

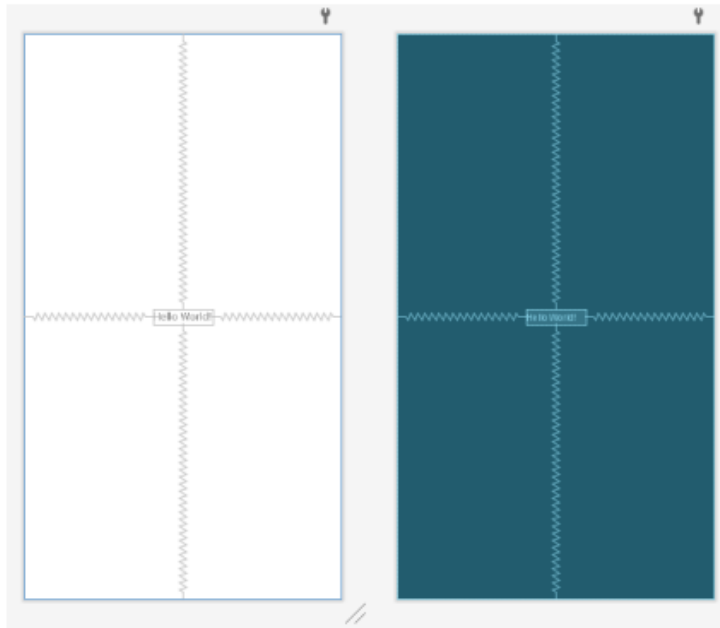
INDEX

Sr.No.	Practical Aim	Date	Signature
1.	Install Android Studio and Run Hello World Program.		
2.	Create an android app that demonstrates working with TextView Elements .		
3.	Create an android app that demonstrates Activity Lifecycle.		
4.	Create an android app that demonstrates the use of Alert.		
5.	Create an android app that demonstrates the use of an Options Menu.		
6.	Simple Calculator app.		
7.	Create an android app that demonstrates the use of resizing and repositioning.		

Practical 1

Aim: Install Android Studio and 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">

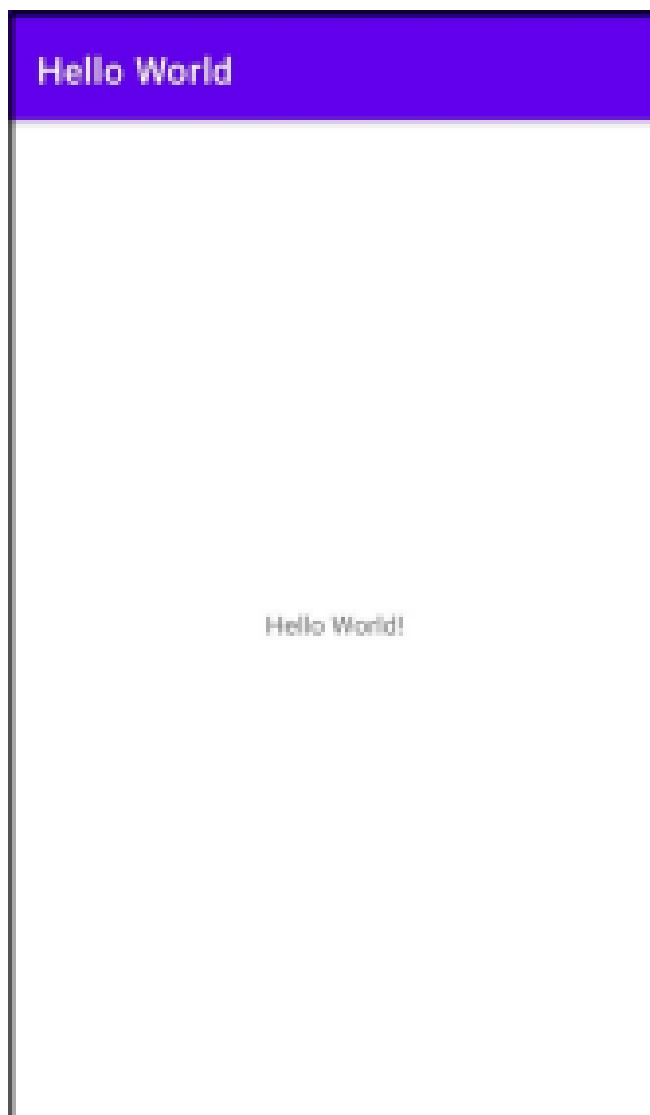
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_centerInParent="true"
android:text="Hello World!"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"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

</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);  
    }  
}
```

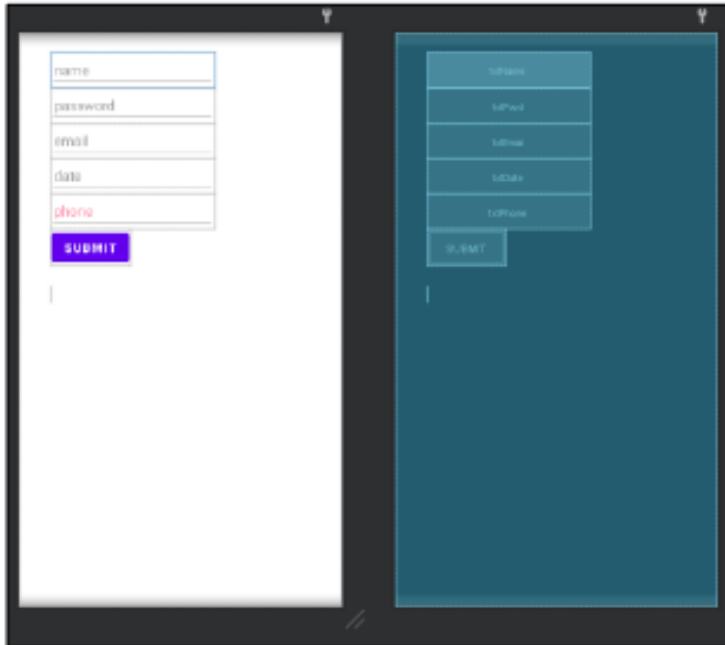
Output:



Practical – 2

Aim: Create an android app that demonstrates working with TextView 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/txtEmail"
    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

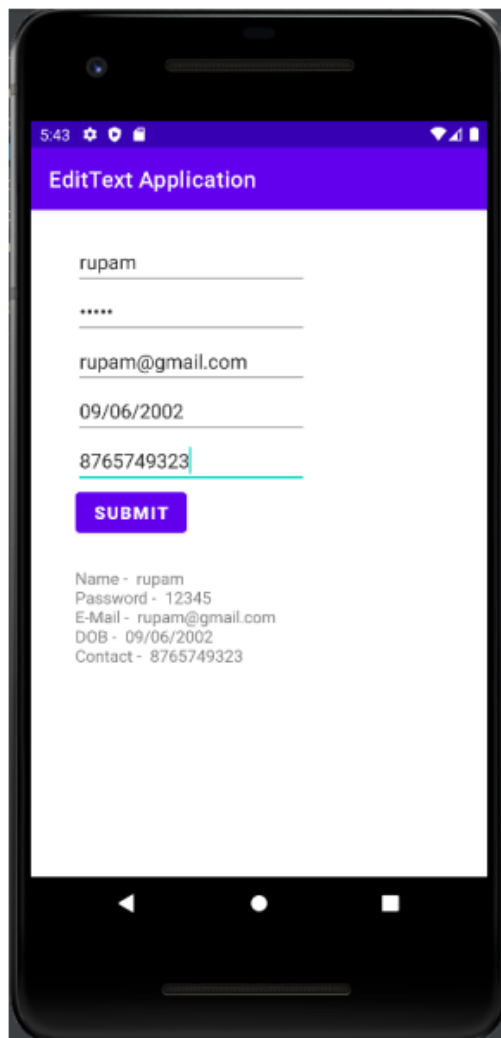
```
package com.example.edittextprogram;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import org.w3c.dom.Text;
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.txtEmail);
        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() {
            @SuppressWarnings("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:



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://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="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>
```

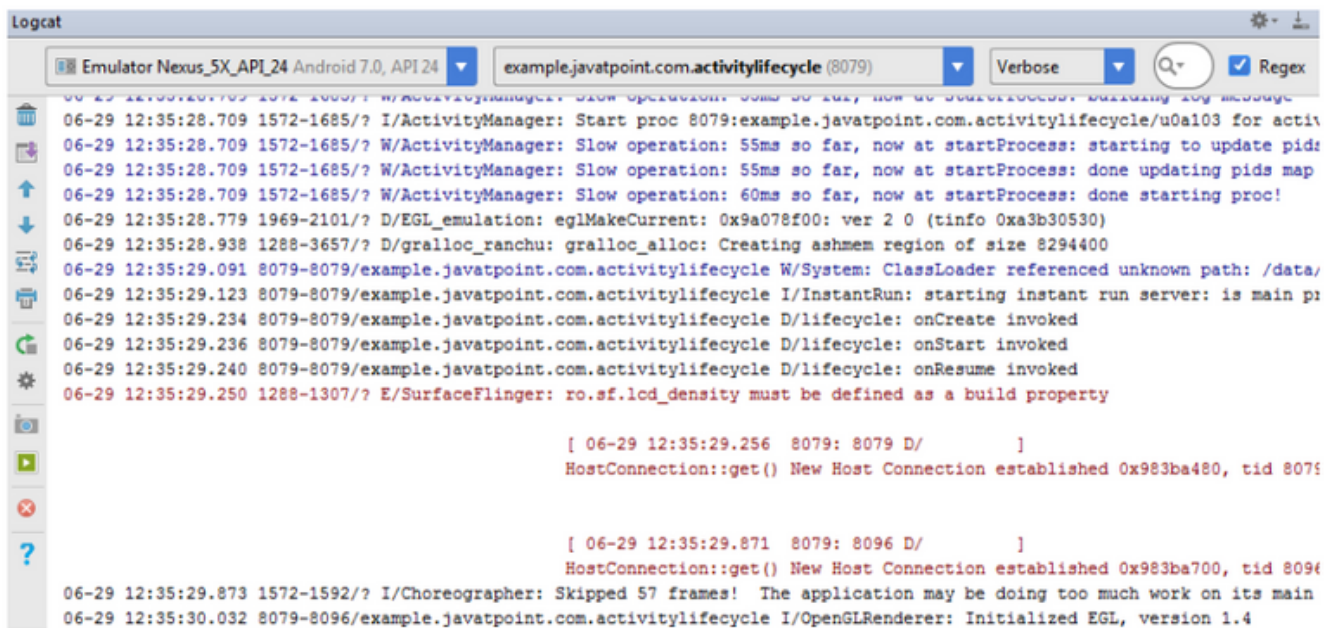
MainActivity.java

```
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");
}
}
```

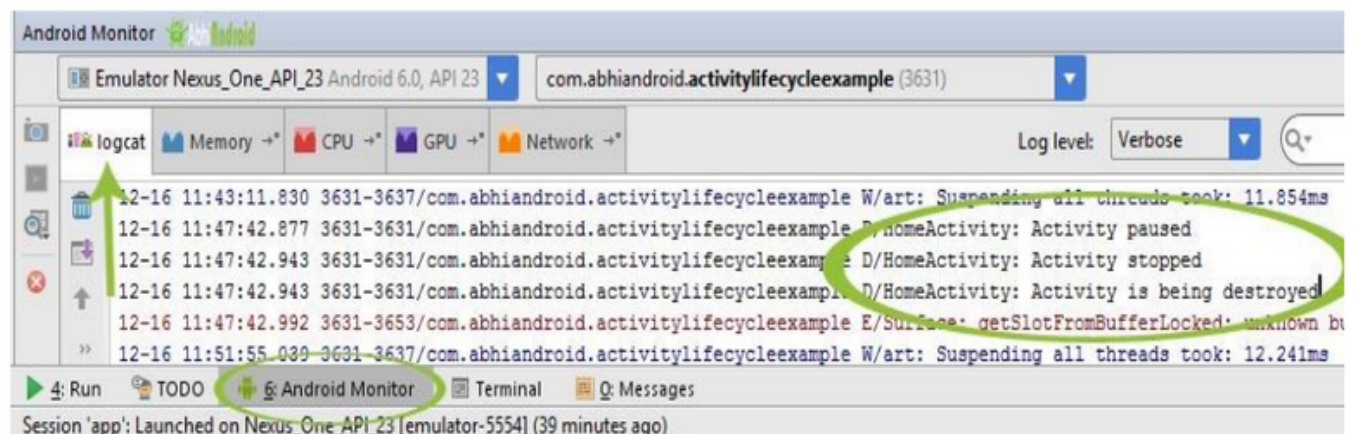
Output:



```
06-29 12:35:28.709 1572-1685/? W/ActivityManager: Slow operation: 55ms so far, now at startProcess: building log message
06-29 12:35:28.709 1572-1685/? W/ActivityManager: Slow operation: 55ms so far, now at startProcess: starting to update pids
06-29 12:35:28.709 1572-1685/? W/ActivityManager: Slow operation: 55ms so far, now at startProcess: done updating pids map
06-29 12:35:28.709 1572-1685/? W/ActivityManager: Slow operation: 60ms so far, now at startProcess: done starting proc!
06-29 12:35:28.779 1969-2101/? D/EGL_emulation: eglMakeCurrent: 0x9a078f00: ver 2 0 (tinfo 0xa3b30530)
06-29 12:35:28.938 1288-3657/? D/gralloc_ranchu: gralloc_alloc: Creating ashmem region of size 8294400
06-29 12:35:29.091 8079-8079/example.javatpoint.com.activitylifecycle W/System: ClassLoader referenced unknown path: /data/
06-29 12:35:29.123 8079-8079/example.javatpoint.com.activitylifecycle I/InstantRun: starting instant run server: is main p
06-29 12:35:29.234 8079-8079/example.javatpoint.com.activitylifecycle D/lifecycle: onCreate invoked
06-29 12:35:29.236 8079-8079/example.javatpoint.com.activitylifecycle D/lifecycle: onStart invoked
06-29 12:35:29.240 8079-8079/example.javatpoint.com.activitylifecycle D/lifecycle: onResume invoked
06-29 12:35:29.250 1288-1307/? E/SurfaceFlinger: ro.sf.lod_density must be defined as a build property

[ 06-29 12:35:29.256 8079: 8079 D/
]
HostConnection::get() New Host Connection established 0x983ba480, tid 8079

[ 06-29 12:35:29.871 8079: 8096 D/
]
HostConnection::get() New Host Connection established 0x983ba700, tid 8096
06-29 12:35:29.873 1572-1592/? I/Choreographer: Skipped 57 frames! The application may be doing too much work on its main
06-29 12:35:30.032 8079-8096/example.javatpoint.com.activitylifecycle I/OpenGLRenderer: Initialized EGL, version 1.4
```



```
12-16 11:43:11.830 3631-3637/com.abhiandroid.activitylifecycleexample W/art: Suspending all threads took: 11.854ms
12-16 11:47:42.877 3631-3631/com.abhiandroid.activitylifecycleexample D/HomeActivity: Activity paused
12-16 11:47:42.943 3631-3631/com.abhiandroid.activitylifecycleexample D/HomeActivity: Activity stopped
12-16 11:47:42.943 3631-3631/com.abhiandroid.activitylifecycleexample D/HomeActivity: Activity is being destroyed
12-16 11:47:42.992 3631-3653/com.abhiandroid.activitylifecycleexample E/Surface: getSlotFromBufferLocked: unknown bu
12-16 11:51:55.039 3631-3637/com.abhiandroid.activitylifecycleexample W/art: Suspending all threads took: 12.241ms
```

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 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();
    }
}
```

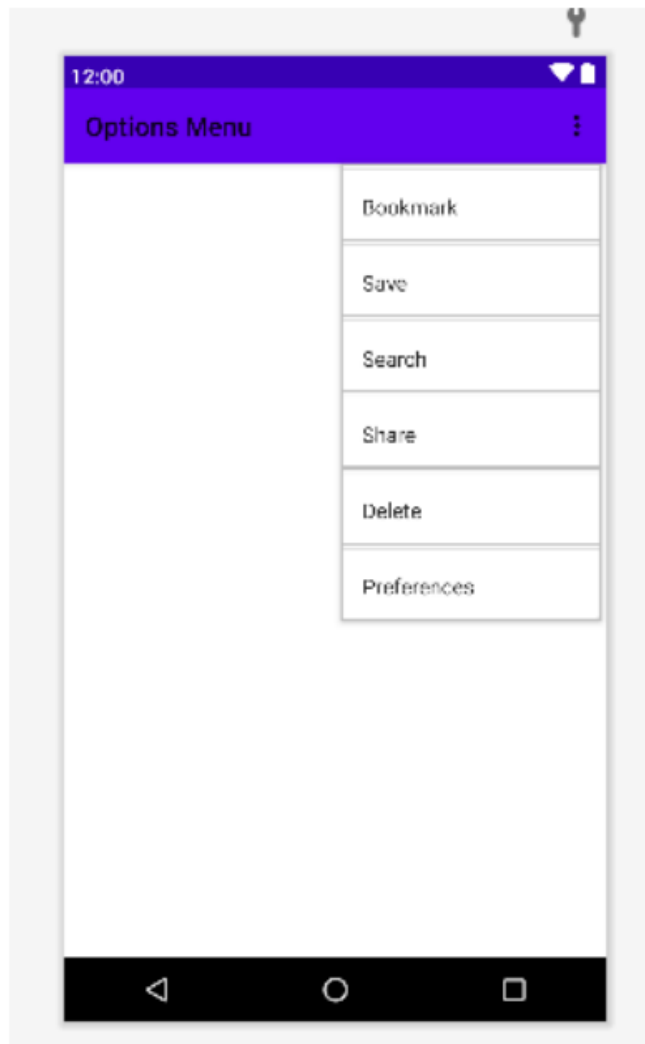
Output:



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"
/>
```

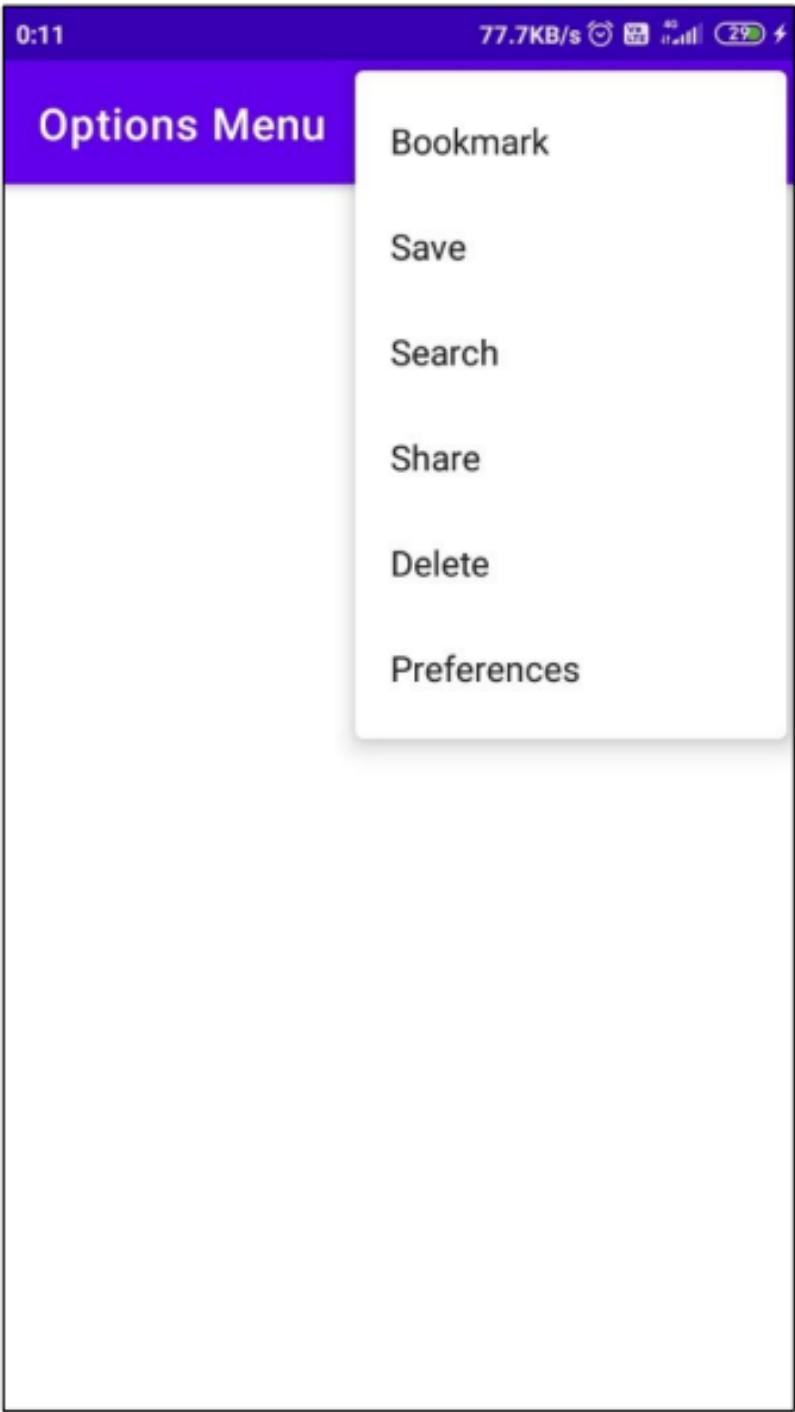
```
<item android:id="@+id/menu_share"
    android:title="@string/share"
/>
<item android:id="@+id/menu_delete"
    android:title="@string/delete"
/>
<item android:id="@+id/menu_preferences"
    android:title="@string/preferences"
/>
</menu>
```

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:



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.Body1"
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_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>
```

Main_Activity.java

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

public class MainActivity extends AppCompatActivity
{

    EditText e1, e2, e3;
    int num1, num2;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public boolean getNumbers()
    {
        e1 = (EditText)findViewById(R.id.num1);
        e2 = (EditText)findViewById(R.id.num2);
        e3 = (EditText)findViewById(R.id.result);
```

```
String s1 = e1.getText().toString();
String s2 = e2.getText().toString();

if ((s1.equals(null) && s2.equals(null)) || (s1.equals("") &&
s2.equals("")))
{
    String result = "Please enter a value";
    e3.setText(result);
    return false;
}
else
{
    num1 = Integer.parseInt(s1);
    num2 = Integer.parseInt(s2);
}
return true;
}

public void doAdd(View v)
{
    if (getNumbers())
    {
        int sum = num1 + num2;
        e3.setText(Integer.toString(sum));
    }
}

public void doSub(View v)
{
    if (getNumbers())
    {
        int sum = num1 - num2;
        e3.setText(Integer.toString(sum));
    }
}

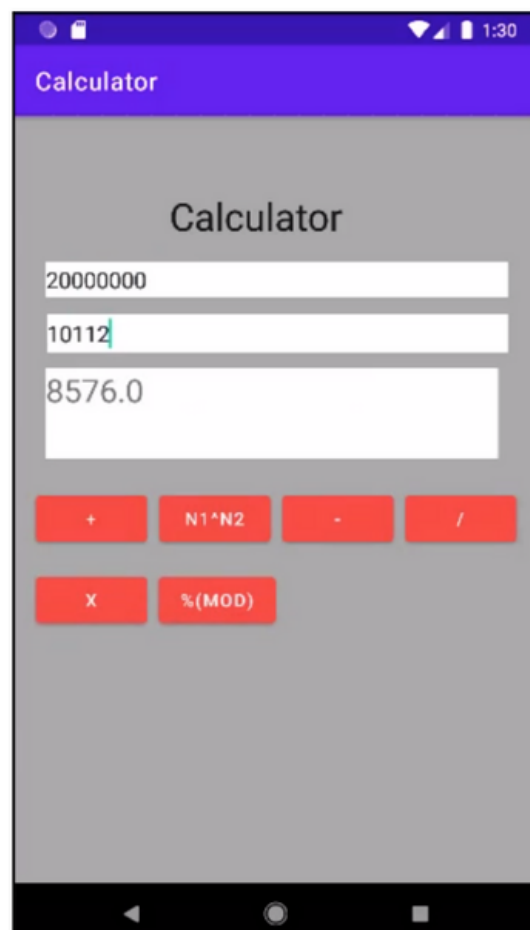
public void doMul(View v)
{
    if (getNumbers())
    {
        int sum = num1 * num2;
```

```

        e3.setText(Integer.toString(sum));
    }
}
public void doDiv(View v)
{
    if (getNumbers())
    {
        int sum = num1 / num2;
        e3.setText(Integer.toString(sum));
    }
}
public void doMod(View v)
{
    if (getNumbers())
    {
        int sum = num1 % 2;
        e3.setText(Integer.toString(sum));
    }
}
}

```

Output:



Practical 7

Aim: Create an android app that demonstrates the use of resizing and repositioning.

The following code shows the content of main.xml under the layout folder:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Top Left"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true" />
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Top Right"
        android:layout_alignParentTop="true"
        android:layout_alignParentRight="true" />
    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Bottom Left"
        android:layout_alignParentLeft="true"
        android:layout_alignParentBottom="true" />
    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Bottom Right"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true" />
```

```
<Button
    android:id="@+id/button5"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:text="Middle"
    android:layout_centerVertical="true"
    android:layout_centerHorizontal="true" />
</RelativeLayout>
```

The following shows the content of main.xml under the layout-land folder (the statements in bold are the additional views to display in landscape mode):

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Top Left"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true" />
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Top Right"
        android:layout_alignParentTop="true"
        android:layout_alignParentRight="true" />
    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Bottom Left"
        android:layout_alignParentLeft="true"
        android:layout_alignParentBottom="true" />
```

```
<Button
android:id="@+id/button4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Bottom Right"
android:layout_alignParentRight="true"
android:layout_alignParentBottom="true" />
<Button
android:id="@+id/button5"
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:text="Middle"
android:layout_centerVertical="true"
android:layout_centerHorizontal="true" />
<Button
android:id="@+id/button6"
android:layout_width="180px"
android:layout_height="wrap_content"
android:text="Top Middle"
android:layout_centerVertical="true"
android:layout_centerHorizontal="true"
android:layout_alignParentTop="true" />
<Button
android:id="@+id/button7"
android:layout_width="180px"
android:layout_height="wrap_content"
android:text="Bottom Middle"
android:layout_centerVertical="true"
android:layout_centerHorizontal="true"
android:layout_alignParentBottom="true" />
</RelativeLayout>
```

Output:

