ch2= findViewById(R.id.ch2);
        ch3= findViewById(R.id.ch3);
        ch4= findViewById(R.id.ch4);
        ch5= findViewById(R.id.ch5);

        ch1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ch2.setChecked(false);
                ch3.setChecked(false);
                ch4.setChecked(false);
                ch5.setChecked(false);
                Toast.makeText(MainActivity.this, ch1.getText()+" is
selected", Toast.LENGTH_LONG).show();
            }
        });

        ch2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ch1.setChecked(false);
                ch3.setChecked(false);
                ch4.setChecked(false);
                ch5.setChecked(false);
                Toast.makeText(MainActivity.this, ch2.getText()+" is
selected", Toast.LENGTH_LONG).show();
            }
        });

        ch3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ch2.setChecked(false);
                ch1.setChecked(false);
                ch4.setChecked(false);
                ch5.setChecked(false);
                Toast.makeText(MainActivity.this, ch3.getText()+" is
selected", Toast.LENGTH_LONG).show();
            }
        });
```

```
        ch4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ch2.setChecked(false);
                ch3.setChecked(false);
                ch1.setChecked(false);
                ch5.setChecked(false);
                Toast.makeText(MainActivity.this, ch4.getText()+" is
selected", Toast.LENGTH_LONG).show();
            }
        });

        ch5.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ch2.setChecked(false);
                ch3.setChecked(false);
                ch4.setChecked(false);
                ch1.setChecked(false);
                Toast.makeText(MainActivity.this, ch5.getText()+" is
selected", Toast.LENGTH_LONG).show();
            }
        });


    }
}
```

OUTPUT





Practical No. 12. Develop a program to implement Radio Button and Radio Group.

12.1: Write a program to show the following output. First two radio buttons are without using radio group and next two radio buttons are using radio group. Note the changes between these two. Also toast which radio button has been selected

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"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SIngle Radio Buttons"
        android:layout_gravity="center_horizontal"
        android:textSize="20sp"/>

    <RadioButton
            android:id="@+id/rb1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Radio Button 1"/>

    <RadioButton
        android:id="@+id/rb2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Radio Button 2"/>


    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Radio buttons inside radio group"
        android:layout_gravity="center_horizontal"
        android:textSize="20sp"/>

    <RadioGroup
        android:id="@+id/rg1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content">

        <RadioButton
            android:id="@+id/rb3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male"/>

        <RadioButton
            android:id="@+id/rb4"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
```

```
            android:text="Female" />
    </RadioGroup>

    <Button
        android:id="@+id/b1"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:text="Show Selected"
        android:layout_gravity="center_horizontal"/>


</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical12_1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    RadioGroup rg1;
    RadioButton rb1, rb2, gender;
    Button b1;

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

        rg1 = findViewById(R.id.rg1);
        rb1 = findViewById(R.id.rb1);
        rb2 = findViewById(R.id.rb2);
        b1 = findViewById(R.id.b1);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int radio = rg1.getCheckedRadioButtonId();
                gender = (RadioButton)findViewById(radio);

                String str= null, gstr = null;
                if (radio==-1){
                    str = "Nothing selected";
                }
                else {
                    str = gender.getText().toString();
                }

                if (rb1.isChecked()){
                    rb2.setActivated(false);
                    gstr = rb1.getText().toString();
                }
```

```
                if (rb2.isChecked()){
                    rb1.setActivated(false);
                    gstr = rb2.getText().toString();
                }
                Toast.makeText(MainActivity.this, "Selected Radio Button:
"+str+"&"+gstr, Toast.LENGTH_SHORT).show();
            }
        });
    }
    }
```

OUTPUT

Practical No. 13 Develop a program to implement Progress Bar

13.1: Write a program to display circular progress bar.

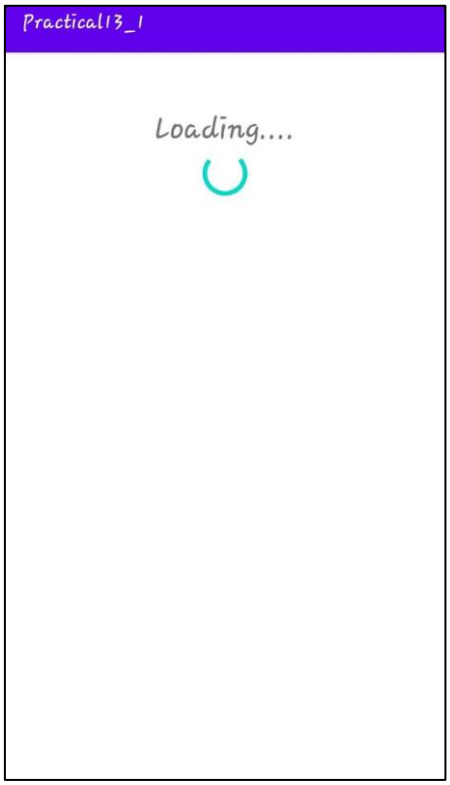
ACTIVITY_MAIN.XML

```
<?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"
    tools:context=".MainActivity"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Loading...."
        android:textSize="30sp"
        android:layout_marginTop="50dp"
        android:gravity="center"
        android:layout_gravity="center"/>

    <ProgressBar
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"/>

</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical13_1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

OUTPUT



13.2: Write a program to show the following output

ACTIVITY_MAIN.XML

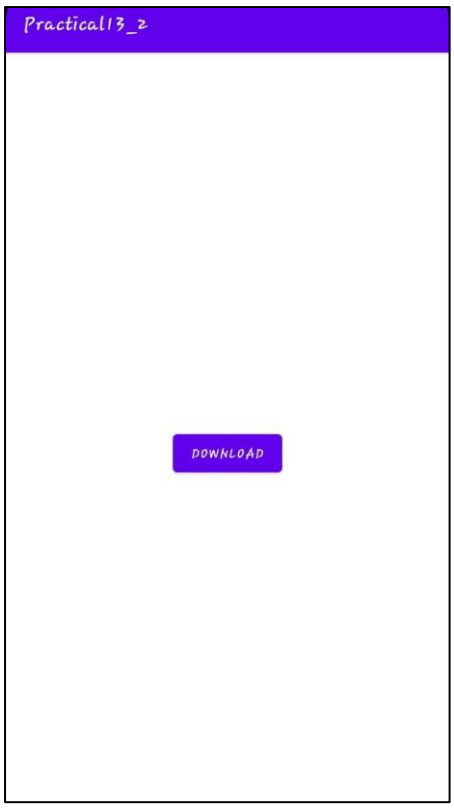
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

    <Button
        android:id="@+id/download"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Download"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />


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

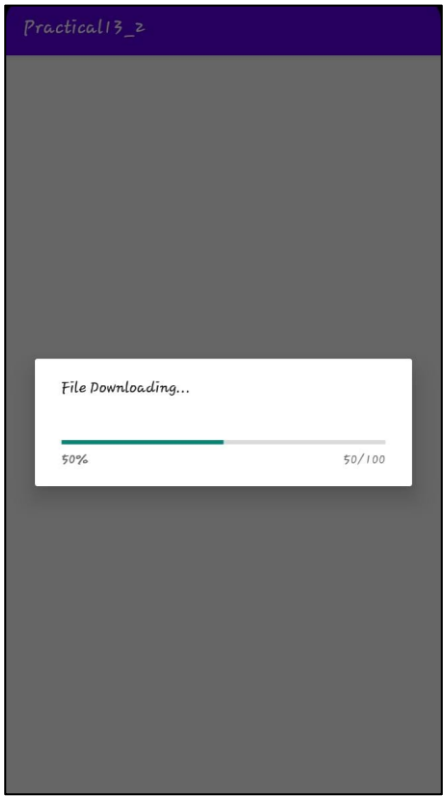
MAINACTIVITY.JAVA

```
package com.example.practical13_2;
import androidx.appcompat.app.AppCompatActivity;
import android.app.ProgressDialog;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button download;
    ProgressDialog progressbar;
    int progressbarstatus= 0;
    Handler pbs= new Handler();
    long fileSize= 0;

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

        download= findViewById(R.id.download);
        download.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                progressbar=  new ProgressDialog(view.getContext());
                progressbar.setCancelable(true);
                progressbar.setMessage("File Downloading...");

progressbar.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);
                progressbar.setProgress(0);
                progressbar.setMax(100);
                progressbar.show();

                progressbarstatus= 0;
                fileSize = 0;

                new Thread(new Runnable() {
                    @Override
                    public void run() {
                        while (progressbarstatus<100){
                            progressbarstatus= doOperation();
                            try {
                                Thread.sleep(1000);
                            }catch (InterruptedException e){
                                e.printStackTrace();
                            }
                            pbs.post((new Runnable() {
                                @Override
                                public void run() {

progressbar.setProgress(progressbarstatus);
                                }}));
                            }
                        if (progressbarstatus>100){
                            try {
                                Thread.sleep(1000);
                            }catch (InterruptedException e){
                                e.printStackTrace();
                            }
```

```
                        progressbar.dismiss();
                    }
                }
            }).start();
        }
    });     }
public int doOperation(){
    while(fileSize<=10000){
        fileSize++;
        if (fileSize==1000){
            return 10;
        }else  if (fileSize==2000){
            return 20;
        }else  if (fileSize==3000){
        return 30;
        }else  if (fileSize==4000){
        return 40;
        }else  if (fileSize==5000){
        return 50;
        }else  if (fileSize==6000){
        return 60;
        }else  if (fileSize==7000){
        return 70;
    }else  if (fileSize==8000){
        return 80;
    }else  if (fileSize==9000){
        return 90;
        }
    }
    return 100;
    }       }
```

OUTPUT





Practical No. 14 Develop a program to implement List View, Grid View, Image View and Scroll view.

14.1: Write a program to show the following output. Use appropriate view for the same

ACTIVITY_MAIN.XML

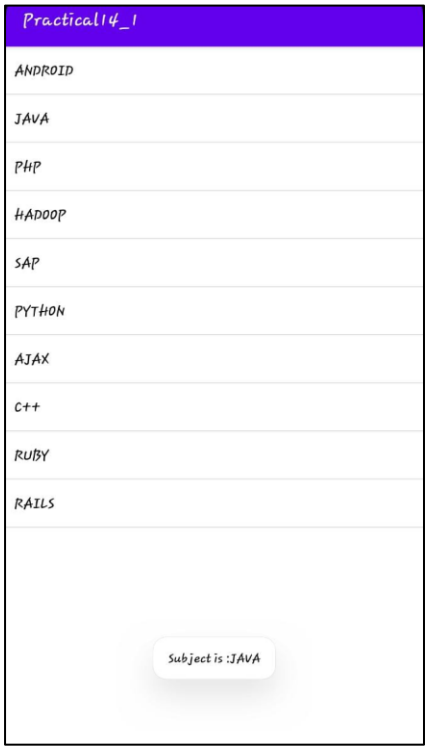
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <ListView
        android:id="@+id/list1"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        />

</LinearLayout>
```

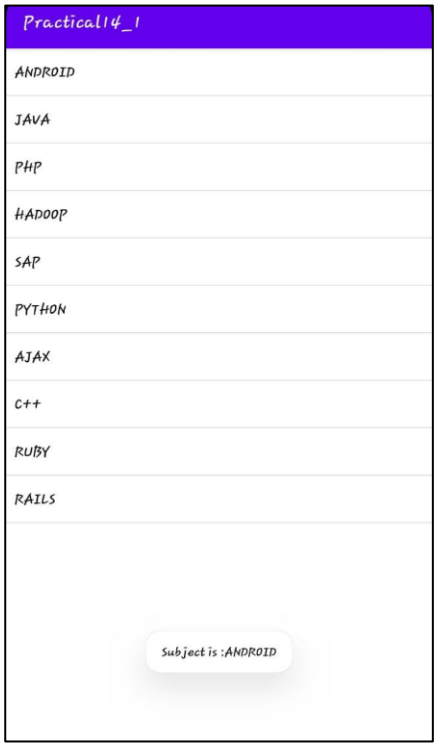
MAINACTIVITY.JAVA

```
package com.example.practical14_1;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    String[] sujects =
{"ANDROID","JAVA","PHP","HADOOP","SAP","PYTHON","AJAX","C++","RUBY","RAILS"
,};
    ListView list1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        list1 = findViewById(R.id.list1);

        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
androidx.appcompat.R.layout.support_simple_spinner_dropdown_item,sujects);
        list1.setAdapter(adapter);

        list1.setOnItemClickListener(new AdapterView.OnItemClickListener()
{
```

```
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long l) {


                Toast.makeText(MainActivity.this,"Subject is
:"+sujects[position] , Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

OUTPUT





14.2: Write a program to display an image using image view and a button named "change image". Once you click the button another image should get displayed.

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

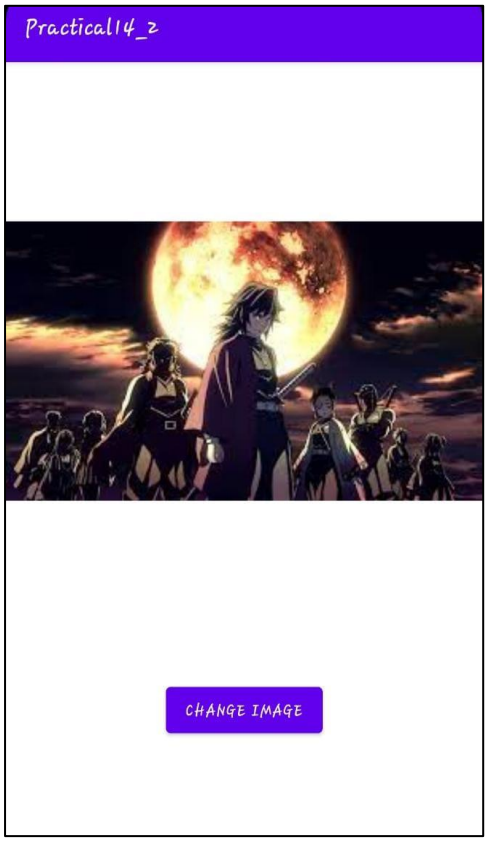
```
    <ImageView
        android:layout_marginTop="35dp"
        android:layout_width="400dp"
        android:layout_height="400dp"
        android:layout_centerHorizontal="true"
        android:id="@+id/img1"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/img1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:text="Change Image"
        android:id="@+id/button"/>
</RelativeLayout>
```

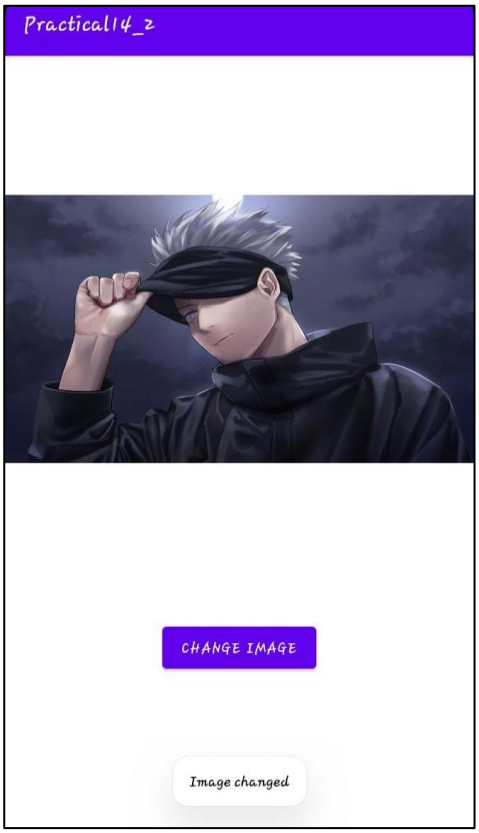
MAINACTIVITY.JAVA

```
package com.example.practical14_2;

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

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    Button b1;
    ImageView iv;
    boolean flag;
    int images[] = {R.drawable.ic1, R.drawable.ic2, R.drawable.ic3};
    int i = 0;

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

        iv = (ImageView) findViewById(R.id.img1);
        b1 = (Button) findViewById(R.id.button);

        flag = true;

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv.setImageResource(images[i]);
                i++;
                if (i == 3)
                    i = 0;
                Toast.makeText(MainActivity.this, "Image changed",
Toast.LENGTH_SHORT).show();
            }
        });
```

```
        }
}
```

OUTPUT


Practical14_2
CHANGE IMAGE


Practical14_2
CHANGE IMAGE
Image changed

Practical No. 15. Develop a program to implement Custom Toast Alert.

15.1: Write a program to display the following toast message.

ACTIVITY_MAIN.XML

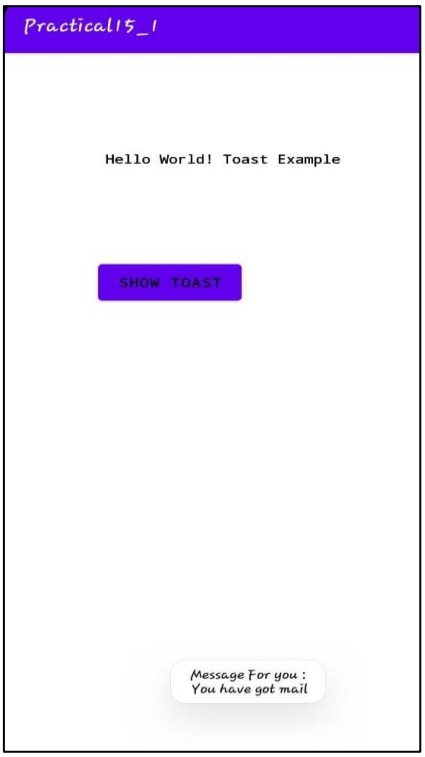
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="monospace"
        android:text="Hello World! Toast Example"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.400"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.130" />

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="monospace"
        android:text="Show Toast"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.273"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView"
        app:layout_constraintVertical_bias="0.15" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical15_1;

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

```
import android.os.Bundle;
import android.view.Gravity;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    Button b1;

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

        b1 = findViewById(R.id.b1);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String s = "Message For you :\n You have got mail";
                Toast t = Toast.makeText(getApplicationContext(),s ,
Toast.LENGTH_LONG);
                t.setGravity(Gravity.CENTER, 0, 0);
                t.show();
            }

        });


    }
}
```

OUTPUT



15.2: Write a program to display three checkboxes and one button named “Order” as shown below. Once you click on button it should toast different selected checkboxes along with items individual and total price.

ACTIVITY_MAIN.XML

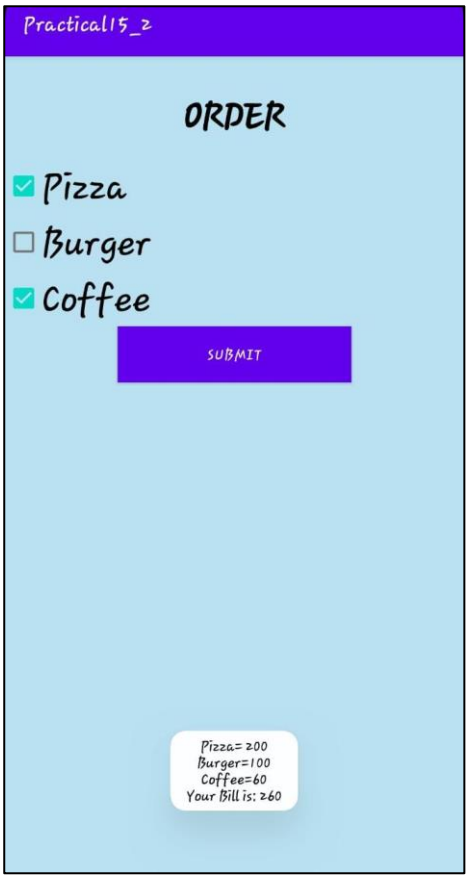
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="#B9E1F1"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center_horizontal"
        android:text="ORDER"
        android:textColor="@color/black"
        android:textSize="30dp"
        android:textStyle="bold"
        android:layout_marginTop="30dp"/>

    <CheckBox
        android:layout_marginTop="20sp"
        android:id="@+id/pizza"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Pizza"
        android:textSize="30dp"/>

    <CheckBox
        android:id="@+id/burger"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Burger"
        android:textSize="30dp"/>

    <CheckBox
        android:id="@+id/coffee"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Coffee"
        android:textSize="30dp"/>

    <Button
        android:id="@+id/b1"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:background="@color/white"
        android:gravity="center"
        android:layout_gravity="center_horizontal"
        android:text="SUBMIT"/>
</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical15_2;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    CheckBox pizza, burger, coffee;
    Button b1;
    int bill=0;

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

        pizza= findViewById(R.id.pizza);
        burger= findViewById(R.id.burger);
        coffee= findViewById(R.id.coffee);
        b1= findViewById(R.id.b1);

        b1.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View view) {
                int p=0, b= 0, c=0;
                if (pizza.isChecked()){
                    p=200;
                    bill=bill+p;
                }
                if (burger.isChecked()){
                    b=100;
                    bill=bill+b;
                }
                if (coffee.isChecked()){
                    c=60;
                    bill=bill+c;
                }
                String s = "Pizza= 200\nBurger=100\nCoffee=60\nYour Bill
is: "+bill;
               Toast.makeText(getApplicationContext(),s,
Toast.LENGTH_LONG).show();

               bill=0;
            }
        });

    }
}
```

OUTPUT


Practical15_2
ORDER
Pizza
Burger
Coffee
SUBMIT
Pizza= 200
Burger=100
Coffee=60
Your Bill is: 160


Practical15_2
ORDER
Pizza
Burger
Coffee
SUBMIT
Pizza= 200
Burger=100
Coffee=60
Your Bill is: 260

Practical No. 16 Develop a program to implement Date and Time Picker.

16.1: Write a program to display following output. Use TimePicker with spinnermode

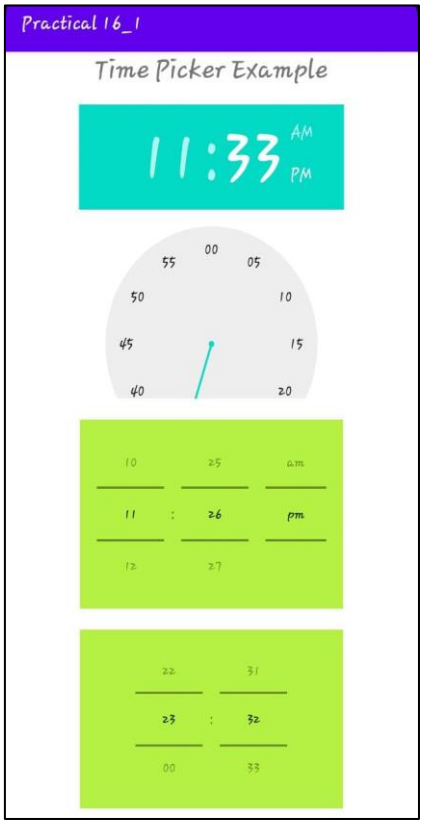
ACTIVITY_MAIN.XML

```
<?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="Time Picker Example"
        android:textSize="28sp"
        android:layout_centerHorizontal="true"/>


    <TimePicker
        android:id="@+id/t1"
        android:layout_width="280dp"
        android:layout_height="280dp"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:layout_marginBottom="20dp"
        android:scaleX="0.90"
        android:scaleY="1"
        android:timePickerMode="clock" />

    <TimePicker
        android:id="@+id/t2"
        android:layout_width="250dp"
        android:layout_height="180dp"
        android:layout_below="@+id/t1"

        android:layout_marginBottom="20dp"
        android:layout_centerHorizontal="true"
        android:background="#DDA9EF25"
        android:timePickerMode="spinner"
        android:tooltipText="Time picker" />

    <TimePicker
        android:id="@+id/t3"
        android:layout_width="250dp"
        android:layout_height="170dp"
        android:layout_below="@+id/t2"
        android:layout_centerHorizontal="true"
        android:animateLayoutChanges="true"
        android:background="#DDA9EF25"
        android:timePickerMode="spinner"
        android:tooltipText="Time picker" />
</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical16_1;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.TimePicker;

public class MainActivity extends AppCompatActivity {

    TimePicker t1,t2,t3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        t3 =findViewById(R.id.t3);
        t3.setIs24HourView(true);
    }
}
```

OUTPUT



16.2: Write a program to display following output. Select and display date and time on click of “select date”, “select time” buttons respectively.

ACTIVITY_MAIN.XML

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

    <EditText
        android:id="@+id/e1"
        android:layout_width="180dp"
        android:layout_height="wrap_content"
        android:hint="date"
        android:minHeight="48dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/b1"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/e2"
        app:layout_constraintVertical_bias="0.108" />

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="392dp"
        android:text="Select Date"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.476"
        app:layout_constraintStart_toEndOf="@+id/e1" />

    <EditText
        android:id="@+id/e2"
        android:layout_width="180dp"
        android:layout_height="54dp"
        android:layout_marginStart="32dp"
        android:hint="time"
        android:minHeight="48dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.285" />

    <Button
        android:id="@+id/b2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="35dp"
        android:layout_marginEnd="32dp"
        android:text="Select Time"
        app:layout_constraintBottom_toTopOf="@+id/b1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/e2"
        app:layout_constraintTop_toTopOf="parent"
```

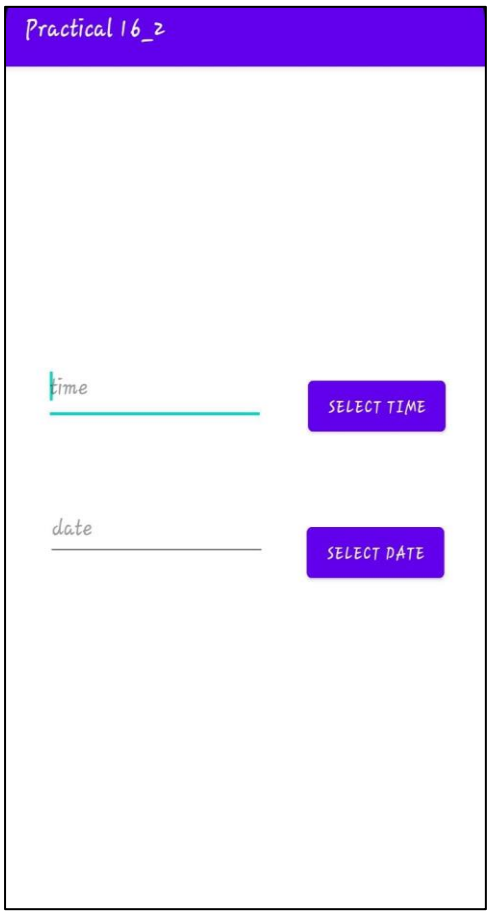
```
        app:layout_constraintVertical_bias="0.794"
        tools:ignore="MissingConstraints" />


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

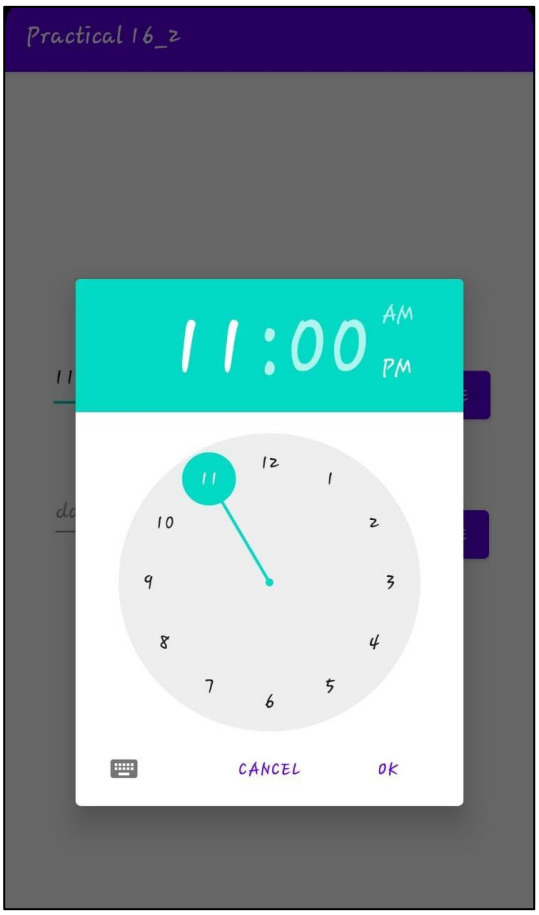
MAINACTIVITY.JAVA

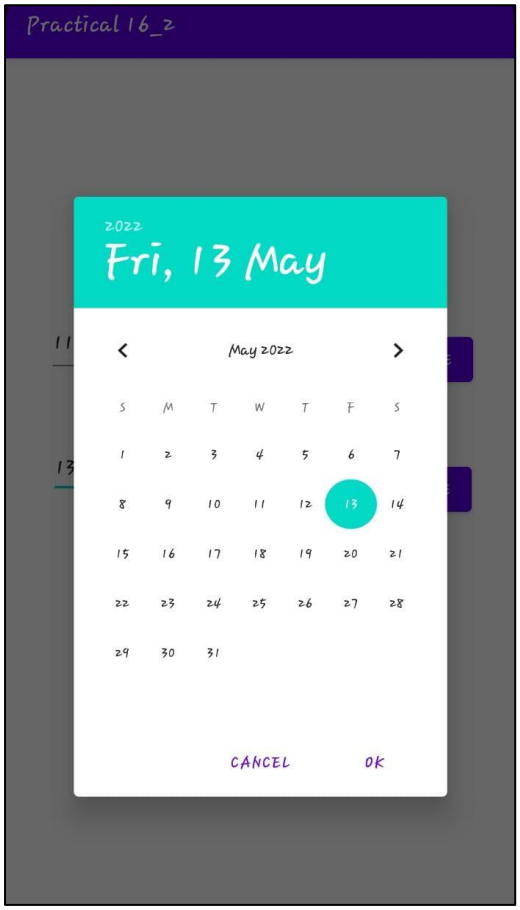
```
package com.example.practical16_2;


import androidx.appcompat.app.AppCompatActivity;

import android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.text.format.DateFormat;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TimePicker;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2;
    Button b1,b2;
    int hour ,m ;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=findViewById(R.id.b1);
        b2=findViewById(R.id.b2);
        e1=findViewById(R.id.e1);
        e2=findViewById(R.id.e2);
        final Calendar c=Calendar.getInstance();
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int year=c.get(Calendar.YEAR);
                int month=c.get(Calendar.MONTH);
                int day=c.get(Calendar.DAY_OF_MONTH);
                DatePickerDialog dp=new DatePickerDialog(MainActivity.this,
new DatePickerDialog.OnDateSetListener() {
                    @Override
                    public void onDateSet(DatePicker view,int year,int
monthOfYear,int dayOfMonth) {

e1.setText(dayOfMonth+"/"+(monthOfYear+1)+"/"+year);

                    }
                },year,month,day);
                dp.show();
            }
        });

        b2.setOnClickListener(new View.OnClickListener() {
```

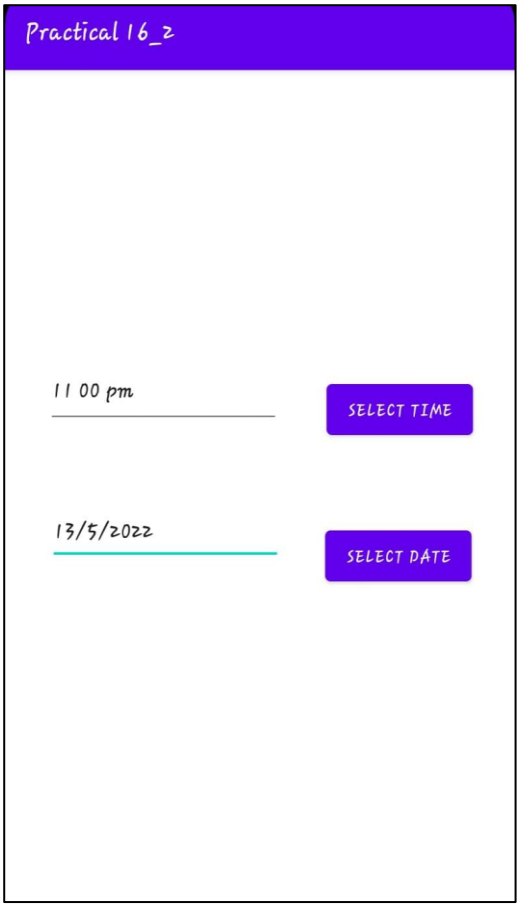
```
            @Override
            public void onClick(View view) {

                TimePickerDialog tp=new TimePickerDialog(MainActivity.this,
new TimePickerDialog.OnTimeSetListener() {
                    @Override
                    public void onTimeSet(TimePicker view, int hourofDay,
int minute) {
                        hour =hourofDay;
                        m = minute;
                        c.set(0,0,0,hour,m);

                        e2.setText(DateFormat.format("hh mm aa",c));
                    }
                },hour,m,false);
                tp.show();
            }
        });
    }
}
```

OUTPUT






Practical 16_2
2022
Fri, 13 May
May 2022
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
CANCEL
OK


Practical 16_2
11 00 pm
SELECT TIME
13/5/2022
SELECT DATE

Practical No. 17 Develop a program to create an activity

17.1: Write a program to create a HelloWorld Activity using all lifecycles methods to display messages using Log.d.

ACTIVITY_MAIN.XML

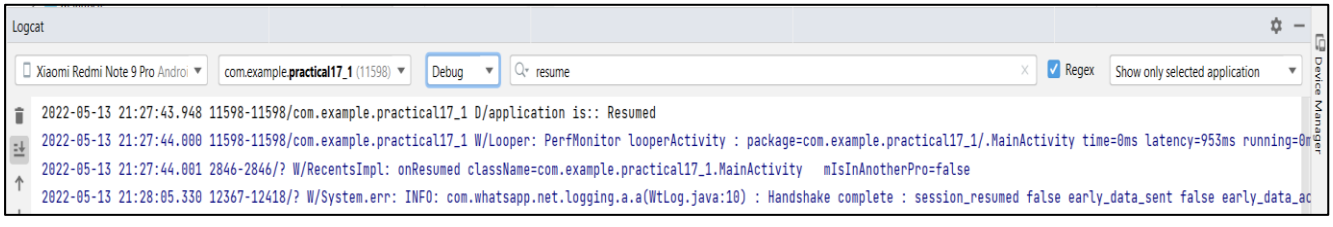
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

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

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

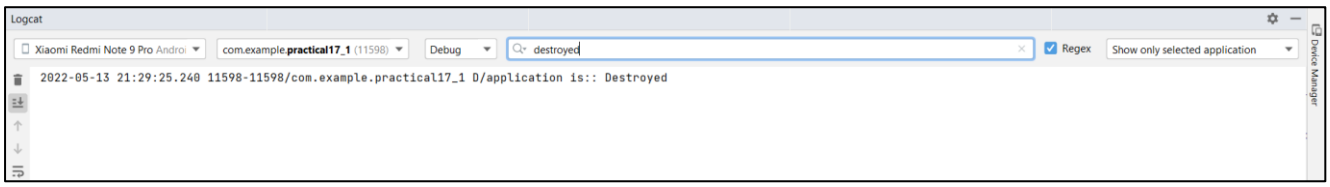
MAINACTIVITY.JAVA

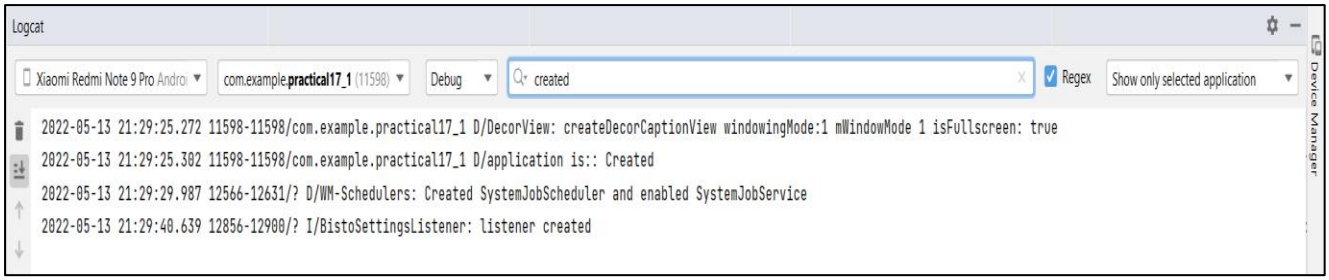
```
package com.example.practical17_1;

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

public class MainActivity extends AppCompatActivity {
    public String tag="application is:";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(tag,"Created");
        Toast.makeText (this, "Created", Toast.LENGTH_SHORT).show ();
    }

    @Override
    protected void onStart() {
        super.onStart();
        Log.d(tag,"Started");
        Toast.makeText (this, "Started", Toast.LENGTH_SHORT).show ();
    }

    @Override
    protected void onResume() {
        super.onResume();
```

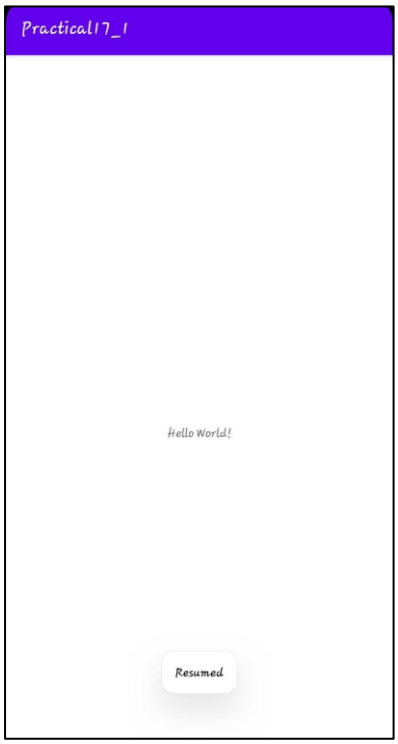
```
        Log.d(tag,"Resumed");
        Toast.makeText (this, "Resumed", Toast.LENGTH_SHORT).show ();
    }

    @Override
    protected void onPause() {
        super.onPause();
        Log.d(tag,"Paused");
        Toast.makeText (this, "Paused", Toast.LENGTH_SHORT).show ();
    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.d(tag,"Stopped");
        Toast.makeText (this, "Stopped", Toast.LENGTH_SHORT).show ();
    }

    @Override
    protected void onDestroy() {

        super.onDestroy();

        Log.d(tag,"Destroyed");
        Toast.makeText (this, "Destroyed", Toast.LENGTH_SHORT).show ();
    }

    @Override

    protected void onRestart() {

        super.onRestart();

        Log.d(tag,"Restarted");
        Toast.makeText (this, "Restarted", Toast.LENGTH_SHORT).show ();

    }

}
```

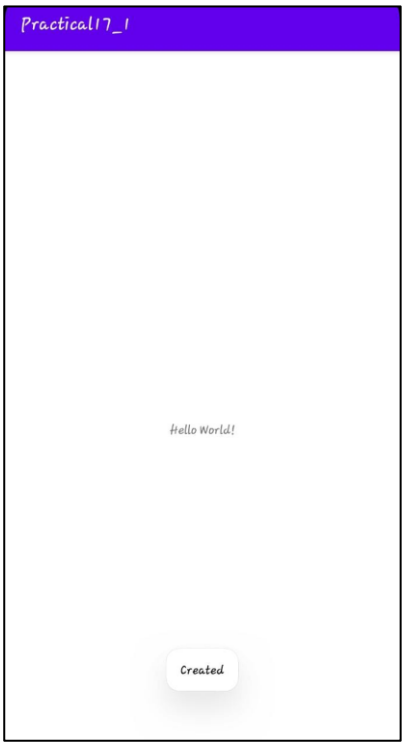
OUTPUT

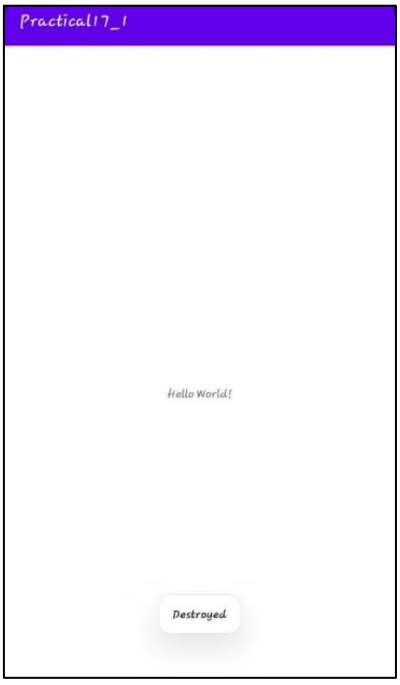





Logcat
Xiaomi Redmi Note 9 Pro Andro
com.example.practical17_1 (11598)
Debug
created
Regex
Show only selected application
Device Manager
2022-05-13 21:29:25.272 11598-11598/com.example.practical17_1 D/DecorView: createDecorCaptionView windowingMode:1 mWindowMode 1 isFullscreen: true
2022-05-13 21:29:25.302 11598-11598/com.example.practical17_1 D/application is:: Created
2022-05-13 21:29:29.987 12566-12631/? D/WM-Schedulers: Created SystemJobScheduler and enabled SystemJobService
2022-05-13 21:29:40.639 12856-12900/? I/BistoSettingsListener: listener created


Practical17_1
Hello World!
Resumed


Practical17_1
Hello World!
Created


Practical17_1
Hello World!
Destroyed

Practical No. 18 Develop a program to implement new activity using explicit intent and implicit intent

18.1: Write a program to create a text field and a button “Navigate”. When you enter “www.google.com” and press navigate button it should open google page.

ACTIVITY_MAIN.XML

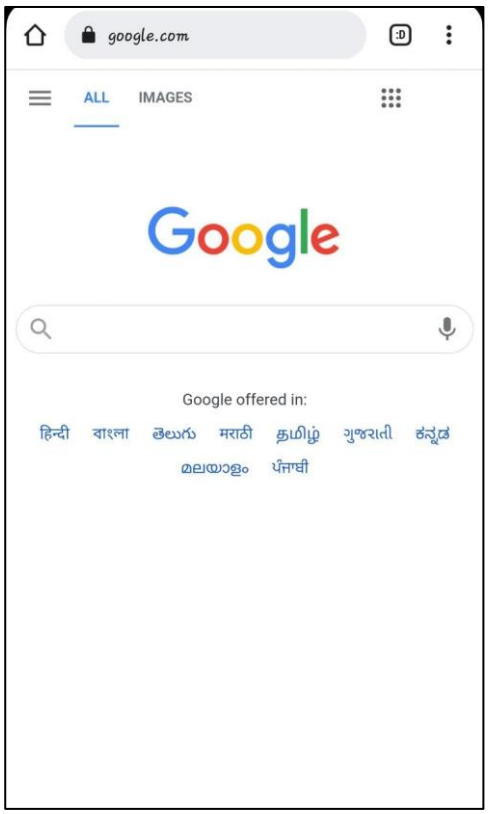
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="80dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/e1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="ENTER LINK"/>


    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="NAVIGATE"
        android:layout_below="@+id/e1"
        android:gravity="center"/>
</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical18_1;

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

public class MainActivity extends AppCompatActivity {
    Button b1;
    EditText e1;

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

        e1 = findViewById(R.id.e1);
        b1 = findViewById(R.id.b1);
```

```
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                String s = e1.getText().toString();
                //  Intent Browserintent = new
Intent(Intent.ACTION_VIEW,(Uri.parse(http://www.google.com.in) ));
                Intent b1 = new Intent(Intent.ACTION_VIEW, Uri.parse(s));
//"http://www.google.com")
                startActivity(b1);

            }
        });

    }
}
```

OUTPUT



18.2 Write a program to create button “Start Dialer”. When u click on this button it should open the phone dialer.

ACTIVITY_MAIN.XML

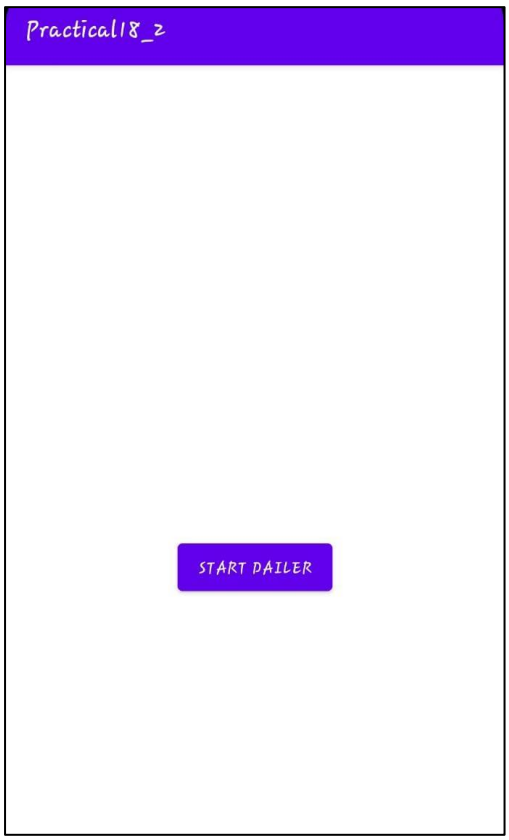
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
```

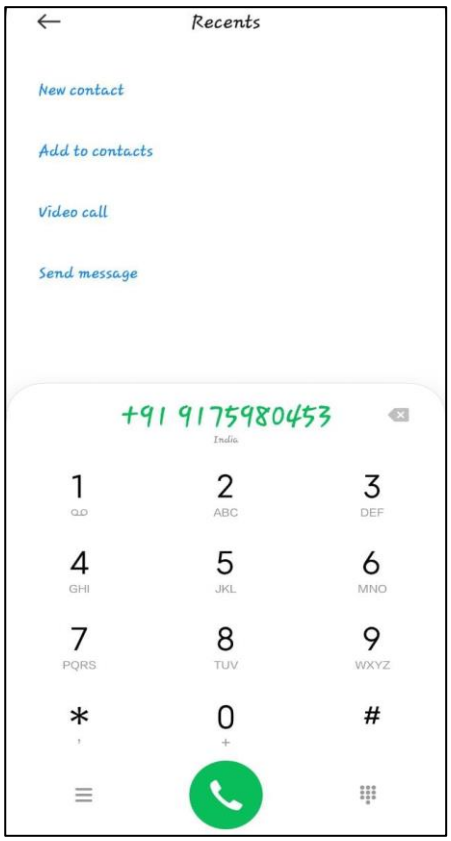
```
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="START DAILER"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />


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

MAINACTIVITY.JAVA

```
package com.example.practical18_2;

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

public class MainActivity extends AppCompatActivity {
    Button b1;

    @Override

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button) findViewById(R.id.b1);
        b1.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                Intent intent = new Intent(Intent.ACTION_DIAL);
                intent.setData(Uri.parse("tel:" + "+91 9175980453"));
                startActivity(intent);
            }
        });

    }
}
```

OUTPUT





18.3: Write a program to create two screens. First screen will take one number input from user. After click on Factorial button, second screen will open and it should display factorial of the same number. Also specify which type of intent you will use in this case.

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="30dp">

    <EditText
        android:id="@+id/e1"
        android:layout_width="250dp"
        android:layout_height="70dp"
        android:hint="ENTER NUMBER"
        android:layout_marginBottom="30dp"/>
    <Button
        android:id="@+id/b1"
        android:layout_width="200dp"
```

```
        android:layout_height="60dp"
        android:layout_gravity="center_horizontal"
        android:text="FACTORIAL"
        android:textSize="20sp"/>

</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical18_3;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    EditText e1;
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = findViewById(R.id.b1);
        e1 = findViewById(R.id.e1);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(getApplicationContext(),
factorialActivity.class);
                intent.putExtra("number", e1.getText().toString());
                startActivity(intent);
            }
        });
    }
}
```

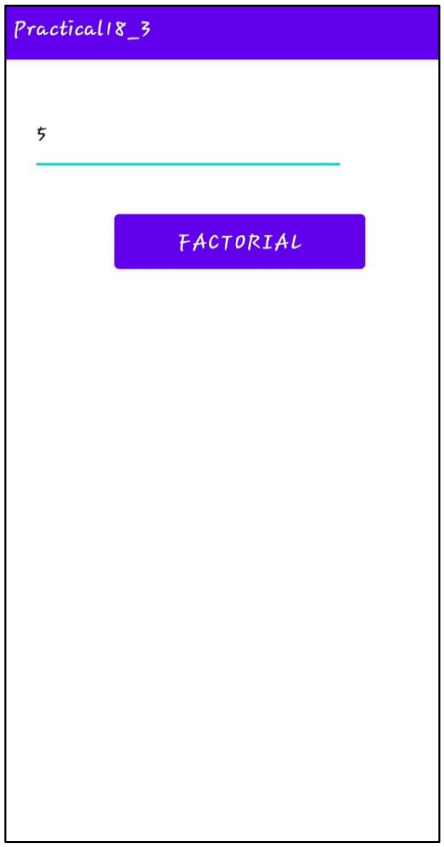
ACTIVITY_FACTORIAL.XML

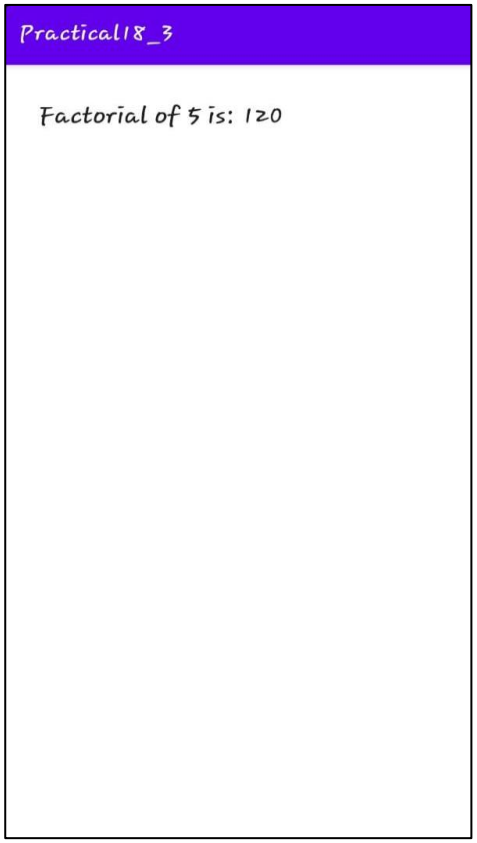
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".factorialActivity"
    android:padding="30dp">

    <TextView
        android:id="@+id/t1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Factorial of number is: "
        style="@style/TextAppearance.AppCompat.Large"/>

</LinearLayout>
```

FACTORIALACTIVITY.JAVA

```
package com.example.practical18_3;

import androidx.appcompat.app.AppCompatActivity;

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

public class factorialActivity extends AppCompatActivity {
    TextView t1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_factorial);
        Bundle b = getIntent().getExtras();

        t1 = findViewById(R.id.t1);

        int no = Integer.parseInt(b.getString("number"));
        long f=1;
        for(int i=no; i>0; i--){
            f=f*i;
        }
        t1.setText("Factorial of " +no+ " is: "+f);
    }
}
```

OUTPUT





Practical No. 19 Develop a program to implement content provider.

19.1: Write a program to create your own content provider to insert and access data in android application

ACTIVITY_MAIN.XML

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="100dp"/>
    <EditText
        android:id="@+id/txtName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10"/>
    <Button
        android:id="@+id/btnAdd"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="onClickAddDetails"
        android:layout_marginLeft="100dp"
        android:text="Add User"/>

    <Button
        android:id="@+id/btnRetrieve"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="onClickShowDetails"
        android:layout_marginLeft="100dp"
        android:text="Show Users"/>
    <TextView
        android:id="@+id/res"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:clickable="false"
        android:ems="10"/>
</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical19;


import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.content.ContentValues;
```

```
import android.content.Context;
import android.database.Cursor;
import android.net.Uri;

import android.os.Bundle;
import android.view.MotionEvent;
import android.view.View;
import android.view.inputmethod.InputMethodManager;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    public boolean onTouchEvent(MotionEvent event) {
        InputMethodManager imm =
(InputMethodManager)getSystemService(Context.INPUT_METHOD_SERVICE);
        imm.hideSoftInputFromWindow(getCurrentFocus().getWindowToken(), 0);
        return true;
    }
    public void onClickAddDetails(View view) {
        ContentValues values = new ContentValues();
        values.put(UserProvider.name, ((EditText)
findViewById(R.id.txtName)).getText().toString());
        getContentResolver().insert(UserProvider.CONTENT_URI, values);
        Toast.makeText(getBaseContext(), "New Record Inserted",
Toast.LENGTH_LONG).show();
    }

    @SuppressLint("Range")
    public void onClickShowDetails(View view) {
        // Retrieve employee records
        TextView resultView= (TextView) findViewById(R.id.res);
        Cursor cursor =
getContentResolver().query(Uri.parse("content://com.tutlane.contentprovider
.UserProvider/users"), null, null, null, null);
        if(cursor.moveToFirst()) {
            StringBuilder strBuild=new StringBuilder();
            while (!cursor.isAfterLast()) {

strBuild.append("\n"+cursor.getString(cursor.getColumnIndex("id"))+ "-"+
cursor.getString(cursor.getColumnIndex("name")));
                cursor.moveToNext();
            }
            resultView.setText(strBuild);
        }
        else {
            resultView.setText("No Records Found");
        }
    }
}
```

USERPROVIDER.JAVA

```
package com.example.practical19;


import android.content.ContentProvider;
import android.content.ContentUris;
import android.content.ContentValues;
import android.content.Context;
import android.content.UriMatcher;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteException;
import android.database.sqlite.SQLiteOpenHelper;
import android.database.sqlite.SQLiteQueryBuilder;
import android.net.Uri;
import java.util.HashMap;

/**
 * Created by sureshdasari on 29-07-2017.
 */

public class UserProvider extends ContentProvider {
    static final String PROVIDER_NAME =
"com.tutlane.contentprovider.UserProvider";
    static final String URL = "content://" + PROVIDER_NAME + "/users";
    static final Uri CONTENT_URI = Uri.parse(URL);

    static final String id = "id";
    static final String name = "name";
    static final int uriCode = 1;
    static final UriMatcher uriMatcher;
    private static HashMap<String, String> values;
    static {
        uriMatcher = new UriMatcher(UriMatcher.NO_MATCH);
        uriMatcher.addURI(PROVIDER_NAME, "users", uriCode);
        uriMatcher.addURI(PROVIDER_NAME, "users/*", uriCode);
    }

    @Override
    public String getType(Uri uri) {
        switch (uriMatcher.match(uri)) {
            case uriCode:
                return "vnd.android.cursor.dir/users";
            default:
                throw new IllegalArgumentException("Unsupported URI: " +
uri);
        }
    }

    @Override
    public boolean onCreate() {
        Context context = getContext();
        DatabaseHelper dbHelper = new DatabaseHelper(context);
        db = dbHelper.getWritableDatabase();
        if (db != null) {
            return true;
        }
        return false;
    }
```

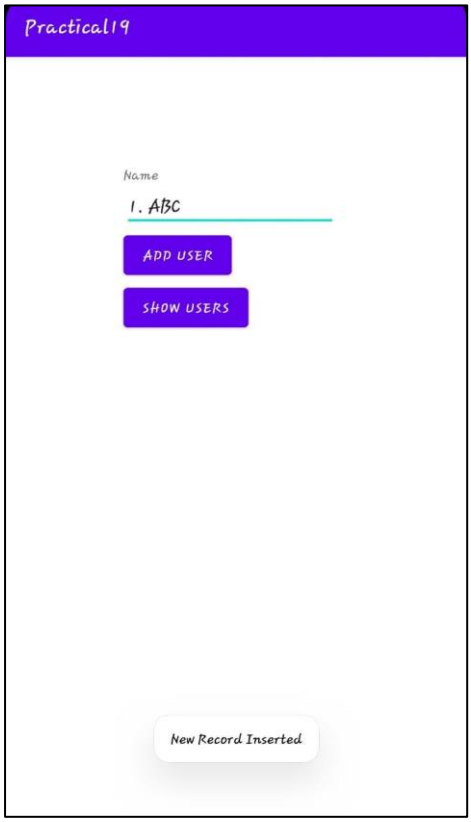
```
    @Override
    public Cursor query(Uri uri, String[] projection, String selection,
                        String[] selectionArgs, String sortOrder) {
        SQLiteQueryBuilder qb = new SQLiteQueryBuilder();
        qb.setTables(TABLE_NAME);

        switch (uriMatcher.match(uri)) {
            case uriCode:
                qb.setProjectionMap(values);
                break;
            default:
                throw new IllegalArgumentException("Unknown URI " + uri);
        }
        if (sortOrder == null || sortOrder == "") {
            sortOrder = id;
        }
        Cursor c = qb.query(db, projection, selection, selectionArgs, null,
                null, sortOrder);
        c.setNotificationUri(getContext().getContentResolver(), uri);
        return c;
    }
    @Override
    public Uri insert(Uri uri, ContentValues values) {
        long rowID = db.insert(TABLE_NAME, "", values);
        if (rowID > 0) {
            Uri _uri = ContentUris.withAppendedId(CONTENT_URI, rowID);
            getContext().getContentResolver().notifyChange(_uri, null);
            return _uri;
        }
        throw new SQLiteException("Failed to add a record into " + uri);
    }
    @Override
    public int update(Uri uri, ContentValues values, String selection,
                      String[] selectionArgs) {
        int count = 0;
        switch (uriMatcher.match(uri)) {
            case uriCode:
                count = db.update(TABLE_NAME, values, selection,
selectionArgs);
                break;
            default:
                throw new IllegalArgumentException("Unknown URI " + uri);
        }
        getContext().getContentResolver().notifyChange(uri, null);
        return count;
    }
    @Override
    public int delete(Uri uri, String selection, String[] selectionArgs) {
        int count = 0;
        switch (uriMatcher.match(uri)) {
            case uriCode:
                count = db.delete(TABLE_NAME, selection, selectionArgs);
                break;
            default:
                throw new IllegalArgumentException("Unknown URI " + uri);
        }
        getContext().getContentResolver().notifyChange(uri, null);
        return count;
    }
    private SQLiteDatabase db;
    static final String DATABASE_NAME = "EmpDB";
```

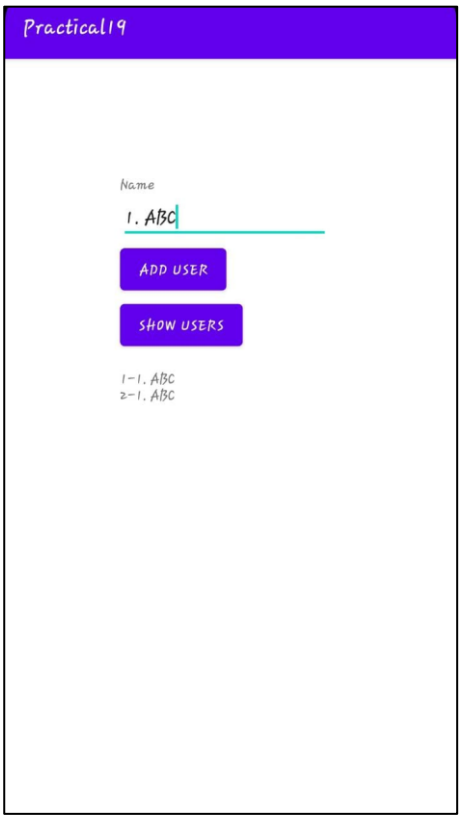
```
    static final String TABLE_NAME = "Employees";
    static final int DATABASE_VERSION = 1;
    static final String CREATE_DB_TABLE = " CREATE TABLE " + TABLE_NAME
            + " (id INTEGER PRIMARY KEY AUTOINCREMENT, "
            + " name TEXT NOT NULL);";

    private static class DatabaseHelper extends SQLiteOpenHelper {
        DatabaseHelper(Context context) {
            super(context, DATABASE_NAME, null, DATABASE_VERSION);
        }

        @Override
        public void onCreate(SQLiteDatabase db) {
            db.execSQL(CREATE_DB_TABLE);
        }

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

ANDROIDMANIFEST.XML

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.practical19">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Practical19">
        <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>
        <provider
            android:authorities="com.tutlane.contentprovider.UserProvider"
            android:name=".UserProvider">
        </provider>
    </application>

</manifest>
```

OUTPUT


Practical19
Name
1. ABC
ADD USER
SHOW USERS
New Record Inserted


Practical19
Name
1. ABC
ADD USER
SHOW USERS
1-1. ABC
2-1. ABC

Practical No. 20. Develop a program to implement service

20.1: Write a program to start a Wi-Fi using service

ACTIVITY_MAIN.XML

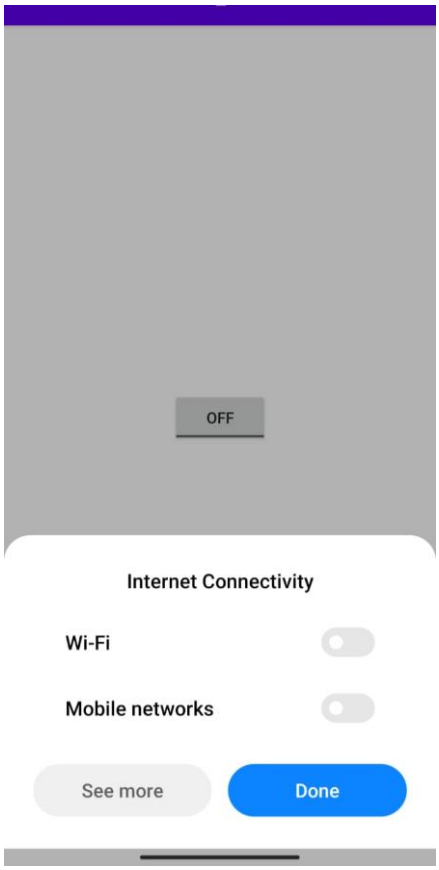
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="16dp"
    android:gravity="center"
    android:orientation="vertical">

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:checked="false" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"/>

</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.20_2wifi;

import androidx.appcompat.app.AppCompatActivity;

import android.app.Application;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.content.Context;
import android.net.wifi.WifiManager;
//import android.support.v7.app.AppCompatActivity;
import android.provider.Settings;
import android.widget.CompoundButton;
import android.widget.TextView;
import android.widget.Toast;
import android.widget.ToggleButton;

public class MainActivity extends AppCompatActivity {
    ToggleButton toggleButton;
    TextView textView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate (savedInstanceState);
        setContentView (R.layout.activity_main);


        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.Q) {
            Intent panelIntent = new
```

```
Intent(Settings.Panel.ACTION_INTERNET_CONNECTIVITY);
            startActivityForResult(panelIntent, 0);
        } else {
            // for previous android version
            WifiManager wifiManager = (WifiManager)

this.getApplicationContext().getSystemService(WIFI_SERVICE);
            wifiManager.setWifiEnabled(true);
        }
    }


}
```

OUTPUT



20.2: Write a program to display the following output.

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">

    <Button

        android:id="@+id/buttonStart"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="74dp"
        android:text="Start Service" />


    <Button

        android:id="@+id/buttonStop"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:text="Stop Service" />

    <Button

        android:id="@+id/buttonNext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="63dp"
        android:text="Next Page" />

</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example. pr20_1;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener{
    Button buttonStart, buttonStop,buttonNext;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        buttonStart = findViewById(R.id.buttonStart);
```

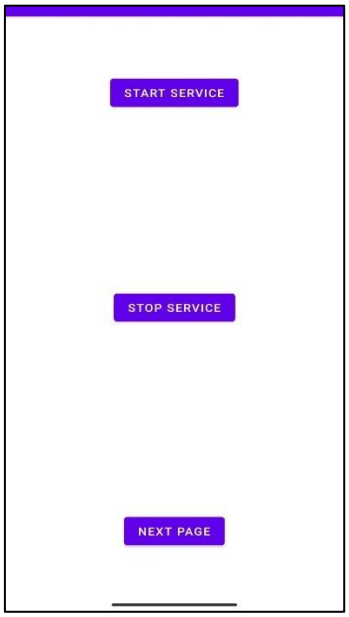
```
        buttonStop = findViewById(R.id.buttonStop);
        buttonNext =  findViewById(R.id.buttonNext);
        buttonStart.setOnClickListener(this);
        buttonStop.setOnClickListener(this);
        buttonNext.setOnClickListener(this);
        buttonNext.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View view) {
                Intent i =new
Intent(MainActivity.this,NextPage.class);
                startActivity(i);

            }
        });
    }

    public void onClick(View src) {
        switch (src.getId()) {
            case R.id.buttonStart:
              startService(new Intent(this, MyService.class));
                break;
            case R.id.buttonStop:
                stopService(new Intent(this, MyService.class));
                break;
        }
    }

}
```

MYSERVICE.JAVA

```
package com.example.pr20_1;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener{
    Button buttonStart, buttonStop,buttonNext;

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

        buttonStart = findViewById(R.id.buttonStart);
        buttonStop = findViewById(R.id.buttonStop);
        buttonNext =  findViewById(R.id.buttonNext);
        buttonStart.setOnClickListener(this);
        buttonStop.setOnClickListener(this);
        buttonNext.setOnClickListener(this);
       buttonNext.setOnClickListener(new View.OnClickListener() {

            @Override
```

```
            public void onClick(View view) {
                Intent i =new
Intent(MainActivity.this,NextPage.class);
                startActivity(i);

            }

        });

    }

    public void onClick(View src) {
        switch (src.getId()) {
            case R.id.buttonStart:
                startService(new Intent(this, MyService.class));
                break;
            case R.id.buttonStop:
                stopService(new Intent(this, MyService.class));
                break;
        }

    }

}
```

OUTPUT



Practical NO. 21 Develop a program to implement broadcast receiver.

21.1: write a program to demonstrate all the system broadcast messages.

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="BROADCAST MESSAGE"
        android:textSize="25sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

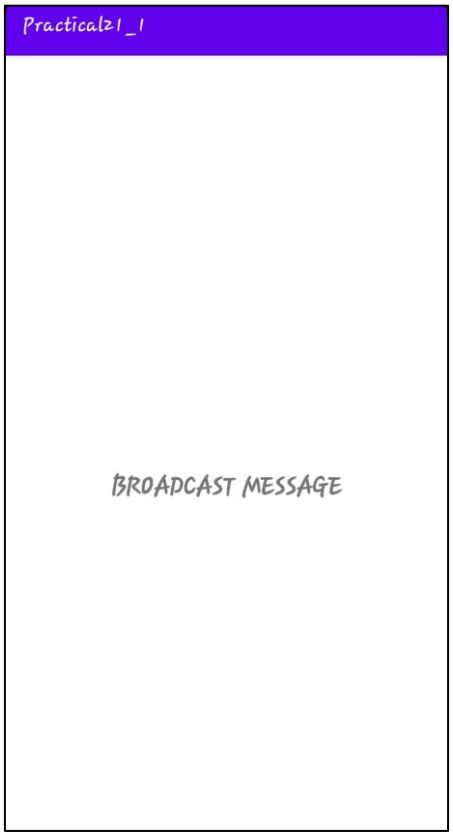
MAINACTIVITY.JAVA

```
package com.example.practical21_1;


import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

        IntentFilter intentFilter=new
IntentFilter("com.example.practical21_1");
        MyReceiver myReceiver=new MyReceiver();
        registerReceiver(myReceiver,intentFilter);
    }
}
```

MYRECEIVER.JAVA

```
package com.example.practical21_1;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.util.Log;
import android.widget.Toast;

public class MyReceiver extends BroadcastReceiver {

    @Override
    public void onReceive(Context context, Intent intent) {
        // TODO: This method is called when the BroadcastReceiver is
receiving
        // an Intent broadcast.
        Log.i("Boradcast","Broadcast Message is Received");
        Toast.makeText(context, "Broadcast Message is Received",
Toast.LENGTH_SHORT).show();
    }
}
```

OUTPUT



Practical No. 22 Develop a program to implement sensor.

22.1: Write a program to changes the background color when device is shuffled.

22.2: Write a program to display the list of sensors supported by the mobile device.

ACTIVITY_MAIN.XML

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

    <RelativeLayout
        android:id="@+id/view"
        android:layout_width="0dp"
        android:layout_height="0dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />


    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Shake to switch colors !"
        android:textSize="25sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

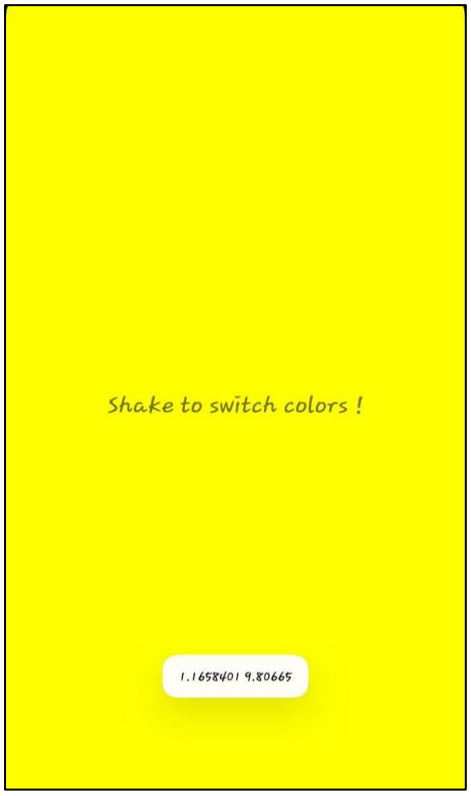
MAINACTIVITY.JAVA

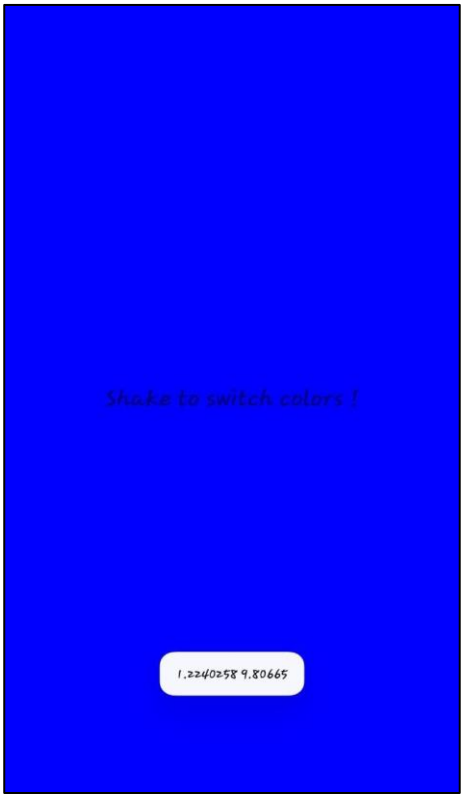
```
package com.example.practical22_1;

import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.os.Bundle;
import android.graphics.Color;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.hardware.SensorManager;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
```

```
public class MainActivity extends Activity implements SensorEventListener {
    private SensorManager sensorManager;
    private boolean isColor=false;
    private View view;
    private long lastUpdate;
    TextView textView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView = findViewById(R.id.textview);
        view = findViewById(R.id.view);
        view.setBackgroundColor(Color.YELLOW);

        sensorManager = (SensorManager) getSystemService(SENSOR_SERVICE);
        lastUpdate = System.currentTimeMillis();
    }


    @Override
    public void onSensorChanged(SensorEvent sensorEvent) {
        if (sensorEvent.sensor.getType() == Sensor.TYPE_ACCELEROMETER) {
            getAccelerometer(sensorEvent);
        }
    }
    private void getAccelerometer(SensorEvent event) {
        float[] values = event.values;
        // Movement
        float x = values[0];
        float y = values[1];
        float z = values[2];

        float accelationSquareRoot = (x * x + y * y + z * z)
                / (SensorManager.GRAVITY_EARTH *
SensorManager.GRAVITY_EARTH);

        long actualTime = System.currentTimeMillis();

Toast.makeText(getApplicationContext(),String.valueOf(accelationSquareRoot)
+" "+
                SensorManager.GRAVITY_EARTH,Toast.LENGTH_SHORT).show();

        if (accelationSquareRoot >= 2) //it will be executed if you shuffle
        {

            if (actualTime - lastUpdate < 200) {
                return;
            }
            lastUpdate = actualTime;//updating lastUpdate for next shuffle
            if (isColor) {
                view.setBackgroundColor(Color.YELLOW);

            } else {
                view.setBackgroundColor(Color.BLUE);
            }
            isColor = !isColor;
        }
    }
```

```
    @Override
    protected void onResume() {
        super.onResume();
        // register this class as a listener for the orientation and
        // accelerometer sensors

sensorManager.registerListener(this,sensorManager.getDefaultSensor(Sensor.TYPE_ACCELEROMETER),
                SensorManager.SENSOR_DELAY_NORMAL);
    }

    @Override
    protected void onPause() {
        // unregister listener
        super.onPause();
        sensorManager.unregisterListener(this);
    }

    @Override
    public void onAccuracyChanged(Sensor sensor, int i) { }

    @Override
    public void onPointerCaptureChanged(boolean hasCapture) {
        super.onPointerCaptureChanged(hasCapture);
    }
}
```

OUTPUT





Practical No. 23. Develop a program to build camera.

23.1: write a program to capture an image and display it using Image View

ACTIVITY_MAIN.XML

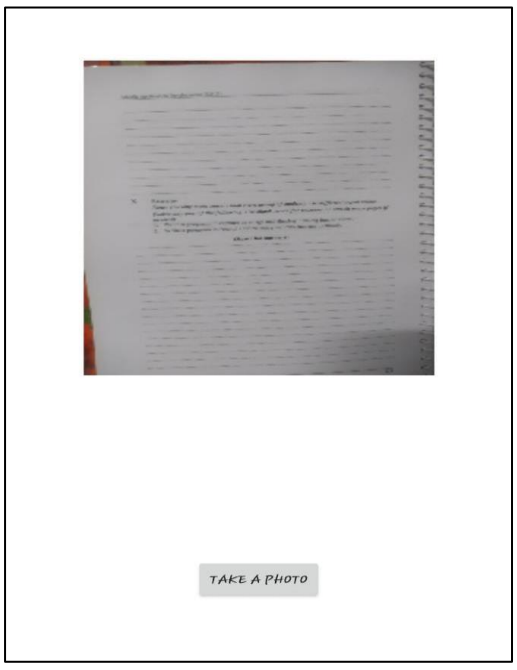
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_marginBottom="110dp"
        android:text="Take a Photo"
        android:layout_centerHorizontal="true"
        tools:ignore="MissingConstraints"></Button>

    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="272dp"
        android:layout_height="432dp"
        android:layout_above="@+id/button1"
        android:layout_alignParentTop="true"
        android:layout_marginStart="15dp"
        android:layout_marginLeft="15dp"
        android:layout_marginTop="63dp"
        android:layout_marginEnd="15dp"
        android:layout_centerHorizontal="true"
        android:layout_marginRight="15dp"
        android:layout_marginBottom="188dp"
        android:src="@mipmap/ic_launcher"
        tools:ignore="MissingConstraints"></ImageView>


</RelativeLayout>
```

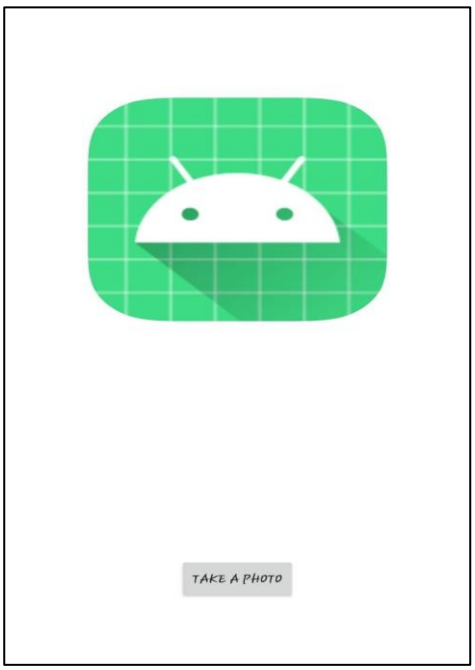
MAIN_ACTIVITY.JAVA

```
package com.example.imagecapture;

import android.app.Activity;
import android.content.Intent;
import android.graphics.Bitmap;
import android.os.Bundle;
import android.view.Menu;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends Activity {
    private static final int CAMERA_REQUEST = 1888;
```

```
    ImageView imageView;
    public void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        imageView = (ImageView) this.findViewById(R.id.imageView1);
        Button photoButton = (Button) this.findViewById(R.id.button1);

        photoButton.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                Intent cameraIntent = new
Intent(android.provider.MediaStore.ACTION_IMAGE_CAPTURE);
                startActivityForResult(cameraIntent, CAMERA_REQUEST);
            }
        });
    }

    protected void onActivityResult(int requestCode, int resultCode, Intent
data) {
        if (requestCode == CAMERA_REQUEST) {
            Bitmap photo = (Bitmap) data.getExtras().get("data");
            imageView.setImageBitmap(photo);
        }
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is
present.
        getMenuInflater().inflate(R.menu.activity_main, menu);
        return true;
    } }
```

OUTPUT





23.2: Write a program to record a video using various camera methods

ANDROID_MANIFEST.XML

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.imagecapture">
    <uses-permission android:name="android.hardware.CAMERA"
        android:required="true"/>

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Imagecapture">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

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">



<VideoView android:id="@+id/video"
android:layout_width="match_parent"
android:layout_height="530dp" android:layout_marginBottom="14dp" />

<Button android:id="@+id/video_btn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentTop="true"
android:layout_alignParentEnd="true"
android:layout_marginTop="625dp"
android:layout_marginEnd="137dp"
```

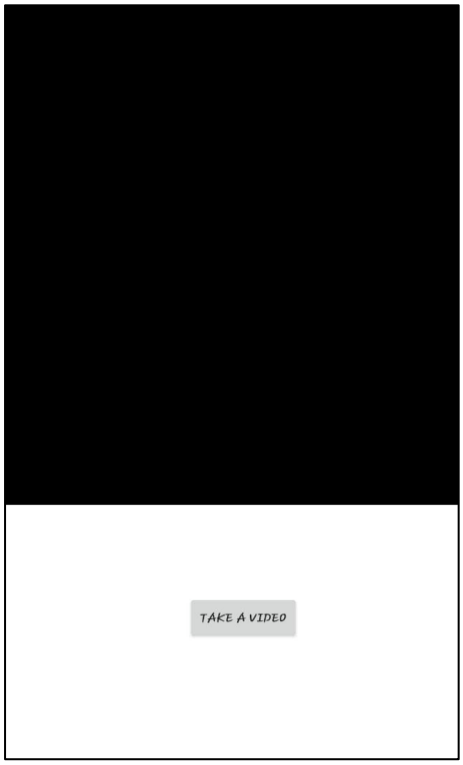
```
android:layout_marginBottom="4dp"
android:text="Take a Video"
tools:ignore="MissingConstraints"></Button>

</RelativeLayout>
```

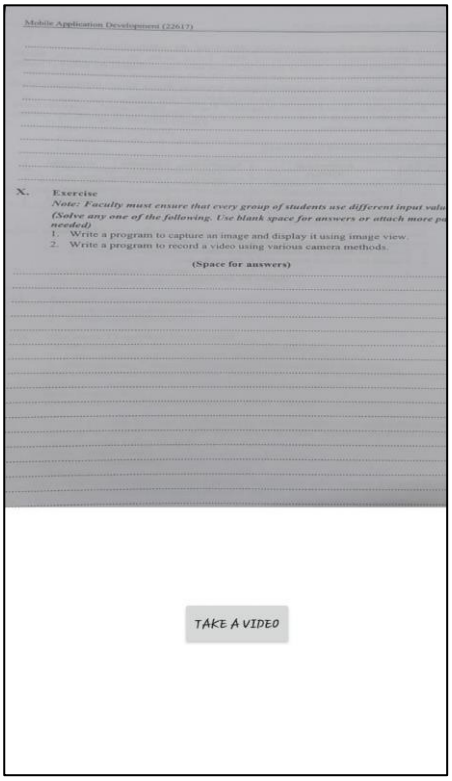
MAIN_ACTIVITY.JAVA

```
package com.example.imagecapture;

import android.app.Activity;
import android.content.Intent;
import android.graphics.Bitmap;
import android.net.Uri;
import android.os.Bundle;
import android.provider.MediaStore;
import android.view.Menu;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.VideoView;

public class MainActivity extends Activity {
private static final int CAMERA_REQUEST = 1888;
VideoView video;
Uri uri;
public void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

video = findViewById(R.id.video);
Button video_btn = (Button) this.findViewById(R.id.video_btn);
video_btn.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
Intent cameraIntent = new Intent(MediaStore.ACTION_VIDEO_CAPTURE);
startActivityForResult(cameraIntent, CAMERA_REQUEST);
            }
     });
}
protected void onActivityResult(int requestCode, int resultCode, Intent
data) {
if (requestCode == CAMERA_REQUEST) {
uri = data.getData();
video.setVideoURI(uri);
```

```
            video.start();
            }
        }
}
```

OUTPUT





Practical No. 24 Develop a program for providing Bluetooth connectivity.

24.1: Write a program to turn on, get visible, list devices and turnoff Bluetooth with the help of following GUI.

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

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_marginLeft="150dp"
        android:layout_marginTop="109dp"
        android:text="TURN_ON" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/button1"
        android:layout_alignLeft="@+id/button1"
        android:layout_marginLeft="-14dp"
        android:layout_marginTop="32dp"
        android:text="DISCOVERABLE" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/button2"
        android:layout_alignLeft="@+id/button2"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="47dp"
        android:text="TURN_OFF" />

    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_marginLeft="117dp"
        android:layout_marginTop="401dp"
        android:text="Showing Paired Devices:" />


</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.bluetooth;
import android.bluetooth.BluetoothDevice;
import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.app.Activity;
import android.bluetooth.BluetoothAdapter;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import java.util.Set;

public class MainActivity extends Activity {
    private static final int REQUEST_ENABLE_BT = 1;
    private static final int REQUEST_DISCOVERABLE_BT = 0;
    TextView textview1;
    Button button4;
    BluetoothAdapter mBluetoothAdapter;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final TextView out=(TextView)findViewById(R.id.out);
        final Button button1 = (Button) findViewById(R.id.button1);
        final Button button2 = (Button) findViewById(R.id.button2);
        final Button button3 = (Button) findViewById(R.id.button3);
        button4 = (Button) findViewById(R.id.button4);


        mBluetoothAdapter = BluetoothAdapter.getDefaultAdapter();

        button4.setOnClickListener (new View.OnClickListener () {
            @Override
            public void onClick(View view) {
                CheckBluetoothState();

            }
        });



        mBluetoothAdapter = BluetoothAdapter.getDefaultAdapter();
```

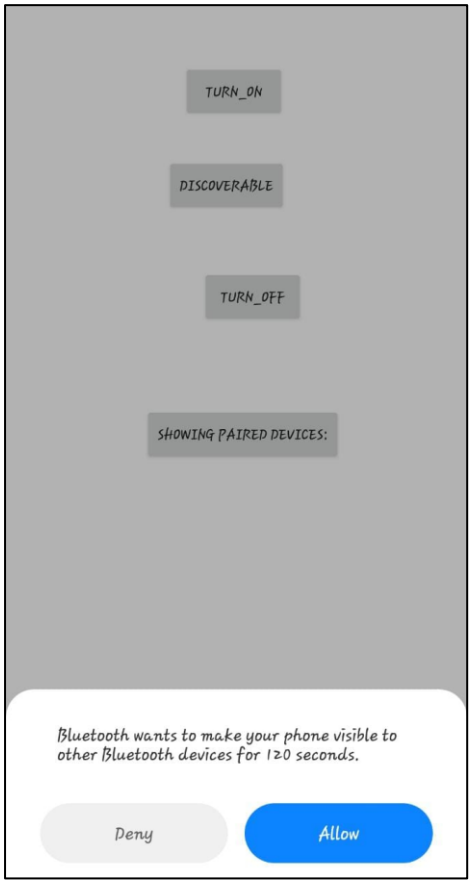
```
        if (mBluetoothAdapter == null) {
            out.append("device not supported");
        }
        button1.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                if (!mBluetoothAdapter.isEnabled()) {
                    Intent enableBtIntent = new
Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);

                    startActivityForResult(enableBtIntent,
REQUEST_ENABLE_BT);

                }
            }
        });
        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View arg0) {
                if (!mBluetoothAdapter.isDiscovering()) {
                    //out.append("MAKING YOUR DEVICE DISCOVERABLE");
                    Toast.makeText(getApplicationContext(), "MAKING YOUR
DEVICE DISCOVERABLE",
                            Toast.LENGTH_LONG);

                    Intent enableBtIntent = new
Intent(BluetoothAdapter.ACTION_REQUEST_DISCOVERABLE);
                    startActivityForResult(enableBtIntent,
REQUEST_DISCOVERABLE_BT);

                }
                else{
                    Toast.makeText (getApplicationContext (),"Error in
Discovering ",Toast.LENGTH_LONG).show ();
                }

            }
        });
        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View arg0) {
                mBluetoothAdapter.disable();
                //out.append("TURN_OFF BLUETOOTH");
                Toast.makeText(getApplicationContext(), "TURNING_OFF
BLUETOOTH", Toast.LENGTH_LONG);

            }
        });
    }



    @Override
    protected void onDestroy() {
        super.onDestroy();
    }


    private void CheckBluetoothState() {

        Toast.makeText (this, " hiii ", Toast.LENGTH_SHORT).show ();
```

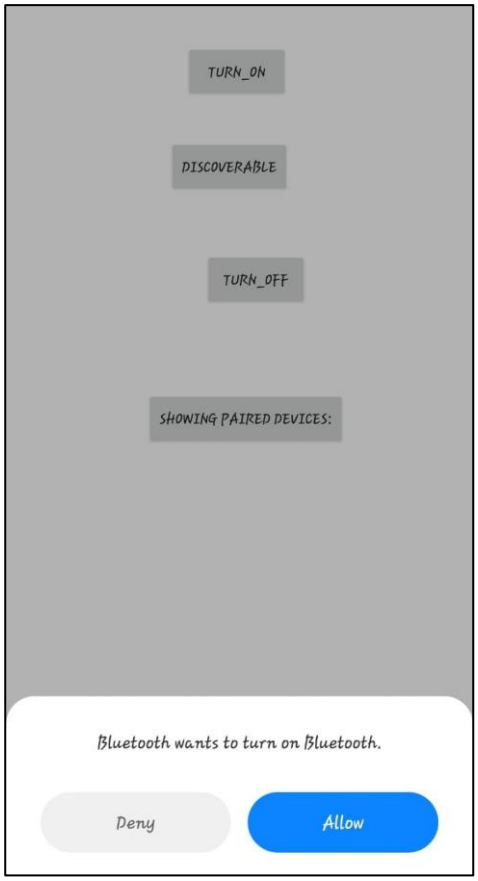
```
                Set<BluetoothDevice> devices =
mBluetoothAdapter.getBondedDevices();
                for (BluetoothDevice device : devices) {
                    button4.setText ("\n  Device: " + device.getName() + ",
" + device);
                }
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is
present.
        getMenuInflater().inflate(R.menu.activity_main, menu);
        return true;
    }

}
```

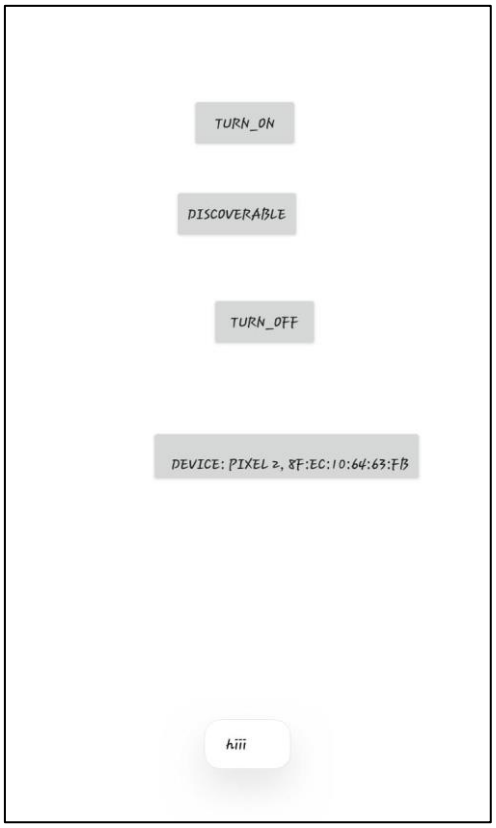
ANDROIDMANIFEST.XML

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.bluetooth"
    android:versionCode="1"
    android:versionName="1.0">

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="16" />

    <uses-permission android:name="android.permission.BLUETOOTH" />
    <uses-permission android:name="android.permission.BLUETOOTH_ADMIN" />
    <uses-permission android:name="android.permission.BLUETOOTH_SCAN" />

    <uses-permission android:name="android.permission.BLUETOOTH_ADVERTISE"
/>
    <uses-permission android:name="android.permission.BLUETOOTH_ADVERTISE"
/>
    <uses-permission android:name="android.permission.BLUETOOTH_CONNECT" />
    <uses-permission android:name="android.permission.BLUETOOTH_CONNECT" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Bluetooth">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

OUTPUT


TURN_ON
DISCOVERABLE
TURN_OFF
SHOWING PAIRED DEVICES:
Bluetooth wants to make your phone visible to other Bluetooth devices for 120 seconds.
Deny
Allow


TURN_ON
DISCOVERABLE
TURN_OFF
SHOWING PAIRED DEVICES:
Bluetooth wants to turn on Bluetooth.
Deny
Allow


TURN_ON
DISCOVERABLE
TURN_OFF
DEVICE: PIXEL 2, 8F:EC:10:64:63:FB
hiii

Practical No. 25 Develop a program for animation.

25.1: Write a program to rotate the image in clockwise/anticlockwise, Zoom IN/Zoom OUT, Fade IN/Fade OUT by using the following GUI.

ACTIVITY_MAIN.XML

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

    <RelativeLayout
        android:id="@+id/relativeLayout"
        android:layout_width="0dp"
        android:layout_height="0dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <ImageView
            android:id="@+id/img"
            android:layout_width="200dp"
            android:layout_height="200dp"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="150dp"
            android:layout_marginBottom="100dp"
            android:src="@drawable/nupur" />

        <Button
            android:id="@+id/b1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/img"
            android:layout_centerHorizontal="true"
            android:layout_marginStart="100dp"
            android:text="ZOOM In" />


        <Button
            android:id="@+id/b2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/b1"
            android:layout_centerHorizontal="true"
            android:layout_marginStart="100dp"
            android:text="ZOOM OUT" />


        <Button
            android:id="@+id/b3"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```
            android:layout_below="@+id/b2"
            android:layout_centerHorizontal="true"
            android:layout_marginStart="100dp"
            android:text="FADE In" />

        <Button
            android:id="@+id/b4"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/b3"
            android:layout_centerHorizontal="true"
            android:layout_marginStart="100dp"
            android:text="FADE OUT" />

        <Button
            android:id="@+id/b5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@+id/b4"
            android:layout_marginStart="100dp"
            android:layout_centerHorizontal="true"
            android:text="ROTATE" />

    </RelativeLayout>


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

ZOOM_IN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true">
        <scale
            xmlns:android="http://schemas.android.com/apk/res/android"
                android:duration="1000"
                android:fromXScale="1"
                android:toXScale="2"
                android:fromYScale="1"
                android:toYScale="2"
                android:pivotX="50%"
                android:pivotY="50%" />
</set>
```

ZOOM_OUT.XML

```
 <?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true">
        <scale
            xmlns:android="http://schemas.android.com/apk/res/android"
            android:duration="1000"
            android:fromXScale="1.0"
            android:toXScale="0.5"
            android:fromYScale="1.0"
            android:toYScale="0.5"
            android:pivotX="50%"
            android:pivotY="50%" />

</set>
```

FADE_IN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true">
    <alpha
        android:duration="800"
        android:fromAlpha="0"
        android:toAlpha="1"
        android:interpolator="@android:anim/accelerate_interpolator"/>

</set>
```

FADE_OUT.XML

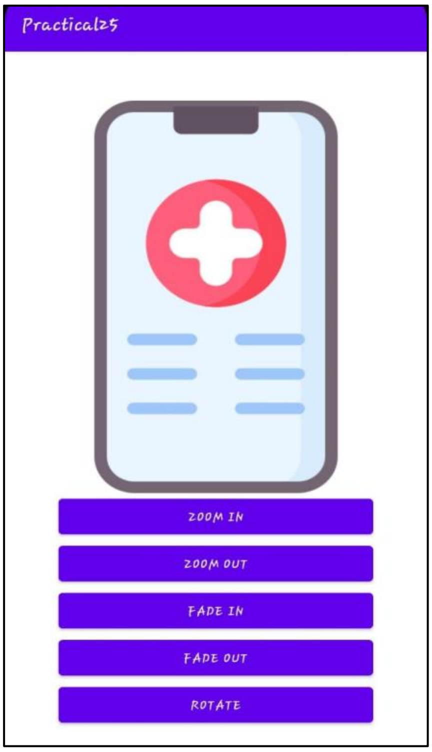
```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true">
    <alpha
        android:duration="800"
        android:fromAlpha="1"
        android:interpolator="@android:anim/accelerate_interpolator"
        android:toAlpha="0"/>

</set>
```

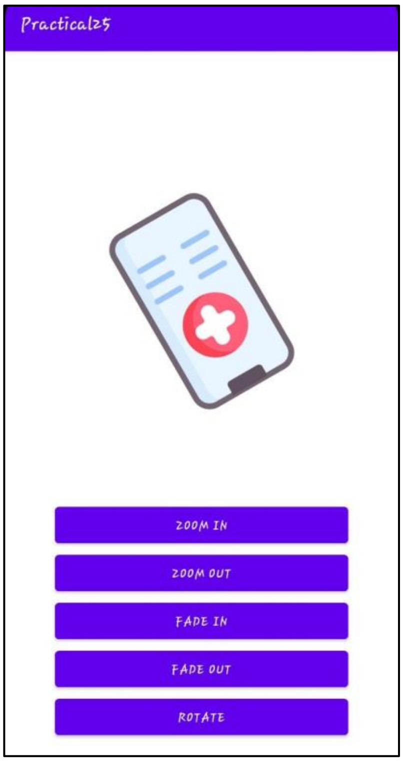
MAINACTIVITY.JAVA

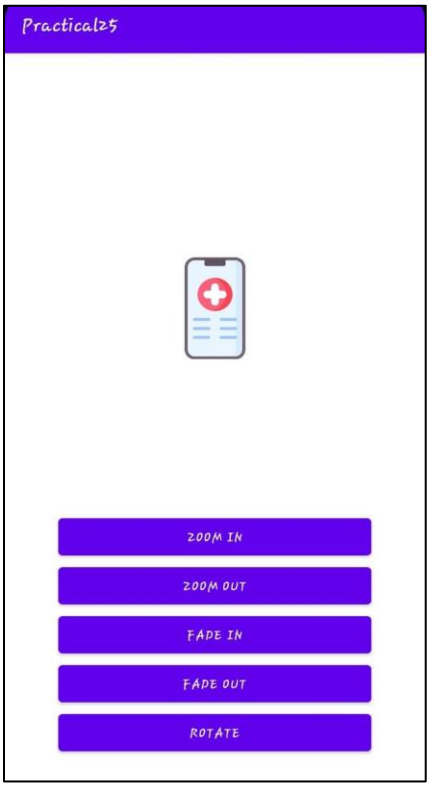
```
package com.example.practical25;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

//    Animation zoom_in, zoom_out;
    ImageView demoImage;
    Button b1, b2, b3, b4;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        demoImage = findViewById(R.id.img);

        findViewById(R.id.b1).setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {

demoImage.startAnimation(AnimationUtils.loadAnimation(getApplicationContext
(), R.anim.zoom_in));
            }
```

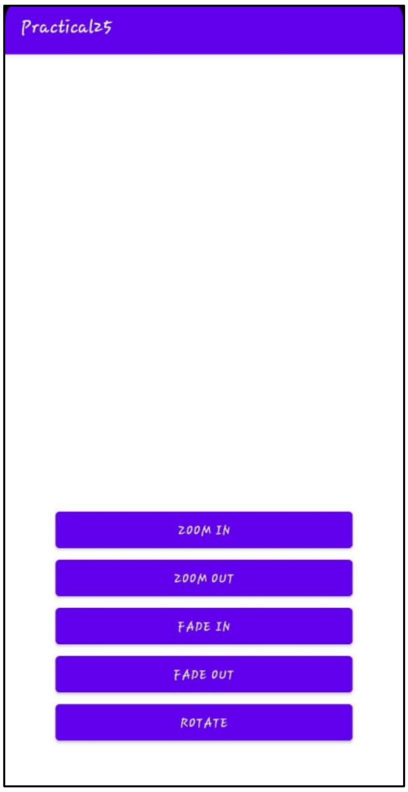
```
        });

        findViewById(R.id.b2).setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {

demoImage.startAnimation(AnimationUtils.loadAnimation(getApplicationContext
(), R.anim.zoom_out));
            }
        });

        findViewById(R.id.b3).setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {

demoImage.startAnimation(AnimationUtils.loadAnimation(getApplicationContext
(), R.anim.fade_in));
            }
        });

        findViewById(R.id.b4).setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {

demoImage.startAnimation(AnimationUtils.loadAnimation(getApplicationContext
(), R.anim.fade_out));
            }
        });

        findViewById(R.id.b5).setOnClickListener(new View.OnClickListener()
{
            @Override
            public void onClick(View view) {

demoImage.startAnimation(AnimationUtils.loadAnimation(getApplicationContext
(), R.anim.rotate));
            }
        });
    }
}
```

OUTPUT


Practical25
ZOOM IN
ZOOM OUT
FADE IN
FADE OUT
ROTATE


Practical25
ZOOM IN
ZOOM OUT
FADE IN
FADE OUT
ROTATE


Practical25
ZOOM IN
ZOOM OUT
FADE IN
FADE OUT
ROTATE


Practical25
ZOOM IN
ZOOM OUT
FADE IN
FADE OUT
ROTATE

Practical NO. 26 Perform Async task using SQLite.

26.1: Write a program to insert data in SQLite database using AsyncTask.

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/text"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="20dp"
        android:layout_marginBottom="20dp"
        android:gravity="center"
        android:text="SQL LITE"
        android:textSize="30dp"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/Name"
        android:layout_width="264dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/text"
        android:layout_alignStart="@+id/text"
        android:layout_alignEnd="@+id/text"
        android:layout_marginStart="47dp"
        android:layout_marginTop="39dp"
        android:layout_marginEnd="60dp"
        android:ems="10"
        android:hint="Name"

        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/Phone_NO"
        android:layout_width="264dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/text"
        android:layout_alignStart="@+id/text"
        android:layout_alignEnd="@+id/text"
        android:layout_marginStart="51dp"
        android:layout_marginTop="185dp"
        android:layout_marginEnd="56dp"
        android:ems="10"
        android:hint="Phone No"
        android:inputType="textPersonName" />

    <EditText
        android:id="@+id/Dob"
        android:layout_width="264dp"
```

```
        android:layout_height="wrap_content"
        android:layout_below="@+id/text"
        android:layout_alignStart="@+id/text"
        android:layout_alignEnd="@+id/text"
        android:layout_marginStart="49dp"
        android:layout_marginTop="112dp"
        android:layout_marginEnd="58dp"
        android:ems="10"
        android:hint="Phone No"
        android:inputType="textPersonName" />

    <Button
        android:id="@+id/Insert"
        android:layout_width="129dp"
        android:layout_height="54dp"
        android:layout_below="@+id/Phone_NO"
        android:layout_alignStart="@+id/Phone_NO"
        android:layout_alignEnd="@+id/Phone_NO"
        android:layout_marginStart="-16dp"
        android:layout_marginTop="53dp"
        android:layout_marginEnd="151dp"
        android:text="Insert" />

    <Button
        android:id="@+id/Update"
        android:layout_width="114dp"
        android:layout_height="54dp"
        android:layout_below="@+id/Phone_NO"
        android:layout_alignStart="@+id/Insert"
        android:layout_alignEnd="@+id/Insert"
        android:layout_marginStart="153dp"
        android:layout_marginTop="48dp"
        android:layout_marginEnd="-138dp"
        android:text="Update" />

    <Button
        android:id="@+id/Delete"
        android:layout_width="117dp"
        android:layout_height="61dp"
        android:layout_below="@+id/Insert"
        android:layout_alignStart="@+id/Update"
        android:layout_alignEnd="@+id/Update"
        android:layout_marginStart="-150dp"
        android:layout_marginTop="23dp"
        android:layout_marginEnd="146dp"
        android:text="Delete" />

    <Button
        android:id="@+id/View"
        android:layout_width="115dp"
        android:layout_height="62dp"
        android:layout_below="@+id/Update"
        android:layout_alignStart="@+id/Update"
        android:layout_alignEnd="@+id/Update"
        android:layout_marginStart="-3dp"
        android:layout_marginTop="27dp"
        android:layout_marginEnd="1dp"
        android:text="View" />


</RelativeLayout>
```

MAINACTIVITY.JAVA

```
package com.example.sqllite;

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

import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText Name,Phone_NO,Dob;
    Button Insert,Update,Delete,View;
    DBHelper DB;

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

        Name =findViewById(R.id.Name);
        Phone_NO =findViewById(R.id.Phone_NO);
        Dob =findViewById(R.id.Dob);

        Insert =findViewById(R.id.Insert);
        Update =findViewById(R.id.Update);
        Delete =findViewById(R.id.Delete);
        View =findViewById(R.id.View);
        DB = new DBHelper(this);

        Insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(android.view.View view) {
                String nameget = Name.getText().toString();
                String Phone_NOget = Phone_NO.getText().toString();
                String Dobget = Dob.getText().toString();

                Boolean checkInsertdata =
DB.insetStudentData(nameget,Dobget,Phone_NOget);
                if (checkInsertdata==true){
                    Toast.makeText(MainActivity.this, "New Entry Inserted",
Toast.LENGTH_SHORT).show();

                }else {
                    Toast.makeText(MainActivity.this, "New Entry NOT
Inserted", Toast.LENGTH_SHORT).show();

                }
            }
        });

        Update.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(android.view.View view) {
                String nameget = Name.getText().toString();
                String Phone_NOget = Phone_NO.getText().toString();
```

```
                String Dobget = Dob.getText().toString();

                Boolean checkUpdatedata =
DB.updateStudentData(nameget,Dobget,Phone_NOget);
                if (checkUpdatedata==true){
                    Toast.makeText(MainActivity.this, "Entry  not Updated",
Toast.LENGTH_SHORT).show();

                }else {
                    Toast.makeText(MainActivity.this, " Entry Updated",
Toast.LENGTH_SHORT).show();

                }
            }
        });

        Delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(android.view.View view) {
                String nameget = Name.getText().toString();

                Boolean checkDeletedata = DB.deleteStudentData(nameget);
                if (checkDeletedata==true){
                    Toast.makeText(MainActivity.this, "Entry  not Deleted",
Toast.LENGTH_SHORT).show();

                }else {
                    Toast.makeText(MainActivity.this, " Entry  Deleted",
Toast.LENGTH_SHORT).show();

                }
            }
        });

        View.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(android.view.View view) {
                Cursor res = DB.getStudentData();
                if (res.getCount()==0){
                    Toast.makeText(MainActivity.this, "No Entry Exists",
Toast.LENGTH_SHORT).show();
                    return;
                }
                StringBuffer buffer = new StringBuffer();
                while (res.moveToNext()){
                    buffer.append("Name : "+res.getString(0)+"\n");
                    buffer.append("Phone_NO : "+res.getString(1)+"\n");
                    buffer.append("Dob : "+res.getString(2)+"\n");
                }
                AlertDialog.Builder builder = new
AlertDialog.Builder(MainActivity.this);
                builder.setCancelable(true);
                builder.setTitle("Student Entries");
                builder.setMessage(buffer.toString());
                builder.show();
```

```
                }
        });

    }
}
```

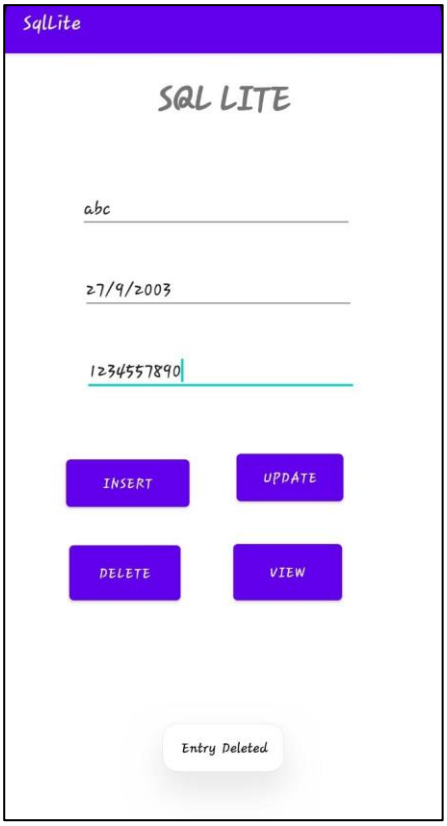
DBHELPER.JAVA

```
package com.example.sqllite;

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

import androidx.annotation.Nullable;

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

    @Override
    public void onCreate(SQLiteDatabase DB) {
        DB.execSQL("create Table StudentDeatils(Name Text primary
Key,Phone_NO TEXT,Dob TEXT)");

    }

    @Override
    public void onUpgrade(SQLiteDatabase DB, int i, int i1) {
        DB.execSQL("drop Table if exists StudentDeatils");

    }
    public Boolean insetStudentData (String Name,String Phone_NO,String
Dob)
    {
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues contentValues= new ContentValues();
        contentValues.put("Name",Name);
        contentValues.put("Dob",Dob);
        contentValues.put("Phone_NO",Phone_NO);
        long result=DB.insert("StudentDeatils",null,contentValues);
        if (result==1){
            return false;
        }else {
            return true;
        }
    }

    public Boolean updateStudentData (String Name,String Phone_NO,String
Dob)
    {
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues contentValues= new ContentValues();
        contentValues.put("Dob",Dob);
        contentValues.put("Phone_NO",Phone_NO);
```

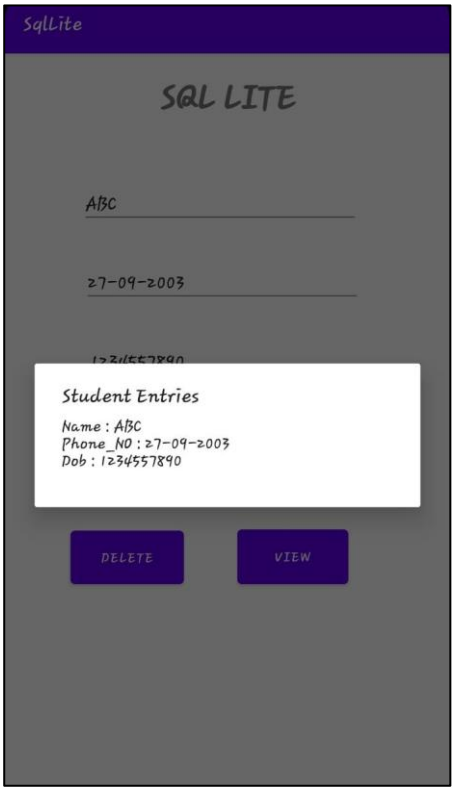
```
        Cursor cursor =DB.rawQuery("Select * from StudentDeatils where Name
=?",new String[]{Name});
        if (cursor.getCount()>0) {

            long result = DB.update("StudentDeatils", contentValues,
"Name=?", new String[]{Name});
            if (result == 1) {
                return false;
            } else {
                return true;
            }
        }else {
            return false;
        }
    }


    public Boolean deleteStudentData (String Name)
    {
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor =DB.rawQuery("Select * from StudentDeatils where Name
=?",new String[]{Name});
        if (cursor.getCount()>0) {

            long result = DB.delete("StudentDeatils", "Name=?", new
String[]{Name});
            if (result == 1) {
                return false;
            } else {
                return true;
            }
        }else {
            return false;
        }
    }


    public Cursor getStudentData ()
    {
        SQLiteDatabase DB = this.getWritableDatabase();
        Cursor cursor =DB.rawQuery("Select * from StudentDeatils ",null);
        return cursor;
    }
}
```

OUTPUT


SqlLite
SQL LITE
abc
27/9/2003
1234557890
INSERT
UPDATE
DELETE
VIEW
New Entry NOT Inserted


SqlLite
SQL LITE
abc
27/9/2003
1234557890
INSERT
UPDATE
DELETE
VIEW
Entry Deleted


SqlLite
SQL LITE
abc
27/9/2003
1234557890
INSERT
UPDATE
DELETE
VIEW
Entry Updated


SqlLite
SQL LITE
ABC
27-09-2003
Student Entries
Name : ABC
Phone_NO : 27-09-2003
Dob : 1234557890
DELETE
VIEW

Practical No. 27 Create sample application with login module. (Check username and password) On successful login, Change Text view ''Login Successful''. And login fail, alert using Toast ''Login fail''.

27.1: Write a program to create the login form and display login successful/ Unsuccessful toast message.

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/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".ui.login.LoginActivity">

    <EditText
        android:id="@+id/username"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="96dp"
        android:hint="@string/prompt_email"
        android:inputType="textEmailAddress"
        android:selectAllOnFocus="true"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/password"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:hint="@string/prompt_password"
        android:imeActionLabel="@string/action_sign_in_short"
        android:imeOptions="actionDone"
        android:inputType="textPassword"
        android:selectAllOnFocus="true"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/username" />

    <Button
        android:id="@+id/login"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="start"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="64dp"
        android:enabled="false"
        android:text="@string/action_sign_in"
        app:layout_constraintBottom_toBottomOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/password"
        app:layout_constraintVertical_bias="0.2" />

    <ProgressBar
        android:id="@+id/loading"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="64dp"
        android:layout_marginBottom="64dp"
        android:visibility="gone"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/password"
        app:layout_constraintStart_toStartOf="@+id/password"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.3" />

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

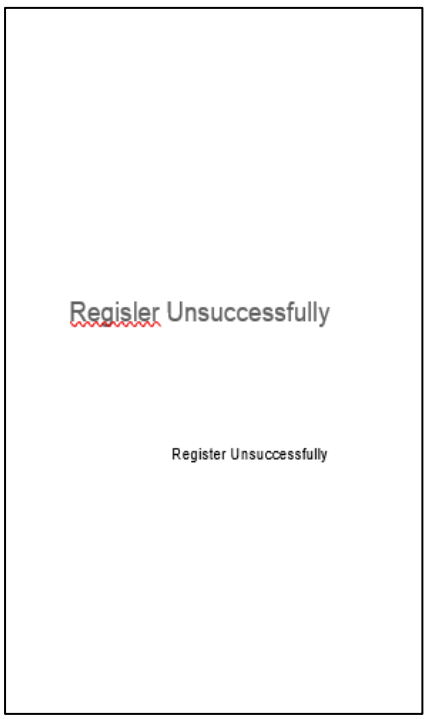
LOGINVIEWMODEL.JAVA

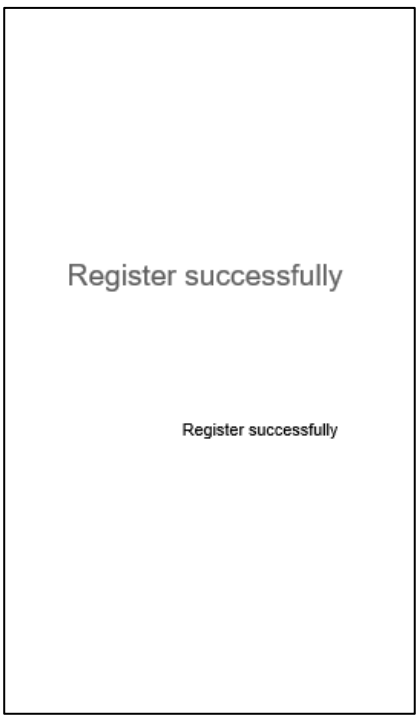
```
package com.example.practical27_1.ui.login;

import android.app.Activity;
import androidx.lifecycle.Observer;
import androidx.lifecycle.ViewModelProvider;
import android.graphics.Color;
import android.os.Bundle;
import androidx.annotation.Nullable;
import androidx.annotation.StringRes;
import androidx.appcompat.app.AppCompatActivity;
import android.text.Editable;
import android.text.TextWatcher;
import android.view.KeyEvent;
import android.view.View;
import android.view.inputmethod.EditorInfo;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.TextView;
import android.widget.Toast;
import com.example.pr28.R;
import com.example.pr28.ui.login.LoginViewModel;
import com.example.pr28.ui.login.LoginViewModelFactory;
import com.example.pr28.databinding.ActivityLoginBinding;

public class LoginActivity extends AppCompatActivity {

    private LoginViewModel loginViewModel;
private ActivityLoginBinding binding; TextView tx1;
    int counter = 3; @Override
    public void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);

        binding = ActivityLoginBinding.inflate(getLayoutInflater());
setContentView(binding.getRoot());

        loginViewModel = new ViewModelProvider(this, new
```

```
LoginViewModelFactory())
                .get(LoginViewModel.class);
        final EditText usernameEditText = binding.username; final EditText
passwordEditText = binding.password;

        final Button loginButton = binding.login;
        final ProgressBar loadingProgressBar = binding.loading; tx1 =
(TextView)findViewById(R.id.textView3);

        loginViewModel.getLoginFormState().observe(this, new
Observer<LoginFormState>() { @Override
        public void onChanged(@Nullable LoginFormState loginFormState) { if
(loginFormState == null) {
            return;
        }
            loginButton.setEnabled(loginFormState.isDataValid()); if
(loginFormState.getUsernameError() != null) {

usernameEditText.setError(getString(loginFormState.getUsernameError()));
            }
            if (loginFormState.getPasswordError() != null) {
passwordEditText.setError(getString(loginFormState.getPasswordError()));
            }
        }
        });

        loginViewModel.getLoginResult().observe(this, new
Observer<LoginResult>() { @Override
        public void onChanged(@Nullable LoginResult loginResult) { if
(loginResult == null) {
            return;
        }
            loadingProgressBar.setVisibility(View.GONE); if
(loginResult.getError() != null) {
                showLoginFailed(loginResult.getError());
            }
            if (loginResult.getSuccess() != null) {
updateUiWithUser(loginResult.getSuccess());
            }
            setResult(Activity.RESULT_OK);

        }
        });

        TextWatcher afterTextChangedListener = new TextWatcher() {
@Override
        public void beforeTextChanged(CharSequence s, int start, int count,
int after) {
        }

            @Override
            public void onTextChanged(CharSequence s, int start, int
before, int count) {
            }

            @Override
            public void afterTextChanged(Editable s) {
loginViewModel.loginDataChanged(usernameEditText.getText().toString(),
                    passwordEditText.getText().toString());
            }
        };
```

```
        usernameEditText.addTextChangedListener(afterTextChangedListener);
passwordEditText.addTextChangedListener(afterTextChangedListener);
passwordEditText.setOnEditorActionListener(new
TextView.OnEditorActionListener() {

            @Override
            public boolean onEditorAction(TextView v, int actionId,
KeyEvent event) { if (actionId == EditorInfo.IME_ACTION_DONE) {
                loginViewModel.login(usernameEditText.getText().toString(),
passwordEditText.getText().toString());
            }
                return false;
            }
        });

        loginButton.setOnClickListener(new View.OnClickListener() {
@Override
        public void onClick(View v) {

            if(usernameEditText.getText().toString().equals("mmpoly") &&
passwordEditText.getText().toString().equals("123456789")) {
                Toast.makeText(getApplicationContext(), "Register
successfully", Toast.LENGTH_SHORT).show();
                tx1.setText("Register successfully");
            }else{
                Toast.makeText(getApplicationContext(), "Register
Unsuccessfully",Toast.LENGTH_SHORT).show();
                tx1.setText("Register Unsuccessfully");

            }
```

OUTPUT





Practical No. 28 Create login application where you will have to validate username and password till the username and password is not validated, login button should remain disabled.

28.1: Write a program to create the login form with necessary validations like length of username and password, empty text fields, count of unsuccessful login attempts. Display the login successful/Unsuccessful toast message.

ACTIVITY_LOGIN.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/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".ui.login.LoginActivity">

    <EditText
        android:id="@+id/username"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="96dp"
        android:hint="@string/prompt_email"
        android:inputType="textEmailAddress"
        android:selectAllOnFocus="true"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/password"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:hint="@string/prompt_password"
        android:imeActionLabel="@string/action_sign_in_short"
        android:imeOptions="actionDone"
        android:inputType="textPassword"
        android:selectAllOnFocus="true"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/username" />


    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
```

```
        android:layout_alignParentLeft="true"
        android:layout_marginStart="16dp"
        android:layout_marginTop="103dp"
        android:text="Attempts Left:"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/login"
        app:layout_constraintVertical_bias="0.0" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_marginStart="52dp"
        android:layout_marginTop="100dp"
        android:text="New Text"
        android:textSize="25dp"
        app:layout_constraintStart_toEndOf="@+id/textView2"
        app:layout_constraintTop_toBottomOf="@+id/login" />

    <Button
        android:id="@+id/login"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="start"
        android:layout_marginTop="16dp"
        android:layout_marginBottom="64dp"
        android:enabled="false"
        android:text="@string/action_sign_in"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/password"
        app:layout_constraintVertical_bias="0.2" />

    <ProgressBar
        android:id="@+id/loading"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="64dp"
        android:layout_marginBottom="64dp"
        android:visibility="gone"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/password"
        app:layout_constraintStart_toStartOf="@+id/password"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.3" />


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

LOGINACTIVITY.JAVA

```
package com.example.pr28.ui.login;
import android.app.Activity;
import androidx.lifecycle.Observer;
import androidx.lifecycle.ViewModelProvider;
import android.graphics.Color;
import android.os.Bundle;
import androidx.annotation.Nullable;
import androidx.annotation.StringRes;
import androidx.appcompat.app.AppCompatActivity;
import android.text.Editable;
import android.text.TextWatcher;
import android.view.KeyEvent;
import android.view.View;
import android.view.inputmethod.EditorInfo;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.TextView;
import android.widget.Toast;
import com.example.pr28.R;
import com.example.pr28.ui.login.LoginViewModel;
import com.example.pr28.ui.login.LoginViewModelFactory;
import com.example.pr28.databinding.ActivityLoginBinding;

public class LoginActivity extends AppCompatActivity {

    private LoginViewModel loginViewModel;
    private ActivityLoginBinding binding;
    TextView tx1;
    int counter = 3;



    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        binding = ActivityLoginBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());

        loginViewModel = new ViewModelProvider(this, new
LoginViewModelFactory())
                .get(LoginViewModel.class);

        final EditText usernameEditText = binding.username;
        final EditText passwordEditText = binding.password;
        final Button loginButton = binding.login;
        final ProgressBar loadingProgressBar = binding.loading;
        tx1 = (TextView)findViewById(R.id.textView3);

        loginViewModel.getLoginFormState().observe(this, new
Observer<LoginFormState>() {
            @Override
            public void onChanged(@Nullable LoginFormState loginFormState)
{
                if (loginFormState == null) {
                    return;
                }
                loginButton.setEnabled(loginFormState.isDataValid());
```

```
                if (loginFormState.getUsernameError() != null) {
usernameEditText.setError(getString(loginFormState.getUsernameError()));
                }
                if (loginFormState.getPasswordError() != null) {
passwordEditText.setError(getString(loginFormState.getPasswordError()));
                }
            }
        });

        loginViewModel.getLoginResult().observe(this, new
Observer<LoginResult>() {
            @Override
            public void onChanged(@Nullable LoginResult loginResult) {
                if (loginResult == null) {
                    return;
                }
                loadingProgressBar.setVisibility(View.GONE);
                if (loginResult.getError() != null) {
                    showLoginFailed(loginResult.getError());
                }
                if (loginResult.getSuccess() != null) {
                    updateUiWithUser(loginResult.getSuccess());
                }
                setResult(Activity.RESULT_OK);

                //Complete and destroy login activity once successful
                finish();
            }
        });

        TextWatcher afterTextChangedListener = new TextWatcher() {
            @Override
            public void beforeTextChanged(CharSequence s, int start, int
count, int after) {
                // ignore
            }

            @Override
            public void onTextChanged(CharSequence s, int start, int
before, int count) {
                // ignore
            }

            @Override
            public void afterTextChanged(Editable s) {

loginViewModel.loginDataChanged(usernameEditText.getText().toString(),
                        passwordEditText.getText().toString());
            }
        };
        usernameEditText.addTextChangedListener(afterTextChangedListener);
        passwordEditText.addTextChangedListener(afterTextChangedListener);
        passwordEditText.setOnEditorActionListener(new
TextView.OnEditorActionListener() {

            @Override
            public boolean onEditorAction(TextView v, int actionId,
KeyEvent event) {
                if (actionId == EditorInfo.IME_ACTION_DONE) {
```

```
loginViewModel.login(usernameEditText.getText().toString(),
                            passwordEditText.getText().toString());
                }
                return false;
            }
        });

        loginButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

                if(usernameEditText.getText().toString().equals("sakshi")
&&

passwordEditText.getText().toString().equals("123456789")) {
                    Toast.makeText(getApplicationContext(), "Register
successfully", Toast.LENGTH_SHORT).show();
                }else{
                    Toast.makeText(getApplicationContext(), "Wrong
Credentials",Toast.LENGTH_SHORT).show();

                    tx1.setVisibility(View.VISIBLE);
                    tx1.setBackgroundColor(Color.RED);
                    counter--;
                    tx1.setText(Integer.toString(counter));
                    if (counter == 0) {
                        loginButton.setEnabled(false);
                    }
                }

            }
        });
    }

    private void updateUiWithUser(LoggedInUserView model) {
        String welcome = getString(R.string.welcome) +
model.getDisplayName();
        // TODO : initiate successful logged in experience
        Toast.makeText(getApplicationContext(), welcome,
Toast.LENGTH_LONG).show();
    }

    private void showLoginFailed(@StringRes Integer errorString) {
        Toast.makeText(getApplicationContext(), errorString,
Toast.LENGTH_SHORT).show();
    }
}
```

LOGINDATASOURCE.JAVA

```
package com.example.pr28.data;
import com.example.pr28.data.model.LoggedInUser;
import java.io.IOException;

public class LoginDataSource {

    public Result<LoggedInUser> login(String username, String password) {

        try {
```

```
            // TODO: handle loggedInUser authentication
            LoggedInUser fakeUser =
                    new LoggedInUser(
                            java.util.UUID.randomUUID().toString(),
                            "Jane Doe");
            return new Result.Success<>(fakeUser);
        } catch (Exception e) {
            return new Result.Error(new IOException("Error logging in",
e));
        }
    }

    public void logout() {
        // TODO: revoke authentication
    }
}
```

LOGINREPOSITORY.JAVA

```
package com.example.pr28.data;

import com.example.pr28.data.model.LoggedInUser;

public class LoginRepository {

    private static volatile LoginRepository instance;

    private LoginDataSource dataSource;

    // If user credentials will be cached in local storage, it is
recommended it be encrypted
    // @see https://developer.android.com/training/articles/keystore
    private LoggedInUser user = null;

    // private constructor : singleton access
    private LoginRepository(LoginDataSource dataSource) {
        this.dataSource = dataSource;
    }

    public static LoginRepository getInstance(LoginDataSource dataSource) {
        if (instance == null) {
            instance = new LoginRepository(dataSource);
        }
        return instance;
    }

    public boolean isLoggedIn() {
        return user != null;
    }

    public void logout() {
        user = null;
        dataSource.logout();
    }

    private void setLoggedInUser(LoggedInUser user) {
        this.user = user;
        // If user credentials will be cached in local storage, it is
```

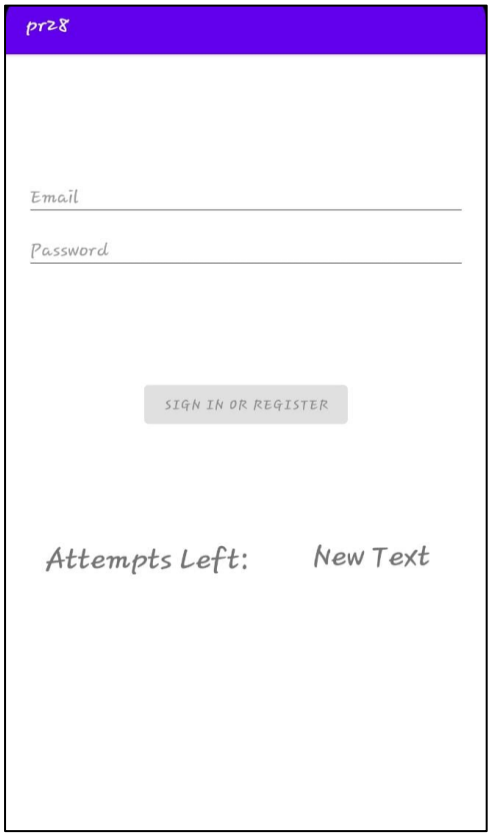
```
recommended it be encrypted
        // @see https://developer.android.com/training/articles/keystore
    }

    public Result<LoggedInUser> login(String username, String password) {
        // handle login
        Result<LoggedInUser> result = dataSource.login(username, password);
        if (result instanceof Result.Success) {
            setLoggedInUser(((Result.Success<LoggedInUser>)
result).getData());
        }
        return result;
    }
}
```

RESULT.JAVA

```
package com.example.pr28.data;

/**
 * A generic class that holds a result success w/ data or an error
exception.
 */
public class Result<T> {
    // hide the private constructor to limit subclass types (Success,
Error)
    private Result() {
    }

    @Override
    public String toString() {
        if (this instanceof Result.Success) {
            Result.Success success = (Result.Success) this;
            return "Success[data=" + success.getData().toString() + "]";
        } else if (this instanceof Result.Error) {
            Result.Error error = (Result.Error) this;
            return "Error[exception=" + error.getError().toString() + "]";
        }
        return "";
    }

    // Success sub-class
    public final static class Success<T> extends Result {
        private T data;

        public Success(T data) {
            this.data = data;
        }

        public T getData() {
            return this.data;
        }
    }

    // Error sub-class
    public final static class Error extends Result {
        private Exception error;

        public Error(Exception error) {
            this.error = error;
```

```
        }

        public Exception getError() {
            return this.error;
        }
    }
}
```

OUTPUT



Practical No. 29 Develop a program to: a) Send SMS b) Receive SMS Develop a program to send and receive e-mail.

29.1: Write a program to send and receive SMS, make use of following GUI

ACTIVITY_MAIN.XML

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

    <TextView
        android:id="@+id/fstTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="150dp"
        android:text="Mobile No" />

    <EditText
        android:id="@+id/mblTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10" />

    <TextView
        android:id="@+id/secTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Message"
        android:layout_marginLeft="100dp" />

    <EditText
        android:id="@+id/msgTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10" />

    <Button
        android:id="@+id/btnSend"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:text="Send SMS" />

</LinearLayout>
```

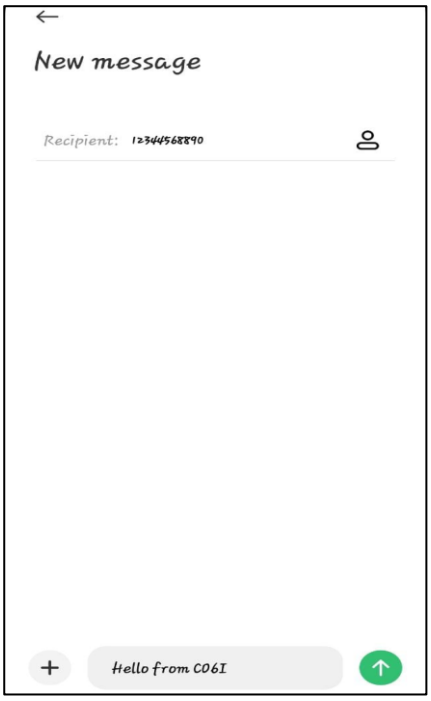
MAINACTIVITY.JAVA

```
package com.example.practical29;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {


    private EditText txtMobile;
    private EditText txtMessage;
    private Button btnSms;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtMobile = (EditText) findViewById(R.id.mblTxt);
        txtMessage = (EditText) findViewById(R.id.msgTxt);
        btnSms = (Button) findViewById(R.id.btnSend);
        btnSms.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try {
                    Intent i = new Intent(Intent.ACTION_VIEW);
                    i.setData(Uri.parse("smsto:"));
                    i.setType("vnd.android-dir/mms-sms");
                    i.putExtra("address", new
String(txtMobile.getText().toString()));
                    i.putExtra("sms_body",
txtMessage.getText().toString());
                    startActivity(Intent.createChooser(i, "Send sms
via:"));


                    SmsManager smgr = SmsManager.getDefault();
                    smgr.sendTextMessage(txtMobile.getText().toString(),
null, txtMessage.getText().toString(), null, null);
                    Toast.makeText(MainActivity.this, "SMS Sent
Successfully", Toast.LENGTH_SHORT).show();
                } catch (Exception e) {
                    Toast.makeText(MainActivity.this, "SMS Failed to Send,
Please try again", Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

OUTPUT


Practical 29
Mobile No
Message
SEND SMS


Practical 29
Mobile No
1234568890
Message
Hello from C06I
SEND SMS


New message
Recipient: 1234568890
Hello from C06I

Practical No. 30 Develop a program to send and receive e-mail.

30.1: write a program to send email.

ACTIVITY_MAIN.XML

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TO :"
        android:textStyle="bold"
        android:layout_marginTop="50dp"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/email"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:textSize="20dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="SpeakableTextPresentCheck" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Subject"
        android:textStyle="bold"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <EditText
        android:id="@+id/mail_subject"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
```

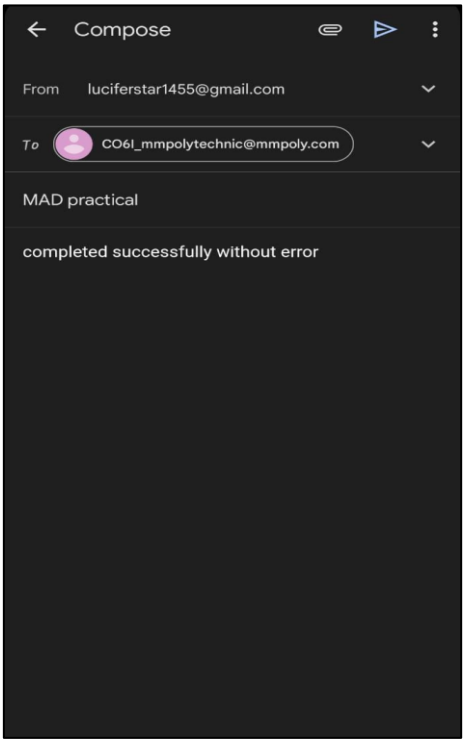
```
        android:minHeight="48dp"
        tools:ignore="SpeakableTextPresentCheck" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Message"
        android:textStyle="bold"
        android:textSize="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <EditText
        android:id="@+id/mail_message"
        android:layout_width="match_parent"
        android:layout_height="139dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:textSize="20dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="SpeakableTextPresentCheck" />

    <Button
        android:id="@+id/send"
        android:layout_marginStart="35dp"
        android:layout_marginEnd="35dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Send" />


</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.email;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    EditText email,mail_subject,mail_message;
    Button send;

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

```
        email=findViewById (R.id.email);
        mail_subject=findViewById (R.id.mail_subject);
        mail_message=findViewById (R.id.mail_message);
        send=findViewById (R.id.send);


        send.setOnClickListener (new View.OnClickListener () {
            @Override
            public void onClick(View view) {
                sendmail();
            }
        });
    }

    private void sendmail() {

        String recipientList =email.getText ().toString ();
        String[]recipient=recipientList.split (",");
        String subject = mail_subject.getText ().toString ();
        String message = mail_message.getText ().toString ();

        Intent intent = new Intent (Intent.ACTION_SEND);
        intent.putExtra (Intent.EXTRA_EMAIL,recipient);
        intent.putExtra (Intent.EXTRA_SUBJECT,subject);
        intent.putExtra (Intent.EXTRA_TEXT,subject);

        intent.setType ("message/rfc822");

        startActivity (Intent.createChooser (intent,"Choose An
email"));

    } }
```

OUTPUT



PRACTICAL NO. 31 Deploy map-based application. Part I

31.1: Write a program to locate user's current location.

ACTIVITY_MAPS.XML

```
<?xml version="1.0" encoding="utf-8"?>
<fragment xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:map="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/map"
    android:name="com.google.android.gms.maps.SupportMapFragment"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MapsActivity" />
```

MAPSACTIVITY.JAVA

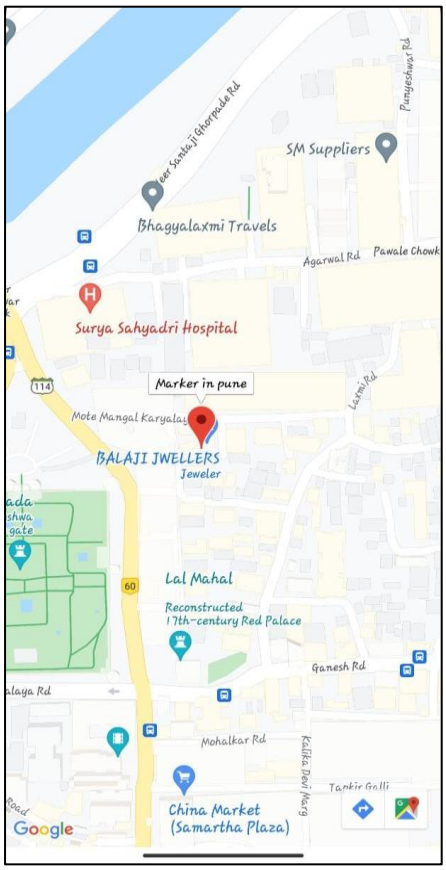
```
package com.example.practical31;

import androidx.fragment.app.FragmentActivity;

import android.os.Bundle;

import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
import com.example.practical31.databinding.ActivityMapsBinding;

public class MapsActivity extends FragmentActivity implements
OnMapReadyCallback {

    private GoogleMap mMap;
    private ActivityMapsBinding binding;

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

        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());

        // Obtain the SupportMapFragment and get notified when the map is
ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment)
getSupportFragmentManager()
                .findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }

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

        // Add a marker in Sydney and move the camera
        LatLng pune = new LatLng(18.5204, 73.8567);
```

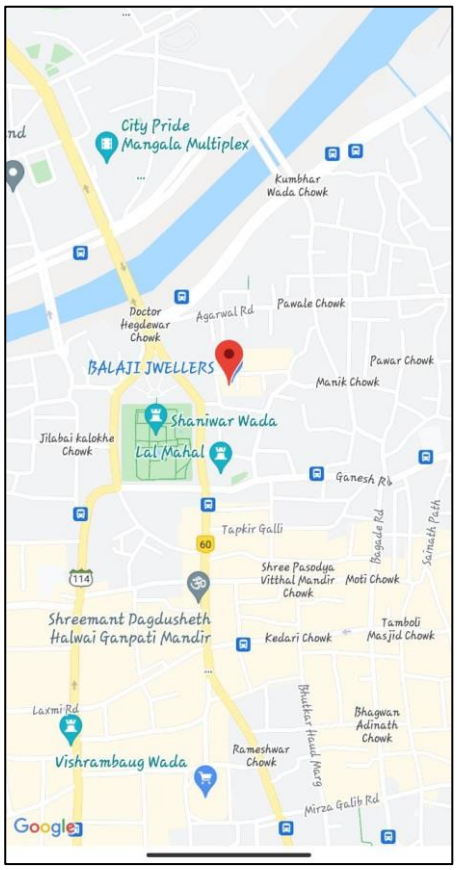
```
        mMap.addMarker(new MarkerOptions().position(pune).title("Marker in
pune"));
        mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(pune, 16));
    }

}
```

ANDROIDMANIFEST.XML

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.practical31">


    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Practical31">

        <!--
             TODO: Before you run your application, you need a Google Maps
API key.

             To get one, follow the directions here:

                https://developers.google.com/maps/documentation/android-
sdk/get-api-key

             Once you have your API key (it starts with "AIza"), define a
new property in your
             project's local.properties file (e.g. MAPS_API_KEY=Aiza...),
and replace the
             "YOUR_API_KEY" string in this file with "${MAPS_API_KEY}".
        -->
        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="AIzaSyC_C3f4Y5xkT9KHUR16OEq7_CZq6aaamQI" />

        <activity
            android:name=".MapsActivity"
            android:exported="true"
            android:label="@string/title_activity_maps">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

OUTPUT


Veer Santaji Ghorpade Rd
SM Suppliers
Bhagyalaxmi Travels
Agarwal Rd
Pawale Chowk
Surya Sahyadri Hospital
Marker in pune
Mote Mangal Karyalay
BALAJI JWELLERS
Jeweler
Lal Mahal
Reconstructed
17th-century Red Palace
Ganesh Rd
Mohalkar Rd
Kalika Devi Marg
Tankir Galli
China Market
(Samartha Plaza)
Google


City Pride
Mangala Multiplex
Kumbhar
Wada Chowk
Doctor
Hegdewar
Chowk
Agarwal Rd
Pawale Chowk
BALAJI JWELLERS
Pawar Chowk
Manik Chowk
Jilabai kalokhe
Chowk
Shaniwar Wada
Lal Mahal
Ganesh Rd
Tapkir Galli
Bajirao Rd
Shree Pasodya
Vitthal Mandir
Chowk
Moti Chowk
Shreemant Dagdusheth
Halwai Ganpati Mandir
Kedari Chowk
Tamboli
Masjid Chowk
Laxmi Rd
Bhagwan
Adinath
Chowk
Vishrambaug Wada
Rameshwar
Chowk
Mirza Galib Rd
Google

Practical NO. 32 Deploy map-based application. Part II

32.1: Write a program to draw a rout between two locations.

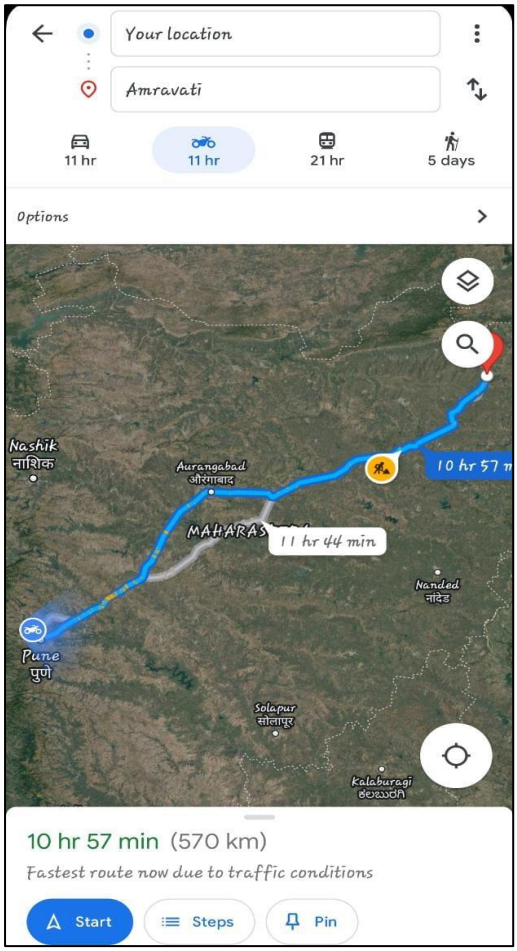
ACTIVITY_MAIN.XML

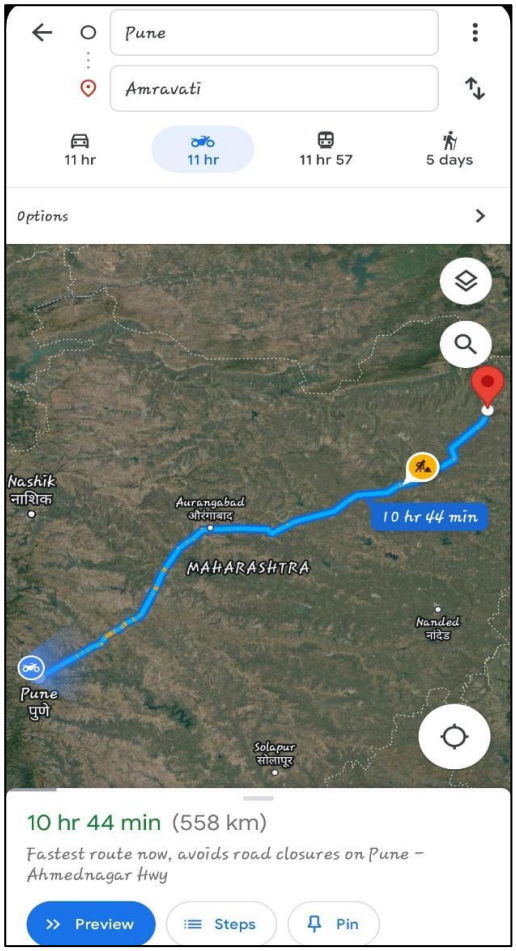
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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


</LinearLayout>
```

MAINACTIVITY.JAVA

```
package com.example.practical32_2;

import androidx.appcompat.app.AppCompatActivity;

import android.content.ActivityNotFoundException;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        try{
            Uri uri = Uri.parse("https://www.google.co.in/mpas/dir/");
            Intent intent = new Intent(Intent.ACTION_VIEW, uri);
            intent.setPackage("com.google.android.apps.maps");
            intent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
            startActivity(intent);
        }catch (ActivityNotFoundException e){
            Uri uri =
Uri.parse("https://play.google.com/store/apps/details?id=com.google.android
.apps.maps");
            Intent intent = new Intent(Intent.ACTION_VIEW, uri);
            intent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
            startActivity(intent);
        }
    }

}
```

OUTPUT


Your location
Amravati
11 hr
11 hr
21 hr
5 days
Options
Nashik
नाशिक
Aurangabad
औरंगाबाद
11 hr 44 min
Nanded
नांदेड
Pune
पुणे
Solapur
सोलापूर
Kalaburagi
ಕಲಬುರಗಿ
10 hr 57 min (570 km)
Fastest route now due to traffic conditions
Start
Steps
Pin


Pune
Amravati
11 hr
11 hr
11 hr 57
5 days
Options
Nashik
नाशिक
Aurangabad
औरंगाबाद
10 hr 44 min
MAHARASHTRA
Nanded
नांदेड
Pune
पुणे
Solapur
सोलापूर
10 hr 44 min (558 km)
Fastest route now, avoids road closures on Pune – Ahmednagar Hwy
Preview
Steps
Pin