

Practical 5

Programming UI elements

AppBar, Fragments, UI Components

a) Demonstration of Application Bar

- Create a new project
- Change the following lines in styles.xml
- To change styles.xml goto

ProjectName -> App -> Src -> Main -> Res -> values-> styles.xml

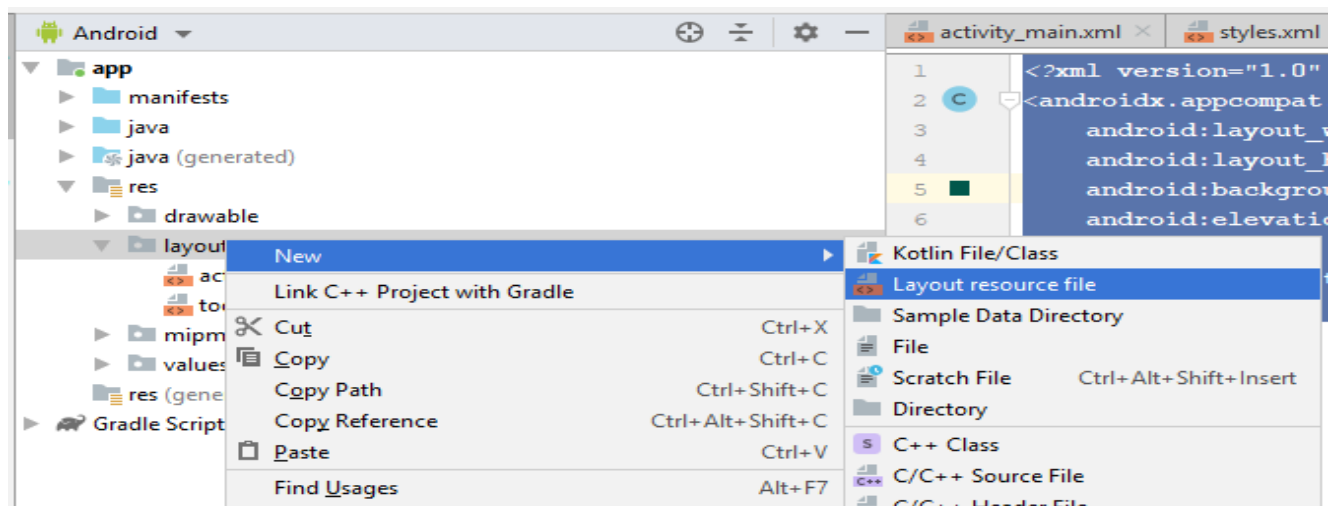
The default line is

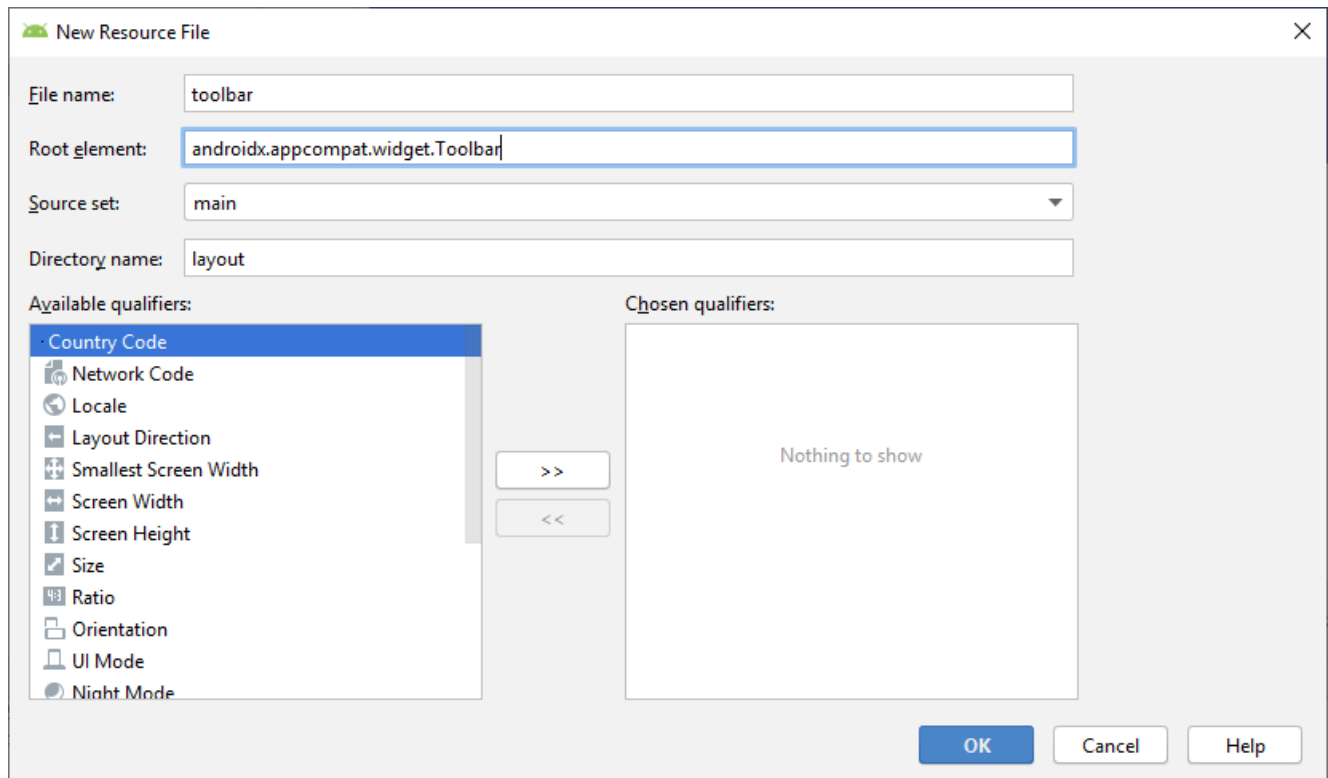
```
<style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
```

Change to

```
<style name="AppTheme" parent="Theme.AppCompat.Light.NoActionBar">
```

Go to, ProjectName -> App -> Src -> Main -> Res -> Layout

Right Click on layout and add a new file “**toolbar.xml**”Go to **toolbar.xml** and Change the default layout with this line



toolbar.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.appcompat.widget.Toolbar
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="@color/colorPrimaryDark"
    android:elevation="4dp"
    >
</androidx.appcompat.widget.Toolbar>
```

Now go to main_activity.xml and include the toolbar.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="Hello World!" />

    <include
        android:id="@+id/toolbar"
        layout="@layout/toolbar"

    />

</RelativeLayout>
```

Now go to MainActivity.java and write the following code

```
package com.example.profshahidansari;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import androidx.appcompat.widget.Toolbar;

public class MainActivity extends AppCompatActivity {

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

        Toolbar tbar=findViewById(R.id.toolbar);
        setSupportActionBar(tbar);
    }
}
```

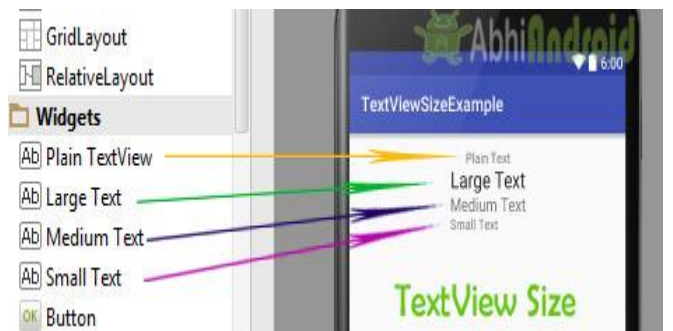
Output



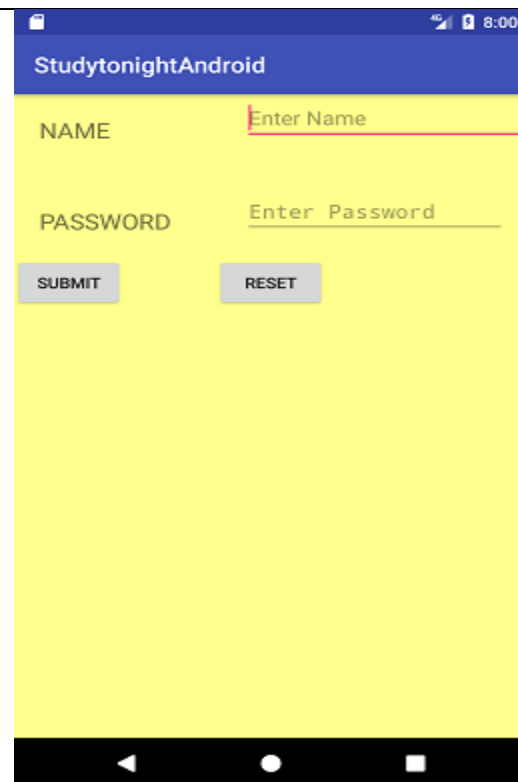
b) Demonstration of UI Components(TextView,EditText,Button)

TextView :Label Field

In Android, TextView displays text to the user and optionally allows them to edit it programmatically. TextView is a complete text editor, however basic class is configured to not allow editing but we can edit it.

**EditText: Input Field**

In Android, EditText is a standard entry widget in android apps. It is an overlay over TextView that configures itself to be editable. EditText is a subclass of TextView with text editing operations. We often use EditText in our applications in order to provide an input or text field, especially in forms. The most simple example of EditText is Login or Sign-in form.



Button

In Android, Button represents a push button. A Push buttons can be clicked, or pressed by the user to perform an action. There are different types of buttons used in android such as CompoundButton, ToggleButton, RadioButton.

**Calculator Application****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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="horizontal"
    android:stretchColumns="1">

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

        <EditText
            android:id="@+id/et1"
            android:layout_width="match_parent"
            android:layout_height="70dp"
            android:ems="10"
            android:inputType="textPersonName"
            android:text="Input1" />

        <EditText
            android:id="@+id/et2"
            android:layout_width="match_parent"
            android:layout_height="64dp"
            android:ems="10"
            android:inputType="textPersonName"
```

```
        android:text="Input2" />

<Button
    android:id="@+id/btnAdd"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Addition" />

<Button
    android:id="@+id/btnSub"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Subtraction" />

<Button
    android:id="@+id/btnMult"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Multiplication" />

<Button
    android:id="@+id/btnDiv"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Division" />

<Button
    android:id="@+id/btnClear"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Clear" />

<TextView
    android:id="@+id/tv1"
    android:layout_width="match_parent"
    android:layout_height="63dp"
    android:text="Output"
    android:textColor="@android:color/background_dark"
    android:textSize="18sp"
    android:textStyle="bold"
    app:fontFamily="casual" />
</LinearLayout>
</LinearLayout>
```

Main_Activity.java

```
package MaharashtraCollege.example.profshahidansari;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.*;

import static android.view.View.*;

public class MainActivity extends AppCompatActivity {

    EditText t1,t2;
    Button b1,b2,b3,b4,b5;
    TextView tv1;
    int n1=0,n2=0;
    String s1,s2;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        t1 = (EditText) findViewById(R.id.et1);
        t2 = (EditText) findViewById(R.id.et2);

        b1 = (Button) findViewById(R.id.btnAdd);
        b2 = (Button) findViewById(R.id.btnSub);
        b3 = (Button) findViewById(R.id.btnMult);
        b4 = (Button) findViewById(R.id.btnDiv);
        b5 = (Button) findViewById(R.id.btnClear);

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

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



```
        try {
            String s1 = t1.getText().toString();
            String s2 = t2.getText().toString();
            n1 = Integer.parseInt(s1);
            n2 = Integer.parseInt(s1);
            int sum = n1 + n2;
            tv1.setText("Addition =" + sum);
        }
        catch (NumberFormatException e)
        {

        }

    }
});

b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        try {
            String s1 = t1.getText().toString();
            String s2 = t2.getText().toString();
            n1 = Integer.parseInt(s1);
            n2 = Integer.parseInt(s1);
            int sub = n1 - n2;
            tv1.setText("Subtraction =" + sub);
        }
        catch (NumberFormatException e)
        {

        }

    }
});

b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        try {
            String s1 = t1.getText().toString();
            String s2 = t2.getText().toString();
            n1 = Integer.parseInt(s1);
            n2 = Integer.parseInt(s1);
            int m = n1 * n2;
            tv1.setText("Multiplication =" + m);
```

```
    }  
    catch (NumberFormatException e)  
    {  
  
    }  
  
    }  
});  
  
b4.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
  
        try {  
            String s1 = t1.getText().toString();  
            String s2 = t2.getText().toString();  
            n1 = Integer.parseInt(s1);  
            n2 = Integer.parseInt(s1);  
            int d = n1 / n2;  
            tv1.setText("Division =" + d);  
        }  
        catch (NumberFormatException e)  
        {  
  
        }  
  
    }  
});  
  
b5.setOnClickListener(new OnClickListener() {  
    @Override  
    public void onClick(View v) {  
  
        t1.setText(" ");  
        t2.setText(" ");  
        tv1.setText(" ");  
  
    }  
});  
}  
}
```

