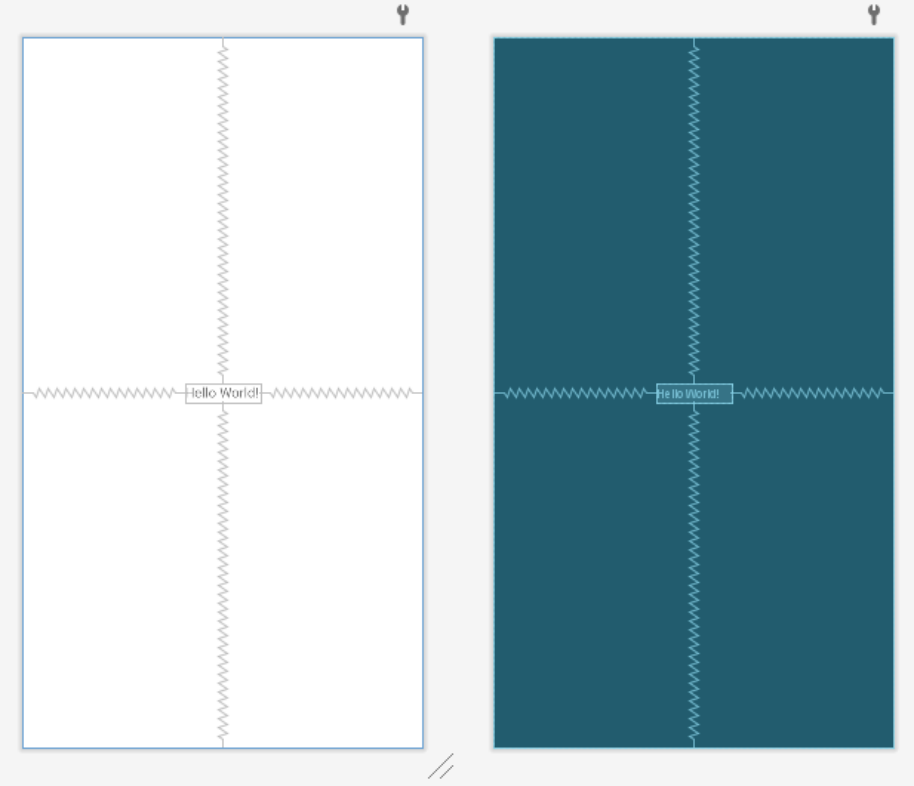
Practical – 1

Aim: Create a Android App to Run Hello World Program.

Design:



activity_main.xml

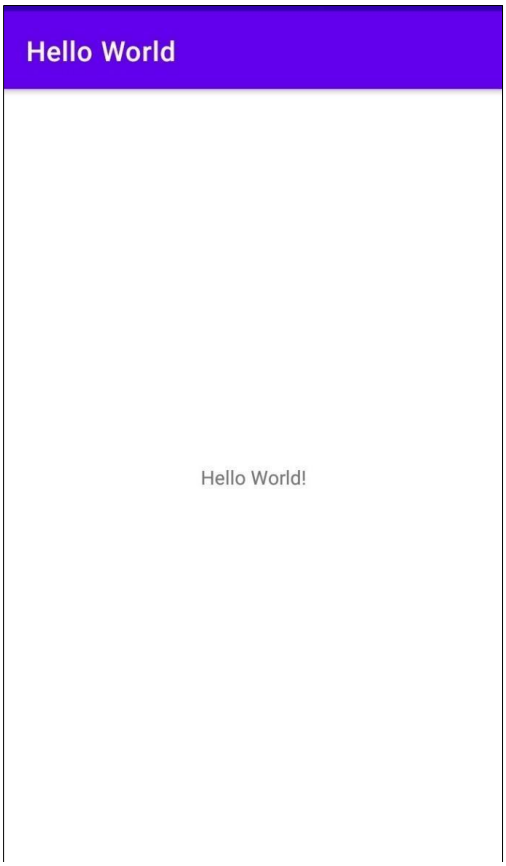
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
```

```
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.helloworld;

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);
    }
}
```

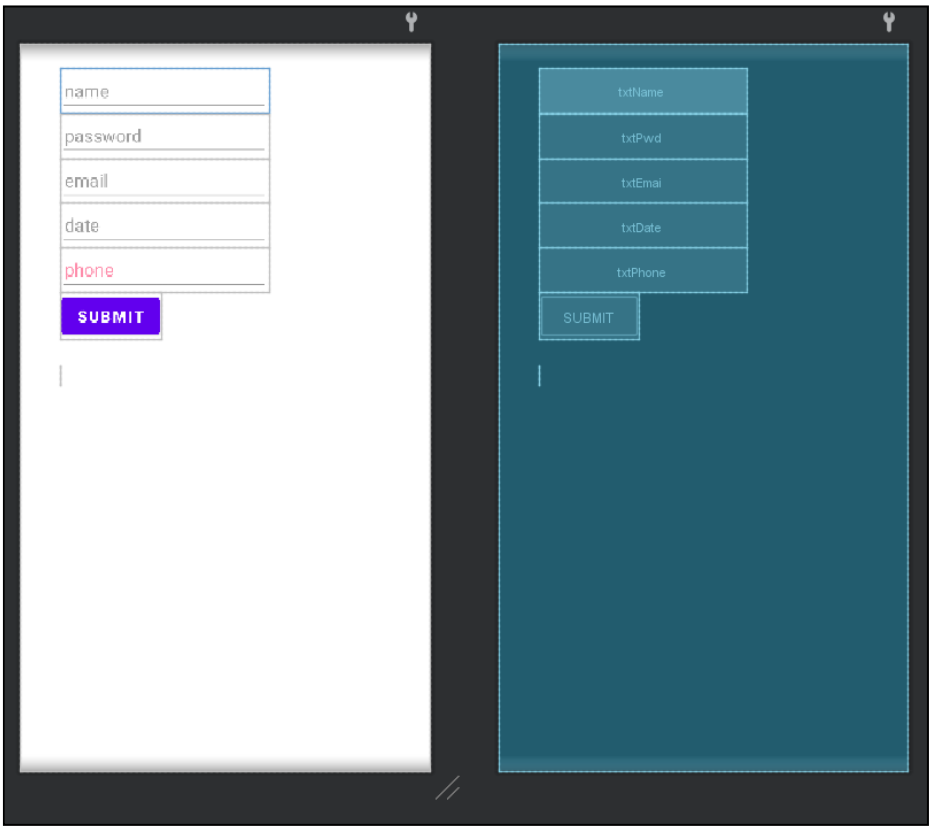
Output :



Practical – 2

Aim: Create an android app that demonstrates working withText View Elements .

Design:



Activity_main.xml

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

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

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

    android:layout_width="match_parent"

    android:layout_height="match_parent"
```

```
android:paddingStart="40dp"
android:orientation="vertical" android:id="@+id/linearlayout"
tools:ignore="RtlSymmetry">
<EditText
    android:id="@+id/txtName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="25dp"
    android:ems="10"
    android:hint="@string/name"
    android:inputType="text"
    android:selectAllOnFocus="true" />
<EditText
    android:id="@+id/txtPwd"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="@string/password_0_to_9"
    android:inputType="numberPassword" />
<EditText
    android:id="@+id/txtEmai"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="@string/email"
    android:inputType="textEmailAddress" />
```

```
<EditText
    android:id="@+id/txtDate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editText3"
    android:ems="10"
    android:hint="@string/date"
    android:inputType="date"
    tools:ignore="ObsoleteLayoutParam" />
<EditText
    android:id="@+id/txtPhone"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="@string/phone_number"
    android:inputType="phone"
    android:textColorHint="#FE8DAB"/>
<Button
    android:id="@+id/btnSend"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/submit"
    android:textSize="16sp"
    android:textStyle="normal|bold" />
<TextView
    android:layout_width="wrap_content"
```

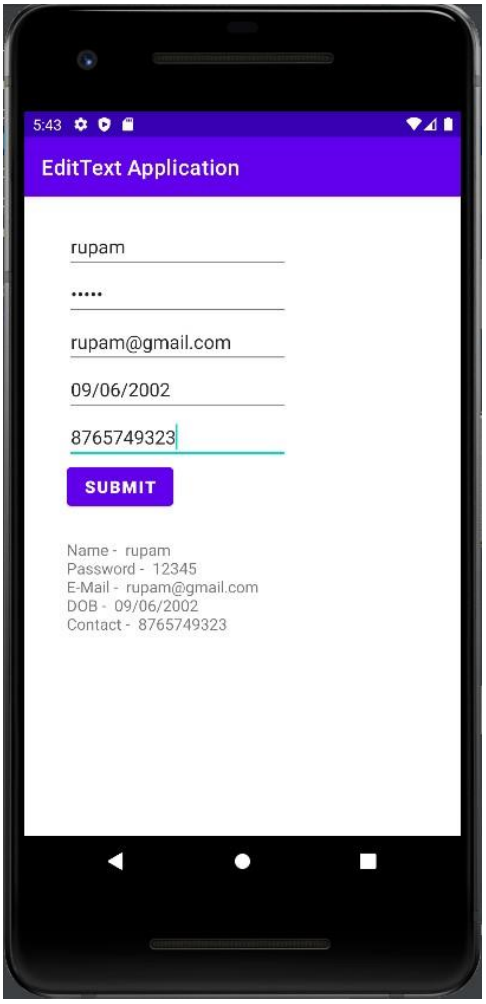
```
        android:layout_height="wrap_content"
        android:id="@+id/resultView"
        android:layout_marginTop="25dp"
        android:textSize="15sp"/>
</LinearLayout>
```

MainActivity.java

```
package  com.example.edittextprogram;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import org.w3c.dom.Text;
public class MainActivity extends AppCompatActivity {
    Button btnSubmit;
    EditText name, password, email, dob, phoneno;
    TextView result;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name=(EditText)findViewById(R.id.txtName);
        password = (EditText)findViewById(R.id.txtPwd);
```

```
        email  = (EditText)findViewById(R.id.txtEmai);
        dob = (EditText)findViewById(R.id.txtDate);
        phoneno= (EditText)findViewById(R.id.txtPhone);
        btnSubmit = (Button)findViewById(R.id.btnSend);
        result = (TextView)findViewById(R.id.resultView);
        btnSubmit.setOnClickListener(new View.OnClickListener() {
            @SuppressLint("SetTextI18n")
            @Override
            public void onClick(View v) {
                if (name.getText().toString().isEmpty() ||
password.getText().toString().isEmpty() ||
email.getText().toString().isEmpty() ||
dob.getText().toString().isEmpty()
                        || phoneno.getText().toString().isEmpty()) {
                    result.setText("Please Fill All the Details");
                } else {
                    result.setText("Name - " + name.getText().toString() +
" \n" + "Password -  " + password.getText().toString()
                            + " \n" + "E-Mail -  " + email.getText().toString()
+ " \n" + "DOB -  " + dob.getText().toString()
                            + " \n" + "Contact - " +
phoneno.getText().toString());
                }
            }
        });
    }
}
```

Output:


5:43
EditText Application
rupam
.....
rupam@gmail.com
09/06/2002
8765749323
SUBMIT
Name - rupam
Password - 12345
E-Mail - rupam@gmail.com
DOB - 09/06/2002
Contact - 8765749323

Practical - 3

Aim: Create an android app that demonstrates Activity Lifecycle.

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout xmlns:android="http://s
chemas.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="example.javatpoint.com.activitylifecycle.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" />

</android.support.constraint.ConstraintLayout>
```

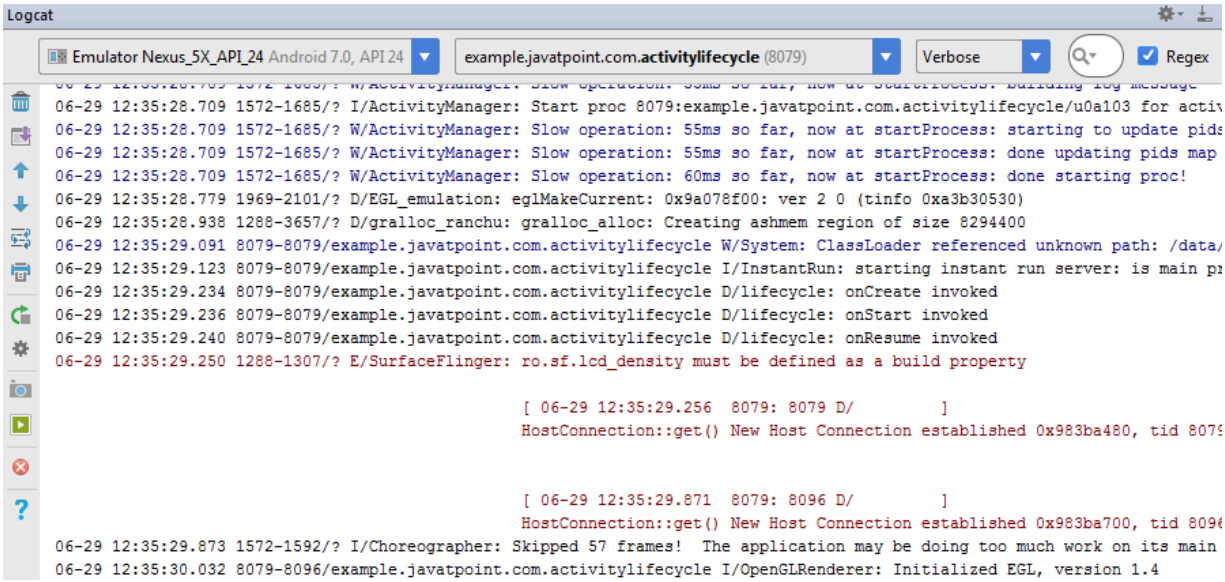
MainActivity.java

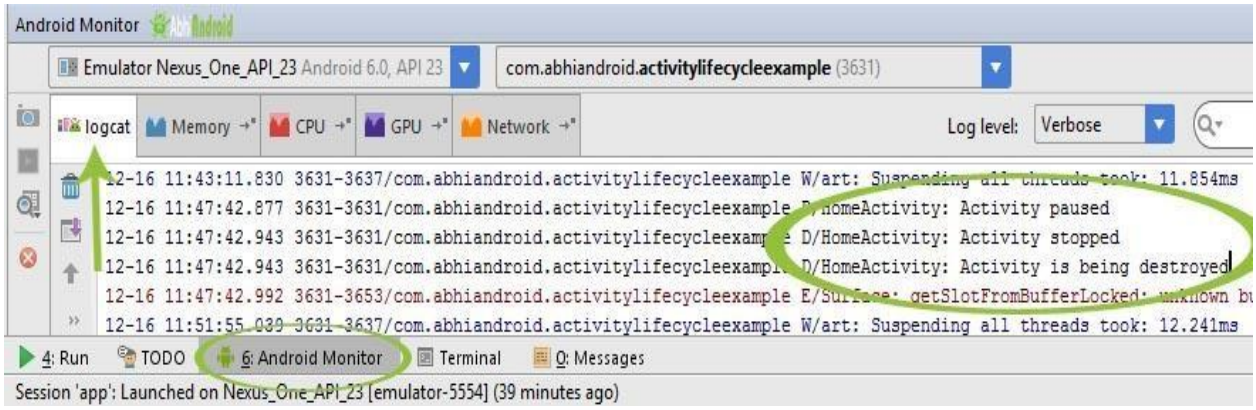
```
package example.javatpoint.com.activitylifecycle;

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

public class MainActivity extends Activity {
```

```
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Log.d("lifecycle","onCreate invoked");
}
@Override
protected void onStart() {
super.onStart();
Log.d("lifecycle","onStart invoked");
}
@Override
protected void onResume() {
super.onResume();
Log.d("lifecycle","onResume invoked");
}
@Override
protected void onPause() {
super.onPause();
Log.d("lifecycle","onPause invoked");
}
@Override
protected void onStop() {
super.onStop();
Log.d("lifecycle","onStop invoked");
}
@Override
protected void onRestart() {
super.onRestart();
Log.d("lifecycle","onRestart invoked");
}
@Override
protected void onDestroy() {
super.onDestroy();
```

```
Log.d("lifecycle","onDestroy invoked");
}
}
```

Output:





Practical – 4

Aim: Create an android app that demonstrates the use of Alert.

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/top_message"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="@string/tap_test" />

   <Button
      android:id="@+id/button1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_below="@id/top_message"
      android:layout_marginTop="10dp"
      android:text="@string/alert_button"
      android:onClick="onClickShowAlert"
      tools:ignore="OnClick" />

</RelativeLayout>
```

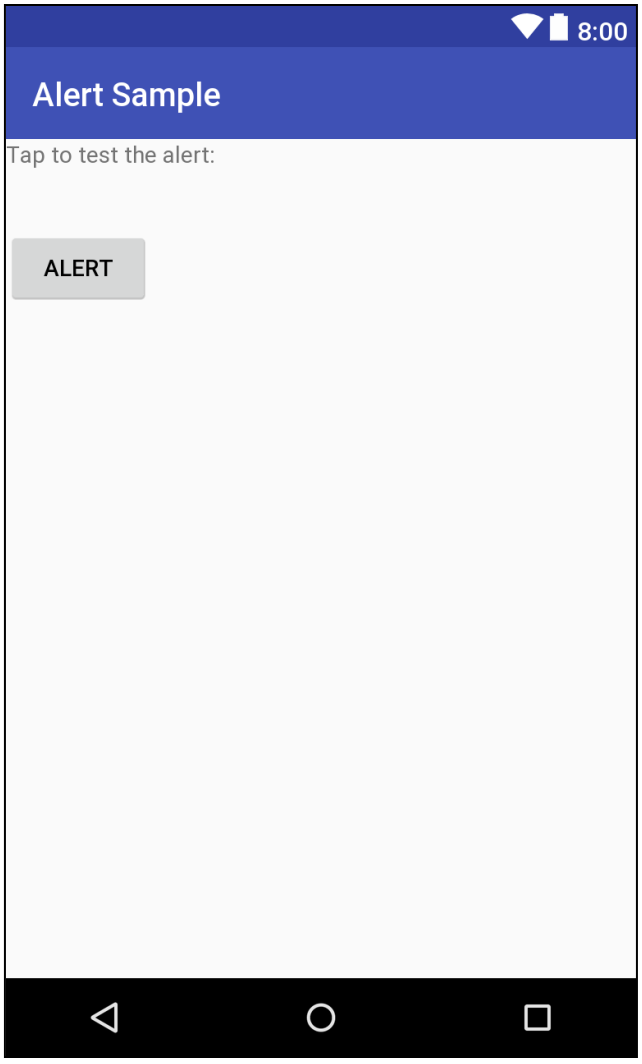
MainActivity.java

```
package com.example.helloworld;


import android.app.AlertDialog;
import android.content.DialogInterface;
import android.support.v7.app.AlertDialog;
```

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

    public void onClickShowAlert(View view) {
        AlertDialog.Builder myAlertBuilder = new
AlertDialog.Builder(MainActivity.this);
        // Set the dialog title.
        myAlertBuilder.setTitle(R.string.alert_title);
        // Set the dialog message.
        myAlertBuilder.setMessage(R.string.alert_message);
        // Add the buttons.
        myAlertBuilder.setPositiveButton(R.string.ok, new
DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int which) {
                // User clicked OK button.
                Toast.makeText(getApplicationContext(),
R.string.pressed_ok,
                        Toast.LENGTH_SHORT).show();
            }
        });
        myAlertBuilder.setNegativeButton(R.string.cancel, new
                DialogInterface.OnClickListener() {
                    public void onClick(DialogInterface dialog, int which) {
                        // User cancelled the dialog.
                        Toast.makeText(getApplicationContext(),
R.string.pressed_cancel,
                                Toast.LENGTH_SHORT).show();
                    }
                });
```

```
        // Create and show the AlertDialog.
        myAlertBuilder.show();
    }
}
```

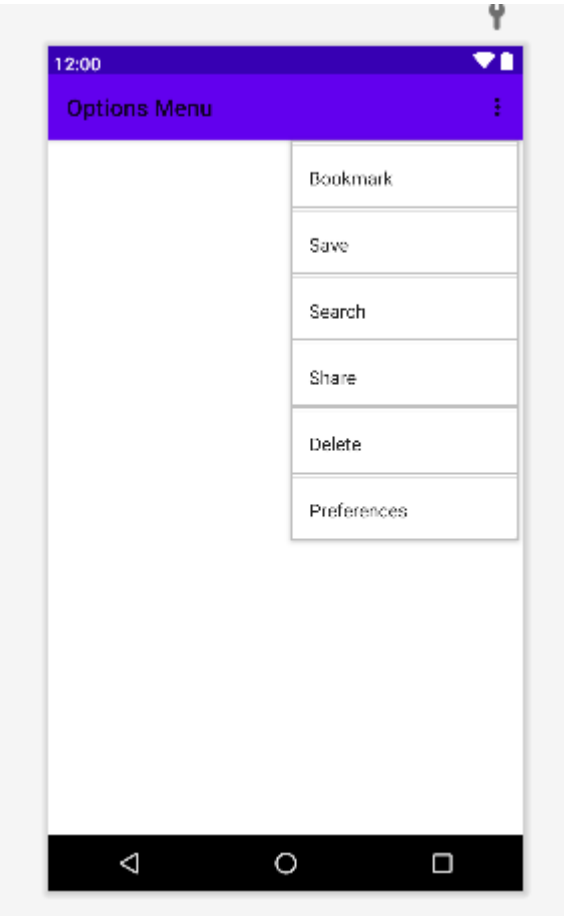
Output :



Practical – 5

Aim: Create an android app that demonstrates the use of an Options Menu.

Design:



Example_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu
xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/menu_bookmark"
        android:title="@string/bookmark"
        />

    <item android:id="@+id/menu_save"
```

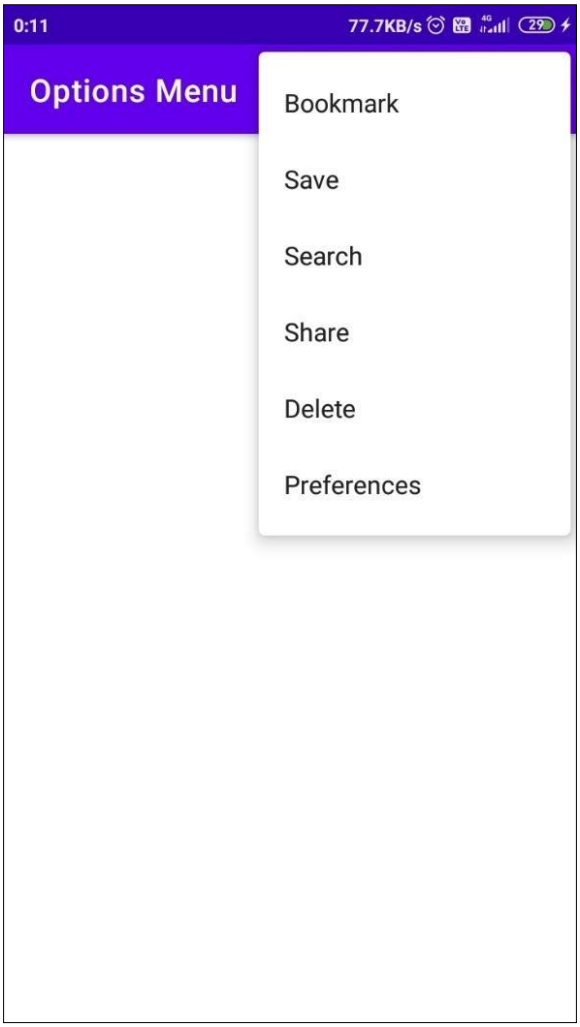
```
        android:title="@string/save"
        />

    <item android:id="@+id/menu_search"
        android:title="@string/search"
        />

    <item android:id="@+id/menu_share"
        android:title="@string/share"
        />

    <item android:id="@+id/menu_delete"
        android:title="@string/delete"
        />

    <item android:id="@+id/menu_preferences"
        android:title="@string/preferences"
        />
</menu>
```

MainActivity.java

```
package com.example.optionsmenu;

import androidx.appcompat.app.AppCompatActivity;

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


public class MainActivity extends AppCompatActivity {

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

```
    }

    /* Initiating Menu XML file (menu.xml) */
    public boolean onCreateOptionsMenu(Menu menu) {
        MenuInflater menuInflater = getMenuInflater();
        menuInflater.inflate(R.menu.example_menu, menu);
        return true;
    }

    @SuppressLint("NonConstantResourceId")
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.menu_bookmark:
                Toast.makeText(this, "Bookmark is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            case  R.id.menu_save:
                Toast.makeText(this, "Save is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            case  R.id.menu_search:
                Toast.makeText(this, "Search is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            case  R.id.menu_share:
                Toast.makeText(this, "Share is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            case  R.id.menu_delete:
                Toast.makeText(this, "Delete is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            case R.id.menu_preferences:
                Toast.makeText(this, "Preferences is Selected",
Toast.LENGTH_SHORT).show();
                return true;
            default:
                return super.onOptionsItemSelected(item); }}}
```

Output:


0:11
77.7KB/s
Options Menu
Bookmark
Save
Search
Share
Delete
Preferences

Practical – 6:

Aim: Simple Calculator app

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#8BC34A"
    android:backgroundTint="@android:color/darker_gray"
    tools:context=".MainActivity">

    <!-- Text View to display our basic heading of "calculator"-->
    <TextView
        android:layout_width="194dp"
        android:layout_height="43dp"
        android:layout_marginStart="114dp"
        android:layout_marginLeft="114dp"
        android:layout_marginTop="58dp"
        android:layout_marginEnd="103dp"
        android:layout_marginRight="103dp"
        android:layout_marginBottom="502dp"
        android:scrollbarSize="30dp"
        android:text=" Calculator"
```

```
        android:textAppearance="@style/TextAppearance.AppCompat.Bo
dy1"
            android:textSize="30dp"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent" />

        <!-- Edit Text View to input the values -->
        <EditText
            android:id="@+id/num1"
            android:layout_width="364dp"
            android:layout_height="28dp"
            android:layout_marginStart="72dp"
            android:layout_marginTop="70dp"
            android:layout_marginEnd="71dp"
            android:layout_marginBottom="416dp"
            android:background="@android:color/white"
            android:ems="10"
            android:hint="Number1(0)"
            android:inputType="number"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent" />

        <!-- Edit Text View to input 2nd value-->
```

```
<EditText
        android:id="@+id/num2"
        android:layout_width="363dp"
        android:layout_height="30dp"
        android:layout_marginStart="72dp"
        android:layout_marginTop="112dp"
        android:layout_marginEnd="71dp"
        android:layout_marginBottom="374dp"
        android:background="@android:color/white"
        android:ems="10"
        android:hint="number2(0)"
        android:inputType="number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<!-- Text View to display result -->
<TextView
        android:id="@+id/result"
        android:layout_width="356dp"
        android:layout_height="71dp"
        android:layout_marginStart="41dp"
        android:layout_marginTop="151dp"
        android:layout_marginEnd="48dp"
        android:layout_marginBottom="287dp"
        android:background="@android:color/white"
        android:text="result"
```

```
        android:textColorLink="#673AB7"
        android:textSize="25sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <!-- A button to perform 'sum' operation -->
    <Button
        android:id="@+id/sum"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="292dp"
        android:layout_marginEnd="307dp"
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_red_light"
        android:onClick="doSum"
        android:text="+"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <!-- A button to perform subtraction operation. -->
    <Button
        android:id="@+id/sub"
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:layout_marginStart="210dp"
        android:layout_marginTop="292dp"
        android:layout_marginEnd="113dp"
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_red_light"
        android:onClick="doSub"
        android:text="-"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <!-- A button to perform division. -->
    <Button
        android:id="@+id/div"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="307dp"
        android:layout_marginTop="292dp"
        android:layout_marginEnd="16dp"
        android:layout_marginBottom="263dp"
        android:backgroundTint="@android:color/holo_red_light"
        android:onClick="doDiv"
        android:text="/"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
```

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

    <!-- A button to perform multiplication. -->
    <Button
        android:id="@+id/mul"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="356dp"
        android:layout_marginEnd="307dp"
        android:layout_marginBottom="199dp"
        android:backgroundTint="@android:color/holo_red_light"
        android:onClick="doMul"
        android:text="x"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <!-- A button to perform a modulus function. -->
    <Button
        android:id="@+id/button"
        android:layout_width="92dp"
        android:layout_height="48dp"
        android:layout_marginStart="113dp"
        android:layout_marginTop="356dp"
        android:layout_marginEnd="206dp"
```

```
            android:layout_marginBottom="199dp"
            android:backgroundTint="@android:color/holo_red_light"
            android:onClick="doMod"
            android:text="%(mod)"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent" />

        <!-- A button to perform a power function. -->
        <Button
            android:id="@+id/pow"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginStart="113dp"
            android:layout_marginTop="292dp"
            android:layout_marginEnd="210dp"
            android:layout_marginBottom="263dp"
            android:backgroundTint="@android:color/holo_red_light"
            android:onClick="doPow"
            android:text="n1^n2"
            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

```
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText e1, e2;
    TextView t1;
    int num1, num2;

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

    // a public method to get the input numbers
    public boolean getNumbers() {

        // defining the edit text 1 to e1
        e1 = (EditText) findViewById(R.id.num1);
```

```
// defining the edit text 2 to e2
e2 = (EditText) findViewById(R.id.num2);

// defining the text view to t1
t1 = (TextView) findViewById(R.id.result);

// taking input from text box 1
String s1 = e1.getText().toString();

// taking input from text box 2
String s2 = e2.getText().toString();

// condition to check if box is not empty
if ((s1.equals(null) && s2.equals(null))
            || (s1.equals("") && s2.equals(""))) {

      String result = "Please enter a value";
      t1.setText(result);

      return false;
} else {
      // converting string to int.
      num1 = Integer.parseInt(s1);

      // converting string to int.
      num2 = Integer.parseInt(s2);
```

```
        }

        return true;
    }

    // a public method to perform addition
    public void doSum(View v) {

        // get the input numbers
        if (getNumbers()) {
            int sum = num1 + num2;
            t1.setText(Integer.toString(sum));
        }
    }

    // a public method to perform power function
    public void doPow(View v) {

        // get the input numbers
        if (getNumbers()) {
            double sum = Math.pow(num1, num2);
            t1.setText(Double.toString(sum));
        }
    }

    // a public method to perform subtraction
```

```
public void doSub(View v) {

	// get the input numbers
	if (getNumbers()) {
		int sum = num1 - num2;
		t1.setText(Integer.toString(sum));
	}
}

// a public method to perform multiplication
public void doMul(View v) {

	// get the input numbers
	if (getNumbers()) {
		int sum = num1 * num2;
		t1.setText(Integer.toString(sum));
	}
}

// a public method to perform Division
public void doDiv(View v) {

	// get the input numbers
	if (getNumbers()) {

		// displaying the text in text view assigned as t1
```

```
                double sum = num1 / (num2 * 1.0);
                t1.setText(Double.toString(sum));
            }
        }

        // a public method to perform modulus function
        public void doMod(View v) {

            // get the input numbers
            if (getNumbers()) {
                double sum = num1 % num2;
                t1.setText(Double.toString(sum));
            }
        }
}
```

Output: