

Practical 1.1

Aim: Installation & Configuration of Android Studio. Along with its all major Gradle, SDK, AVD etc.

Installing Android studio:

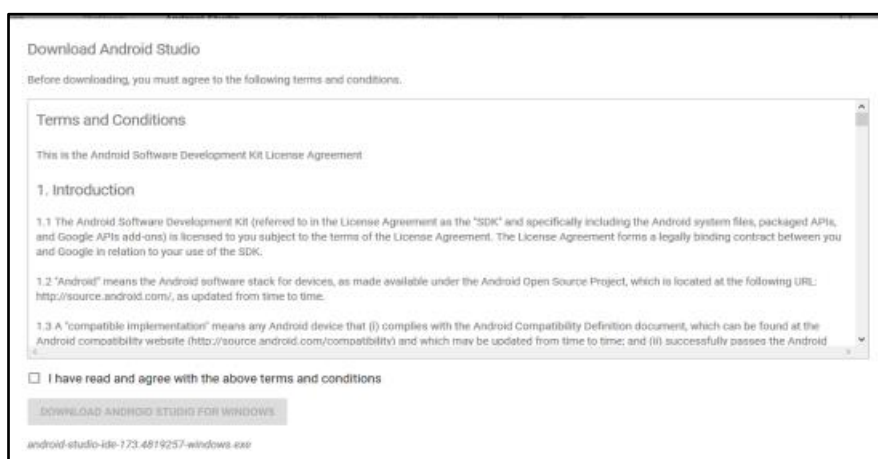
Android Studio is the official IDE (Integrated Development Environment) for Android app development and it is based on JetBrains' IntelliJ IDEA software. Android Studio provides many excellent features that enhance productivity when building Android apps, such as:

- A blended environment where one can develop for all Android devices
- Apply Changes to push code and resource changes to the running app without restarting the app
- A flexible Gradle-based build system
- A fast and feature-rich emulator
- GitHub and Code template integration to assist you to develop common app features and import sample code
- Extensive testing tools and frameworks

Steps:

Step 1: Head over to “<https://developer.android.com/studio/#downloads>” to get the Android Studio executable or zip file.

Step 2: Click on the Download Android Studio Button



Click on the “I have read and agree with the above terms and conditions” checkbox followed by the download button.

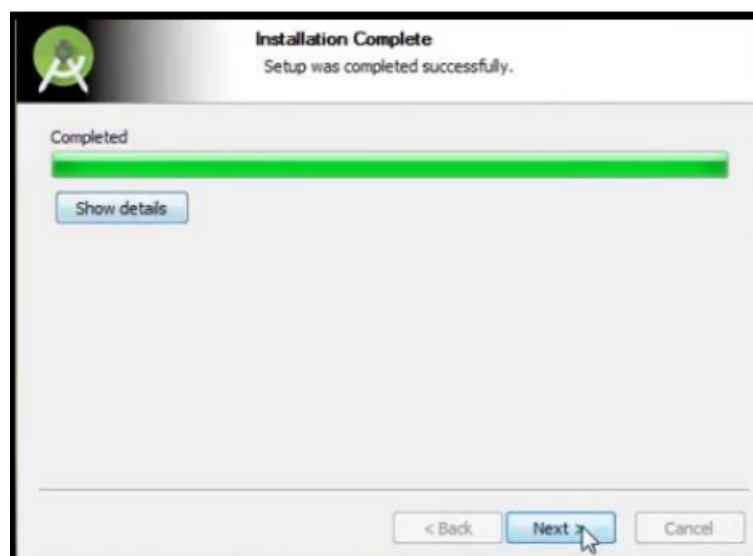
Click on the Save file button in the appeared prompt box and the file will start downloading.

Step 3: After the downloading has finished, open the file from downloads and run it. It will prompt the following dialog box.



Click on next. In the next prompt, it'll ask for a path for installation. Choose a path and hit next.

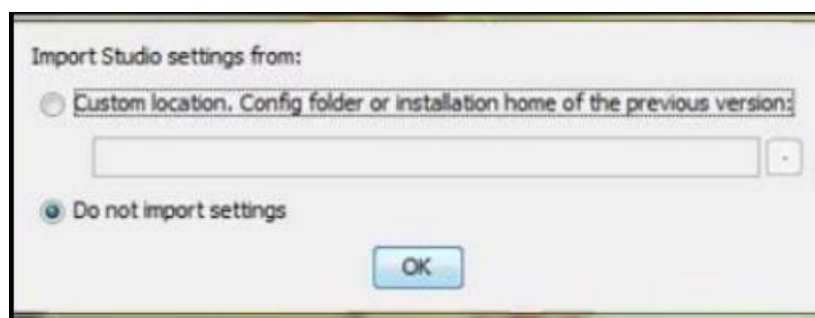
Step 4: It will start the installation, and once it is completed, it will be like the image shown below.



Click on next.



Step 5: Once “Finish” is clicked, it will ask whether the previous settings need to be imported [if the android studio had been installed earlier], or not. It is better to choose the ‘Don’t import Settings option’.

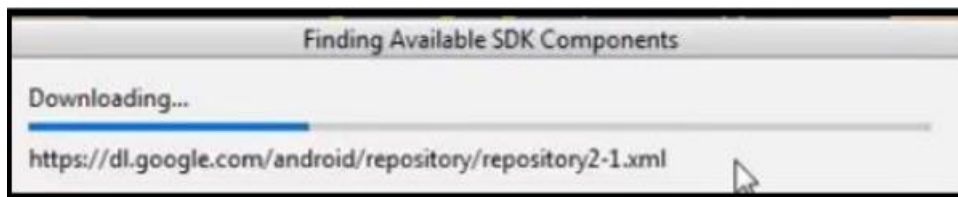


Click the OK button.

Step 6: This will start the Android Studio



Meanwhile, it will be finding the available SDK components.



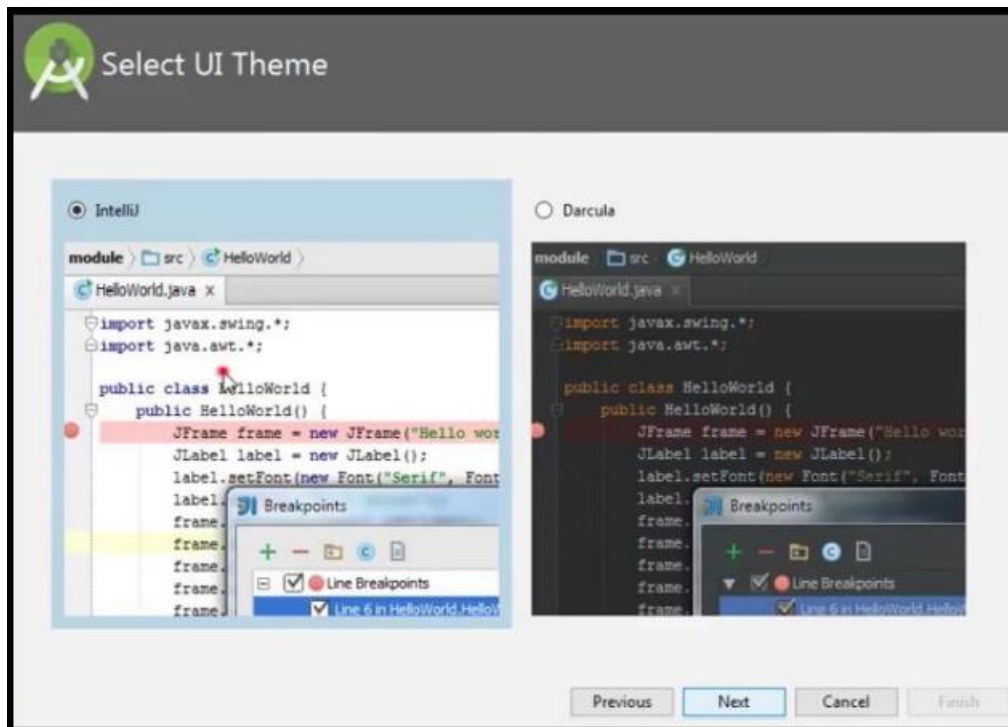
Step 7: After it has found the SDK components, it will redirect to the Welcome dialog box.



Click on Next.

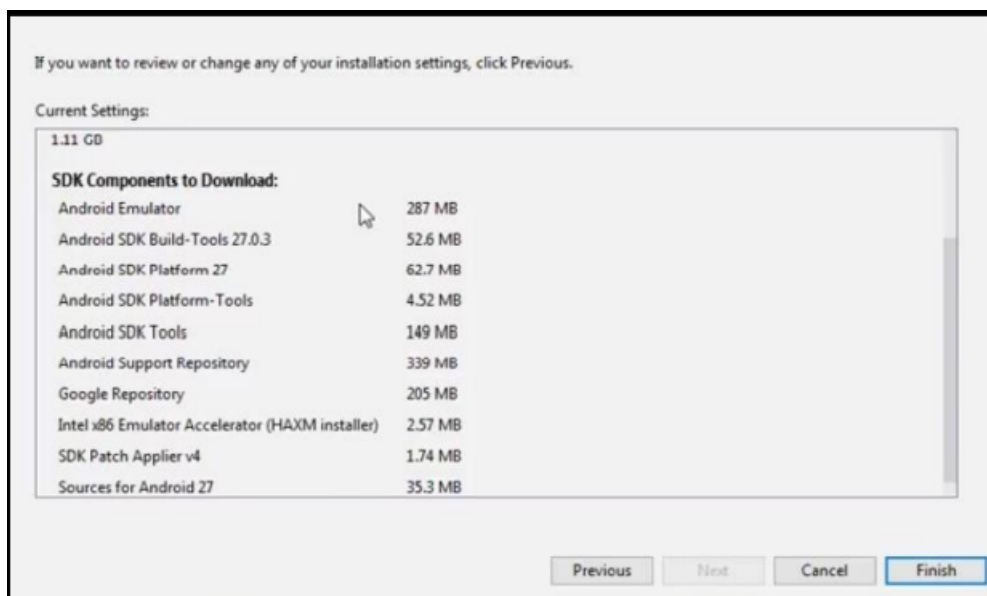


Choose Standard and click on Next. Now choose the theme, whether the Light theme or the Dark one. The light one is called the IntelliJ theme whereas the dark theme is called Darcula. Choose as required.

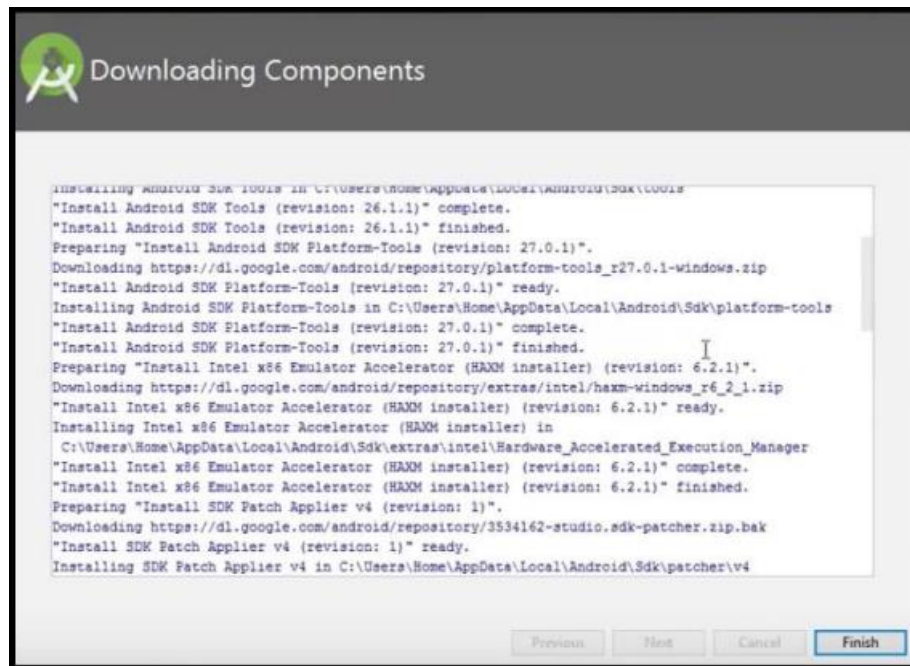


Click on the Next button.

Step 8: Now it is time to download the SDK components.

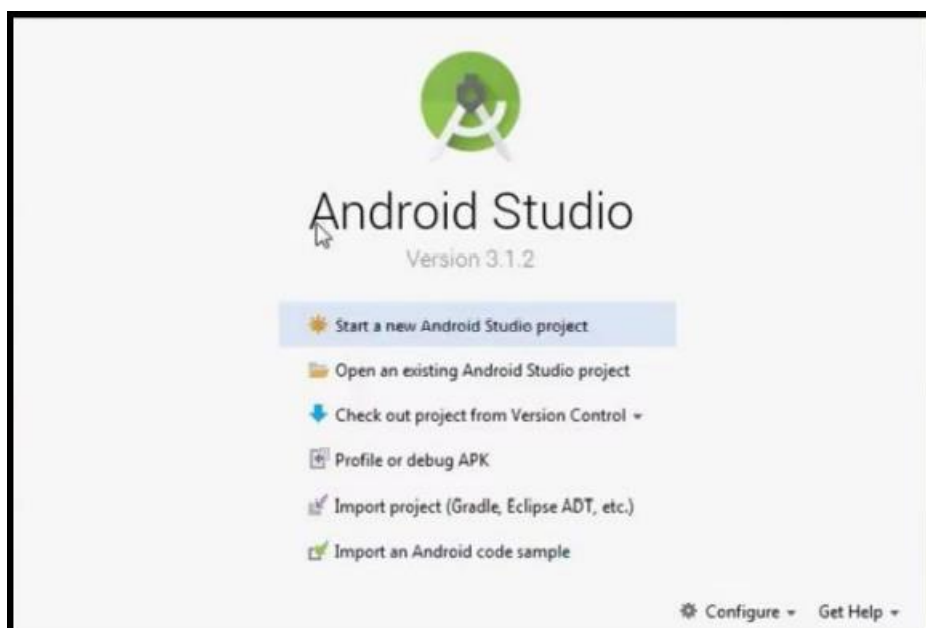


Click on Finish. Components begin to download let it complete.



The Android Studio has been successfully configured. Now it's time to launch and build apps. Click on the Finish button to launch it.

Step 9: Click on Start a new Android Studio project to build a new app.



Practical 1.2

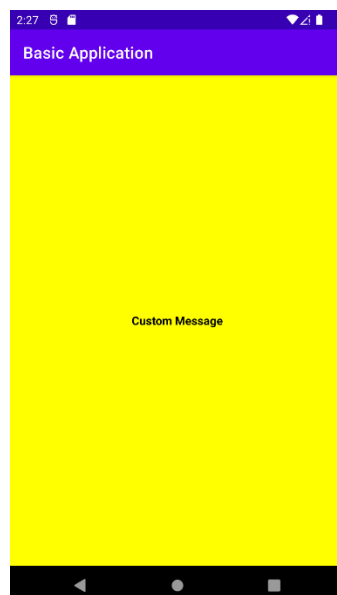
Aim: Introduction to Android and Create “Custom Message” application. That will display “Custom Message” in the middle of the screen in the Black color with the Yellow background.

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/yellow"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Custom Message"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:textStyle="bold"
        android:textSize="50px"
    />
</RelativeLayout>
```

Output:



Practical 2.1

Aim: Design an application representing a simple calculator.

activity_main.xml

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

<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    tools:context=".MainActivity"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView
        android:id="@+id/header_title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50px"
        android:layout_marginBottom="80px"
        android:text="Enter Two Numbers"
        android:textColor="@color/black"
        android:textStyle="bold"
        android:textSize="80px"
        android:layout_centerHorizontal="true"
    />

    <EditText
        android:id="@+id/edtNumberOne"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/header_title"
        android:inputType="number"
        android:hint="Enter First Number"
        android:layout_marginVertical="10px"
        android:layout_marginHorizontal="20px"
    />

    <EditText
        android:id="@+id/edtNumberTwo"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/edtNumberOne"
```



```
        android:layout_marginHorizontal="20px"
        android:layout_marginVertical="10px"
        android:hint="Enter Second Number"
        android:inputType="number"
    />
<LinearLayout
    android:id="@+id/btnLayout"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:weightSum="1"
    android:layout_marginTop="200dp"
    android:layout_centerHorizontal="true"
    >

    <Button
        android:id="@+id/btnadd"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginHorizontal="10px"
        android:text="+"
        android:textSize="50px"
        android:textStyle="bold" />

    <Button
        android:id="@+id/btndiv"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginHorizontal="10px"
        android:text="/"
        android:textSize="50px"
        android:textStyle="bold" />

    <Button
        android:id="@+id/btnmul"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginHorizontal="10px"
        android:text="*"
        android:textSize="50px"
        android:textStyle="bold" />

    <Button
        android:id="@+id/btnsub"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginHorizontal="10px"
        android:text="-"
        android:textSize="50px"
        android:textStyle="bold" />
    </LinearLayout>
```

```
    <LinearLayout
        android:id="@+id/ansLayout"
        android:layout_below="@+id/btnLayout"
        android:layout_centerHorizontal="true"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        >
```

```
    <TextView
        android:id="@+id/txtanswerheading"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/btnLayout"
        android:text="ANSWER: "
        android:textSize="80px"
        android:textStyle="bold"
        android:textColor="@color/black"
    />
```

```
    <TextView
        android:id="@+id/txtans"
        android:layout_toRightOf="@+id/txtanswerheading"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/btnLayout"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="55"
        android:textSize="80px"
        android:textStyle="bold"
        android:textColor="@color/black"
        android:visibility="invisible"
    />
```

```
</LinearLayout>
</RelativeLayout>
```

MainActivity.java

```
package com.example.calculator;

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 {

    EditText edt1, edt2;
    Button btnadd, btnsub, btnmul, btndiv;
    TextView txtans;

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

        edt1 = (EditText) findViewById(R.id.edtNumberOne);
        edt2 = (EditText) findViewById(R.id.edtNumberTwo);
        btnadd = (Button) findViewById(R.id.btnadd);
        btnsub = (Button) findViewById(R.id.btnsub);
        btnmul = (Button) findViewById(R.id.btnmul);
        btndiv = (Button) findViewById(R.id.btndiv);
        txtans = (TextView) findViewById(R.id.txtans);

        // Addition
        btnadd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
                    double oper1 = Double.parseDouble(edt1.getText().toString());
                    double oper2 = Double.parseDouble(edt2.getText().toString());
                    double result = oper1 + oper2;
                    txtans.setVisibility(View.VISIBLE);
                    txtans.setText(Double.toString(result));
                } else {
                    Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
                    Toast.LENGTH_LONG);
```

```
        toast.show();
    }
}
});
```

//Subtraction

```
btnsub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
            double oper1 = Double.parseDouble(edt1.getText().toString());
            double oper2 = Double.parseDouble(edt2.getText().toString());
            double result = oper1 - oper2;
            txtans.setVisibility(View.VISIBLE);
            txtans.setText(Double.toString(result));
        } else {
            Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
            Toast.LENGTH_LONG);
            toast.show();
        }
    }
});
```

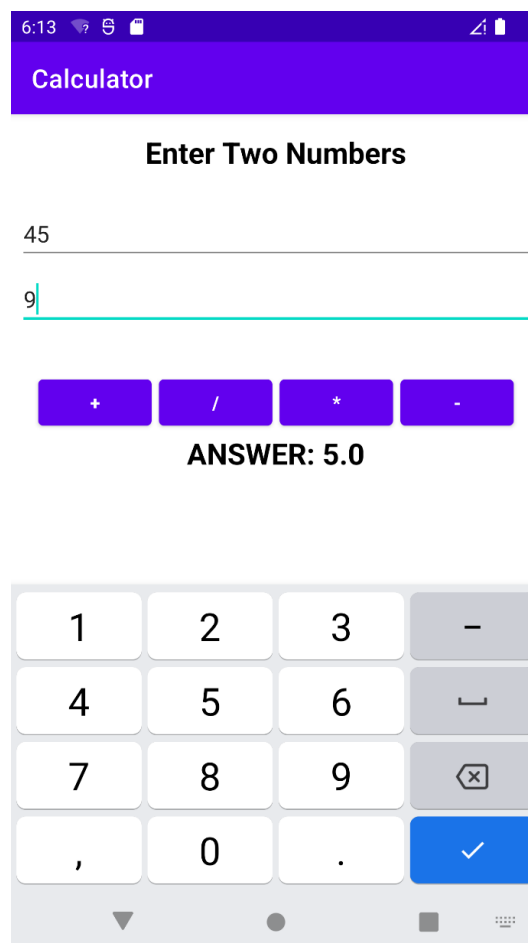
// Multiplication

```
btnmul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
            double oper1 = Double.parseDouble(edt1.getText().toString());
            double oper2 = Double.parseDouble(edt2.getText().toString());
            double result = oper1 * oper2;
            txtans.setVisibility(View.VISIBLE);
            txtans.setText(Double.toString(result));
        } else {
            Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
            Toast.LENGTH_LONG);
            toast.show();
        }
    }
});
```

// Division

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

```
@Override
public void onClick(View v) {
    if ((edt1.getText().length() > 0) && (edt2.getText().length() > 0)) {
        double oper1 = Double.parseDouble(edt1.getText().toString());
        double oper2 = Double.parseDouble(edt2.getText().toString());
        double result = oper1 / oper2;
        txtans.setVisibility(View.VISIBLE);
        txtans.setText(Double.toString(result));
    } else {
        Toast toast = Toast.makeText(MainActivity.this, "Enter The Required Numbers",
        Toast.LENGTH_LONG);
        toast.show();
    }
}
});
}
```

Output:

Practical 2.2

Aim: Create a login application with following features:

- 1. Successful Login message in TextView with Green background if Username & password is correct**
- 2. Failure message in TextView with Red background if Username or password is incorrect.**
- 3. Disable Login Button after three wrong login attempts.**
- 4. Close application if user selects Cancel Button.**

activity_main.xml

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

<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    tools:context=".MainActivity"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView
        android:id="@+id/idHeaderName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:layout_centerHorizontal="true"
        android:gravity="center_horizontal"
        android:padding="5dp"
        android:text="LOGIN"
        android:textStyle="bold"
        android:textAlignment="center"
        android:textColor="@color/grey"
        android:textSize="25sp" />

    <EditText
        android:id="@+id/EmailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/idHeaderName"
        android:layout_marginStart="10dp"
        android:layout_marginTop="50dp"
```

```
android:layout_marginEnd="10dp"
android:hint="Enter Email"
android:inputType="textEmailAddress" />
```

```
<EditText
    android:id="@+id/PasswordEditText"
    android:hint="Enter Password"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/EmailEditText"
    android:layout_marginStart="10dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="10dp"
    android:inputType="textPassword" />
```

```
<TextView
    android:id="@+id/TextViewAttemptsLeft"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/PasswordEditText"
    android:layout_marginHorizontal="10dp"
    android:gravity="center_horizontal"
    android:padding="5dp"
    android:text="ATTEMPTS LEFT:"
    android:textAlignment="textStart"
    android:textColor="@color/grey"
    android:textSize="18dp"
    android:textStyle="bold" />
```

```
<TextView
    android:id="@+id/TextViewNoOfAttempts"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/PasswordEditText"
    android:layout_toRightOf="@id/TextViewAttemptsLeft"
    android:gravity="center_horizontal"
    android:padding="5dp"
    android:text="3"
    android:textColor="@color/grey"
    android:textSize="18dp"
    android:textStyle="bold" />
```

```
<TextView
    android:id="@+id/TextViewStatus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/TextViewAttemptsLeft"
    android:layout_marginHorizontal="10dp"
    android:gravity="center_horizontal"
    android:padding="5dp"
    android:text="STATUS:"
    android:textStyle="bold"
    android:textAlignment="textStart"
    android:textColor="@color/grey"
    android:textSize="18dp" />
```

```
<TextView
    android:id="@+id/TextViewStatusResult"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/TextViewAttemptsLeft"
    android:layout_toRightOf="@id/TextViewStatus"
    android:text="SUCCESSFUL"
    android:visibility="invisible"
    android:padding="5dp"
    android:gravity="center_horizontal"
    android:textColor="@color/blue"
    android:textSize="18dp"
    android:textAlignment="textStart"
    android:textStyle="bold"
    android:textAllCaps="false"
    />
```

```
<Button
    android:id="@+id/LoginBtn"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_below="@id/TextViewStatus"
    android:layout_marginStart="100dp"
    android:layout_marginEnd="10dp"
    android:layout_marginTop="18dp"
    android:backgroundTint="@color/blue"
    android:text="Login"
    android:textStyle="bold"
    android:textSize="18dp"
    android:textAllCaps="false" />
```



```
<Button
    android:id="@+id/CancelBtn"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_below="@id/TextViewStatus"
    android:layout_toRightOf="@id/LoginBtn"
    android:backgroundTint="@color/slateGrey"
    android:layout_marginTop="18dp"
    android:text="Cancel"
    android:textStyle="bold"
    android:textSize="18dp"
    android:textAllCaps="false" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.login;

import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
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 {

    Button bt1, bt2;
    EditText edt1, edt2;
    TextView tx1,tx2;
    int counter = 3;

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

        edt1 = (EditText)findViewById(R.id.EmailEditText);
```

```
edt2 = (EditText)findViewById(R.id.PasswordEditText);
tx1 = (TextView)findViewById(R.id.TextViewNoOfAttempts);
tx2 = (TextView)findViewById(R.id.TextViewStatusResult);

bt1 = (Button)findViewById(R.id.LoginBtn);
bt2 = (Button)findViewById(R.id.CancelBtn);

bt1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if (edt1.getText().toString().equals("rushik") &&
edt2.getText().toString().equals("rushik")) {
            Toast.makeText(getApplicationContext(), "Login Successful",
Toast.LENGTH_SHORT).show();
            tx2.setVisibility(View.VISIBLE);
            tx2.setBackgroundColor(Color.GREEN);
            tx2.setText("Login Successful!");
        }
        else {
            tx2.setVisibility(View.VISIBLE);
            tx2.setText("Login Failed!");
            tx2.setBackgroundColor(Color.RED);
            Toast.makeText(getApplicationContext(), "Wrong Credentials",
Toast.LENGTH_SHORT).show();
            counter--; // number of attempts
            tx1.setText(Integer.toString(counter));

            if(counter == 0)
            {
                bt1.setEnabled(false);
                Toast.makeText(getApplicationContext(), "Login Disabled!",
Toast.LENGTH_SHORT).show();
            }
        }
    }
});

bt2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        finish();
    }
});
```

```
}  
}
```

Output:**LOGIN**

rushik

.....|

ATTEMPTS LEFT: 3

STATUS: Login Successful!

Login

Cancel



Login Successful

**LOGIN**

rushik

.....|

ATTEMPTS LEFT: 2

STATUS: Login Failed!

Login

Cancel



Wrong Credentials



Practical 2.3

Aim: Create android application to demonstrate life cycle of activity.

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"
    android:background="@color/teal_700">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to android with Rushik Rathod :)"
        android:textSize="20dp"
        android:textColor="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

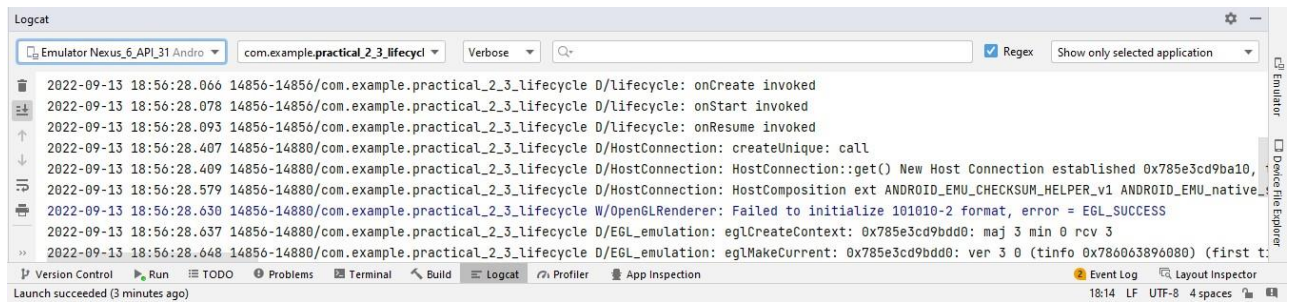
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

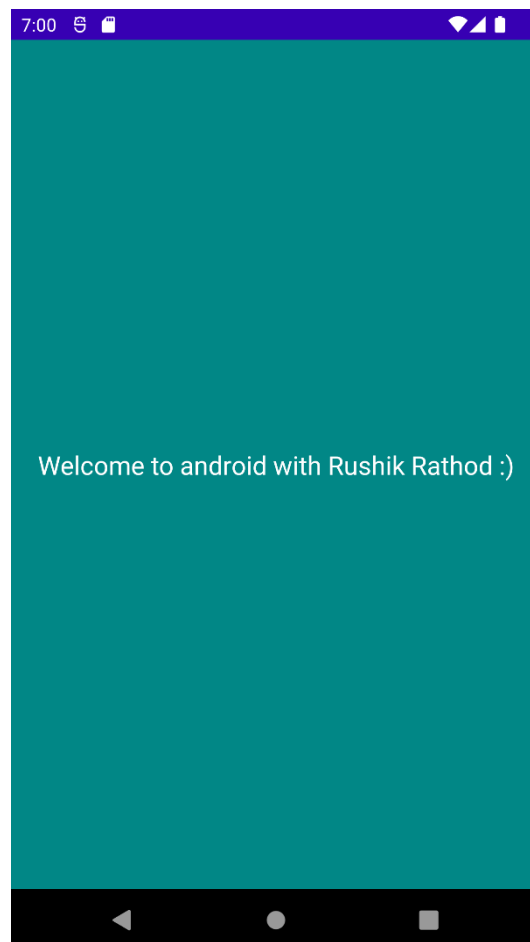
```
package com.example.practical_2_3_lifecycle;
import android.app.Activity;
import android.os.Bundle;
import android.util.Log;
public class MainActivity extends Activity {

    @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:

```
Logcat
Emulator Nexus_6_API_31 Andro com.example.practical_2_3_lifecycle Verbose Q+ [x] Regex Show only selected application
2022-09-13 18:56:28.066 14856-14856/com.example.practical_2_3_lifecycle D/lifecycle: onCreate invoked
2022-09-13 18:56:28.078 14856-14856/com.example.practical_2_3_lifecycle D/lifecycle: onStart invoked
2022-09-13 18:56:28.093 14856-14856/com.example.practical_2_3_lifecycle D/lifecycle: onResume invoked
2022-09-13 18:56:28.407 14856-14880/com.example.practical_2_3_lifecycle D/HostConnection: createUnique: call
2022-09-13 18:56:28.409 14856-14880/com.example.practical_2_3_lifecycle D/HostConnection: HostConnection::get() New Host Connection established 0x785e3cd9ba10,
2022-09-13 18:56:28.579 14856-14880/com.example.practical_2_3_lifecycle D/HostConnection: HostComposition ext ANDROID_EMU_CHECKSUM_HELPER_V1 ANDROID_EMU_native
2022-09-13 18:56:28.630 14856-14880/com.example.practical_2_3_lifecycle W/OpenGLESRenderer: Failed to initialize 101010-2 format, error = EGL_SUCCESS
2022-09-13 18:56:28.637 14856-14880/com.example.practical_2_3_lifecycle D/EGL_emulation: eglCreateContext: 0x785e3cd9bdd0: maj 3 min 0 rcv 3
2022-09-13 18:56:28.648 14856-14880/com.example.practical_2_3_lifecycle D/EGL_emulation: eglMakeCurrent: 0x785e3cd9bdd0: ver 3 0 (tinfo 0x786063896080) (first t
Version Control Run TODO Problems Terminal Build Logcat Profiler App Inspection Event Log Layout Inspector
Launch succeeded (3 minutes ago) 18:14 LF UTF-8 4 spaces
```



Practical 3.1

Aim: Create simple Application which show the use of List view.

Using Array Adapter

activity_main.xml

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <ListView
        android:id="@+id/simpleListView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:divider="@color/material_blue_grey_800"
        android:dividerHeight="1dp" />

</LinearLayout>
```

activity_listview.xml

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <TextView
        android:id="@+id/textView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:textColor="@color/black" />

</LinearLayout>
```

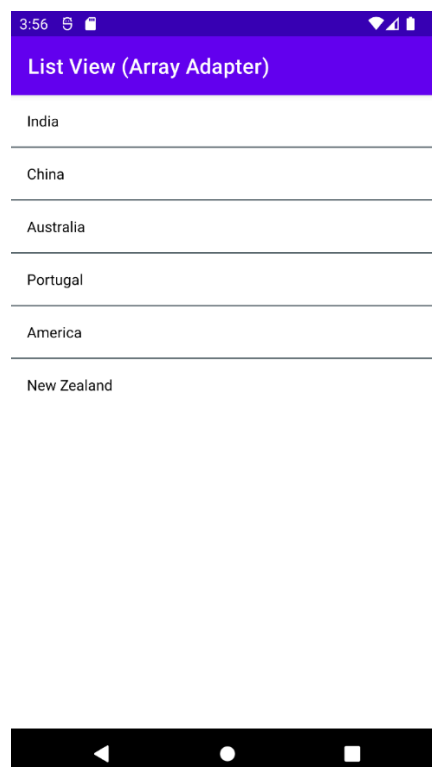
MainActivity.java

```
package com.example.practical_3_1_listview_array_adapter;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {

    ListView simpleList;
    String countryList[] = {"India", "China", "Australia", "Portugal", "America", "New
Zealand"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        simpleList = (ListView)findViewById(R.id.simpleListView);
        ArrayAdapter<String> arrayAdapter = new ArrayAdapter<String>(this,
R.layout.activity_listview, R.id.textView, countryList);
        simpleList.setAdapter(arrayAdapter);
    }
}
```

Output:

Using Base Adapter

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="3dp"
    android:orientation="vertical">

    <ListView
        android:id="@+id/simpleListView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:divider="@color/material_blue_grey_800"
        android:dividerHeight="1dp"
        android:footerDividersEnabled="false" />
</LinearLayout>
```

activity_listview.xml

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

    <ImageView
        android:id="@+id/icon"
        android:layout_width="50dp"
        android:layout_height="50dp"
        />

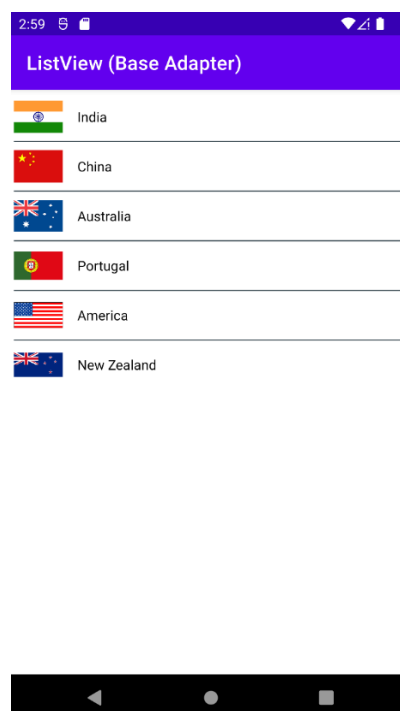
    <TextView
        android:id="@+id/textView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:padding="15dp"
        android:textColor="@color/black" />
</LinearLayout>
```

MainActivity.java

```
package com.example.practical_3_1_listview_base_adapter;
import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.widget.ListView;
public class MainActivity extends AppCompatActivity {

    ListView simpleList;
    String countryList[] = {"India", "China", "Australia", "Portugal", "America", "New
Zealand"};
    int flags[] = {R.drawable.india, R.drawable.china, R.drawable.australia,
R.drawable.portugal, R.drawable.america, R.drawable.newzealand};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        setContentView(R.layout.activity_main);
        simpleList = (ListView) findViewById(R.id.simpleListView);
        CustomAdapter customAdapter = new CustomAdapter(getApplicationContext(),
countryList, flags);
        simpleList.setAdapter(customAdapter);
    }
}
```

Output:

Practical 3.2

Aim: Create simple program which show the use of 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:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="8dp"
    >

    <TextView
        android:id="@+id/txtHeading"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_marginVertical="10dp"
        android:text="India, China, Australia, New Zealand, England, UAE"
        android:textColor="@color/black"
        android:textSize="20dp"
        android:textStyle="bold" />

    <AutoCompleteTextView
        android:id="@+id/simpleAutoCompleteTextView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/txtHeading"
        android:layout_margin="10dp"
        android:background="@color/teal_200"
        android:hint="Enter Country Name"
        android:padding="15dp"
        android:textColorHint="#fff"
        android:textStyle="bold|italic" />
</RelativeLayout>
```

MainActivity.java

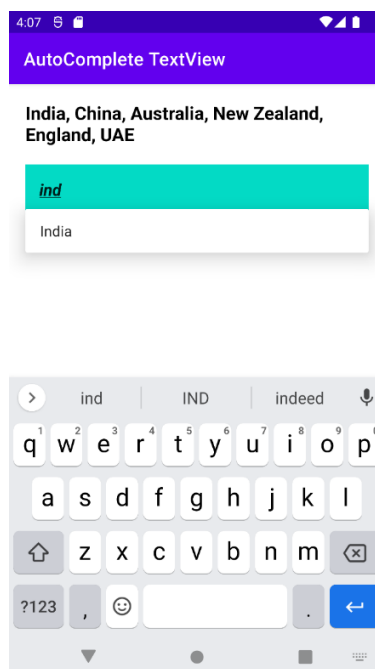
```
package com.example.practical_3_2_autocomplete_textview;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;

public class MainActivity extends AppCompatActivity {

    String[] countryNameList = {"India", "China", "Australia", "New Zealand", "England",
    "UAE"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        AutoCompleteTextView simpleAutoCompleteTextView = (AutoCompleteTextView)
        findViewById(R.id.simpleAutoCompleteTextView);
        ArrayAdapter adapter = new ArrayAdapter(this, android.R.layout.simple_list_item_1,
        countryNameList);
        simpleAutoCompleteTextView.setAdapter(adapter);
        simpleAutoCompleteTextView.setThreshold(1);
        simpleAutoCompleteTextView.setAdapter(adapter);
    }
}
```

Output:



Practical 3.3

Aim: Create simple Application which show the use of Radio view, take 3 radio button. When radio button is selected it will show the text of radio button using Toast.

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:orientation="vertical"
    android:padding="15dp"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:background="@color/white"
        android:orientation="vertical"
        >

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Select Your Branch: "
            android:textColor="#000"
            android:textSize="20sp"
            android:textStyle="bold" />

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

            <RadioButton
                android:id="@+id/cse"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_marginLeft="20dp"
                android:layout_marginTop="10dp"
                android:text="@string/cse"
                android:textColor="#154"
```

```
        android:textSize="20sp"
        android:textStyle="bold" />
```

```
<RadioButton
    android:id="@+id/ce"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="10dp"
    android:checked="false"
    android:text="@string/ce"
    android:textColor="#154"
    android:textSize="20sp"
    android:textStyle="bold" />
```

```
<RadioButton
    android:id="@+id/it"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="10dp"
    android:checked="false"
    android:text="@string/it"
    android:textColor="#154"
    android:textSize="20sp"
    android:textStyle="bold" />
```

```
</RadioGroup>
```

```
<Button
    android:id="@+id/submitButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_margin="20dp"
    android:background="#0f0"
    android:padding="15dp"
    android:text="Submit"
    android:textColor="#fff"
    android:textSize="20sp"
    android:textStyle="bold" />
```

```
</LinearLayout>
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.practical_3_3_radiobutton;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.Toast;

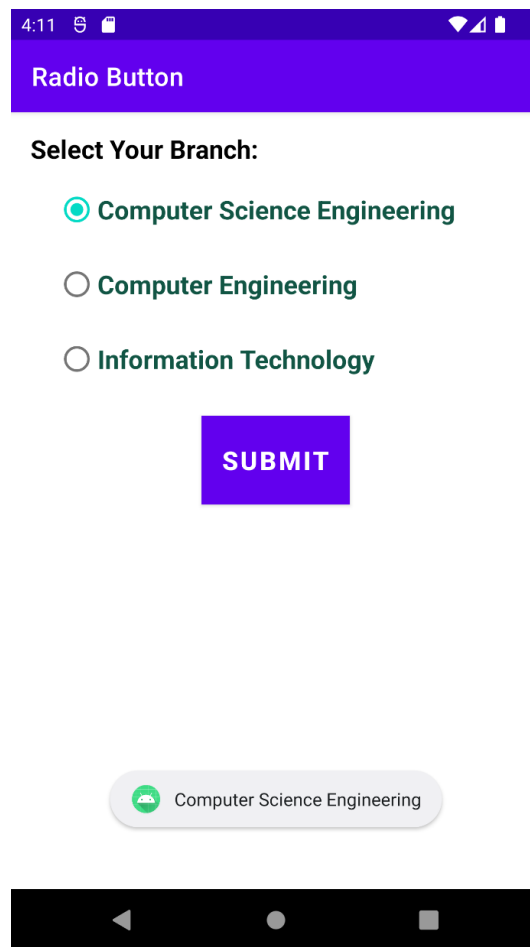
public class MainActivity extends AppCompatActivity {
    RadioButton cse, ce, it;
    String selectedSuperStar;
    Button submit;

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

        cse = (RadioButton) findViewById(R.id.cse);
        ce = (RadioButton) findViewById(R.id.ce);
        it = (RadioButton) findViewById(R.id.it);

        submit = (Button) findViewById(R.id.submitButton);

        submit.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (cse.isChecked()) {
                    selectedSuperStar = cse.getText().toString();
                } else if (ce.isChecked()) {
                    selectedSuperStar = ce.getText().toString();
                } else if (it.isChecked()) {
                    selectedSuperStar = it.getText().toString();
                }
                Toast.makeText(getApplicationContext(), selectedSuperStar,
                    Toast.LENGTH_LONG).show(); // print the value of selected super star
            }
        });
    }
}
```

Output:

The screenshot shows a mobile application interface. At the top, there is a status bar with the time 4:11 and various icons. Below the status bar is a purple header bar with the text "Radio Button". Underneath the header, the text "Select Your Branch:" is displayed. There are three radio button options: "Computer Science Engineering" (which is selected), "Computer Engineering", and "Information Technology". Below these options is a purple button labeled "SUBMIT". At the bottom of the screen, there is a white pill-shaped button with a green icon and the text "Computer Science Engineering". The bottom of the screen shows the Android navigation bar with back, home, and recent apps buttons.

Practical 4.1

Aim: Create simple Application which show the use of SeekBar.

activity_main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="25dp"
    tools:context=".MainActivity">

    <SeekBar
        android:id="@+id/simpleSeekBar"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:max="100"
        android:progress="30"
        />

</RelativeLayout>
```

MainActivity.java

```
package com.example.practical_4_1_seekbar;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.SeekBar;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    Button submitButton;
    SeekBar simpleSeekBar;

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

```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
setContentView(R.layout.activity_main);
simpleSeekBar=(SeekBar)
findViewById(R.id.simpleSeekBar);

simpleSeekBar.setOnSeekBarChangeListener(new
SeekBar.OnSeekBarChangeListener()
{
    int progressChangedValue = 0;
    public void onProgressChanged (SeekBar seekBar,int progress, boolean fromUser){
        progressChangedValue = progress;
    }
    public void onStartTrackingTouch (SeekBar seekBar){
    }
    public void onStopTrackingTouch (SeekBar seekBar) {
        Toast.makeText(MainActivity.this, "Seek bar progress is :" + progressChangedValue,
            Toast.LENGTH_SHORT).show();
    }
});
}
```

Output:

Practical 4.2

Aim: Create simple Application which show the use of RatingBar.

activity_main.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <RatingBar
        android:id="@+id/simpleRatingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:rating="0" />

    <Button
        android:id="@+id/submitButton"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/simpleRatingBar"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="20dp"
        android:background="#f00"
        android:padding="8dp"
        android:text="Submit"
        android:textColor="#fff"
        android:textSize="20dp"
        android:textStyle="bold" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.practical_4_2_ratingbar;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RatingBar;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

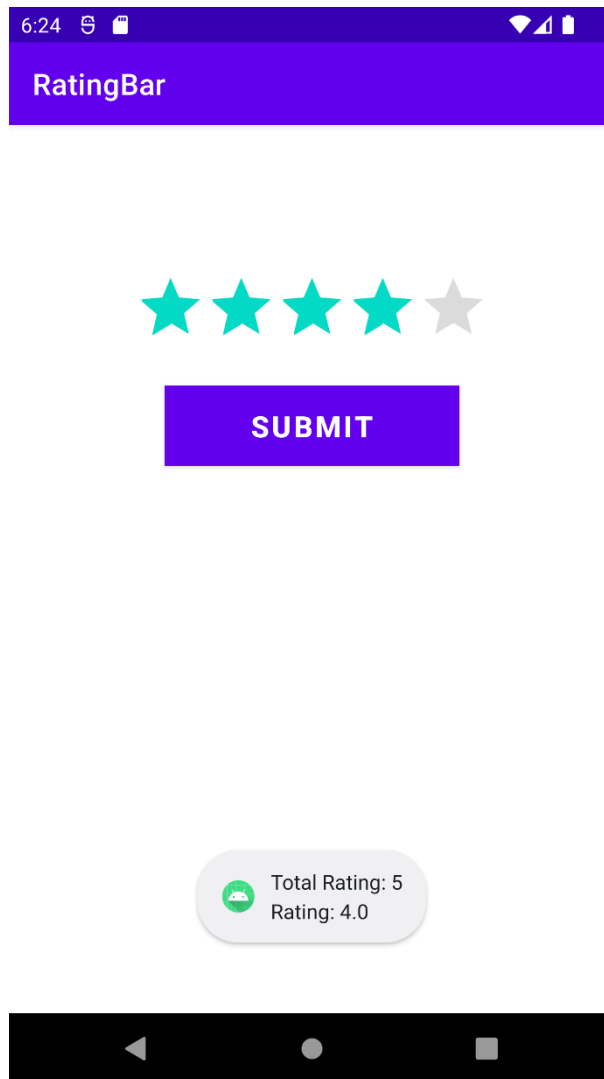
public class MainActivity extends AppCompatActivity {

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

        final RatingBar simpleRatingBar = (RatingBar) findViewById(R.id.simpleRatingBar);
        Button submitButton = (Button) findViewById(R.id.submitButton);

        submitButton.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                String totalRating = "Total Rating: " + simpleRatingBar.getNumStars();
                String rating = "Rating: " + simpleRatingBar.getRating();
                Toast.makeText(getApplicationContext(), totalRating+ "\n" + rating,
                Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

Output:

Practical 4.3

Aim: Create simple Application which show the use of AlertDialog.

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"
    android:padding="15dp"
    tools:context=".MainActivity">

    <TextView
        android:text="@string/click_over_button_to_exit"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/textView2"
        android:layout_marginTop="250dp"
        android:layout_centerHorizontal="true"
        android:textSize="18sp"
        android:textStyle="normal|bold"
        android:gravity="center" />

    <Button
        android:text="@string/exit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_below="@+id/textView2"
        android:id="@+id/button"
        android:onClick="exit"
        android:textStyle="normal|bold"
        style="@style/Widget.AppCompat.Button.Colored"
        android:layout_centerHorizontal="true"
        />

</RelativeLayout>
```

MainActivity.java

```
package com.example.practical_4_3_alertdialog;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

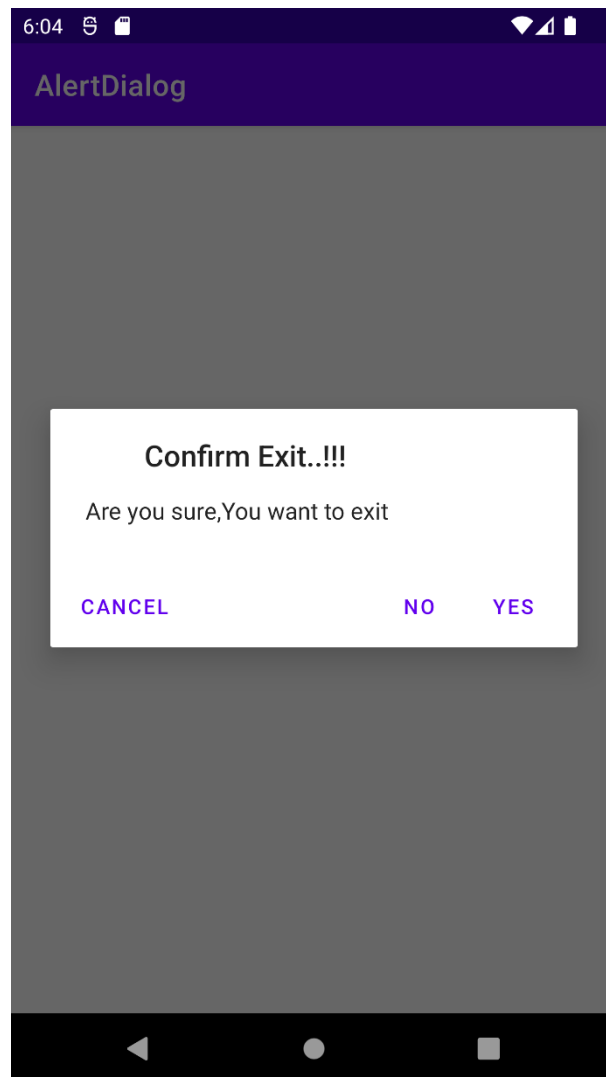
    public void exit(View view){
        AlertDialog.Builder alertDialogBuilder = new AlertDialog.Builder(this);
        alertDialogBuilder.setTitle("Confirm Exit..!!!");
        alertDialogBuilder.setIcon(R.drawable.question);
        alertDialogBuilder.setMessage("Are you sure, You want to exit");
        alertDialogBuilder.setCancelable(false);
        alertDialogBuilder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {

            @Override
            public void onClick(DialogInterface arg0, int arg1) {
                finish();
            }
        });

        alertDialogBuilder.setNegativeButton("No", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                Toast.makeText(MainActivity.this, "You clicked over
No", Toast.LENGTH_SHORT).show();
            }
        });

        alertDialogBuilder.setNeutralButton("Cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                Toast.makeText(getApplicationContext(), "You clicked on
Cancel", Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

```
    }  
    });  
  
    AlertDialog alertDialog = alertDialogBuilder.create();  
    alertDialog.show();  
    }  
}
```

Output:

Practical 5

Aim: Implement the given layout using Linear Layout.

HINT: `LinearLayout` is a view group that aligns children in single direction, Horizontal or Vertical. The attribute `android:orientation` is used to set the direction. E.g. `android:orientation="vertical"`.



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:weightSum="2"
    tools:context=".MainActivity">
```

```
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:orientation="horizontal"
        android:weightSum="2"
    >
```

```
<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#E91E63"
>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="1"
    android:textColor="#FFFFFF"
    android:textAlignment="center"
    android:textSize="50dp"
    android:layout_gravity="center"
/>

</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:weightSum="2"
    android:orientation="vertical"
    android:background="#2196F3"
>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:weightSum="3"
    android:orientation="horizontal"
>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#8BC34A">

    <TextView
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:text="2"
        android:textColor="#FFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />
</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#FF9800">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="3"
        android:textColor="#FFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />
</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#E90016">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="4"
        android:textColor="#FFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />

</LinearLayout>
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:orientation="horizontal"
    android:weightSum="3"
>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="2"
    android:background="#A25CAE"
>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="5"
    android:textColor="#FFFFFF"
    android:textAlignment="center"
    android:textSize="50dp"
    android:layout_gravity="center"
/>
</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#03A9F4"
>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="6"
    android:textColor="#FFFFFF"
    android:textAlignment="center"
    android:textSize="50dp"
    android:layout_gravity="center"
/>
</LinearLayout>
</LinearLayout>
```

```
</LinearLayout>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:weightSum="2"
    android:orientation="horizontal"
>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:orientation="vertical"
    android:weightSum="2"
    android:background="#4CAF50"
>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:weightSum="3"
    android:orientation="horizontal"
>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="2"
    android:background="#A25CAE"
>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="5"
    android:textColor="#FFFFFF"
    android:textAlignment="center"
    android:textSize="50dp"
    android:layout_gravity="center"
```

```
        />
    </LinearLayout>

    <LinearLayout
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:background="#00BCD4"
    >

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="6"
            android:textColor="#FFFFFF"
            android:textAlignment="center"
            android:textSize="50dp"
            android:layout_gravity="center"
        />
    </LinearLayout>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:orientation="horizontal"
    android:weightSum="3"
>

    <LinearLayout
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:background="#8BC34A"
    >

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="2"
            android:textColor="#FFFFFF"
            android:textAlignment="center"
            android:textSize="50dp"
```

```
        android:layout_gravity="center"
    />
</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#FF9800"
    >

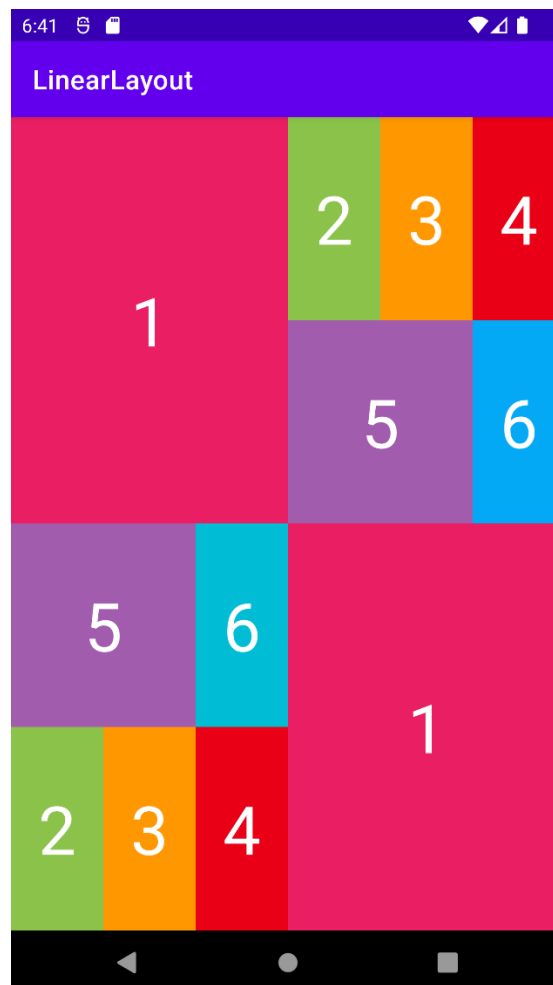
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="3"
        android:textColor="#FFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />
</LinearLayout>

<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#E90016"
    >

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="4"
        android:textColor="#FFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />

</LinearLayout>
</LinearLayout>
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="#E91E63"
    >
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="1"
        android:textColor="#FFFFFFF"
        android:textAlignment="center"
        android:textSize="50dp"
        android:layout_gravity="center"
    />
</LinearLayout>
</LinearLayout>
</LinearLayout>
```

Output:

Practical 6.1

Aim: Create login application where you will have to validate EmailID (UserName). Till the username and password is not validated, login button should remain disabled. On successful login, go to on new Activity.

activity_main.xml

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

<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    tools:context=".MainActivity"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView
        android:id="@+id/idHeaderName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:layout_centerHorizontal="true"
        android:gravity="center_horizontal"
        android:padding="5dp"
        android:text="LOGIN"
        android:textStyle="bold"
        android:textAlignment="center"
        android:textColor="@color/grey"
        android:textSize="25sp" />

    <EditText
        android:id="@+id/EmailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/idHeaderName"
        android:layout_marginStart="10dp"
        android:layout_marginTop="50dp"
        android:layout_marginEnd="10dp"
        android:hint="Enter Email"
        android:inputType="textEmailAddress" />

    <EditText
        android:id="@+id/PasswordEditText"
        android:hint="Enter Password"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/EmailEditText"
        android:layout_marginStart="10dp"
```

```
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:inputType="textPassword" />

<Button
    android:id="@+id/LoginBtn"

    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_below="@id/PasswordEditText"
    android:layout_centerHorizontal="true"
    android:text="Login"
    android:textStyle="bold"
    android:textSize="18dp"
    android:textColor="@color/white"
    android:textAllCaps="false" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.practical_6_1_login;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.text.Editable;
import android.text.TextWatcher;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText edtEmail, edtPassword;
    Button btnLogin;

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

        edtEmail = (EditText) findViewById(R.id.EmailEditText);
        edtPassword = (EditText) findViewById(R.id.PasswordEditText);

        btnLogin = (Button) findViewById(R.id.LoginBtn);
```

```

        edtPassword.addTextChangedListener(TextChange);
        edtEmail.addTextChangedListener(TextChange);
        check();
    }

    private TextWatcher TextChange=new TextWatcher() {
        @Override
        public void beforeTextChanged(CharSequence charSequence, int i, int i1, int i2) {

        }

        @Override
        public void onTextChanged(CharSequence charSequence, int i, int i1, int i2) {

        }

        @Override
        public void afterTextChanged(Editable editable) {
            check();
        }
    };

    public void check(){
        if(edtEmail.getText().toString().equals("rushik") &&
        edtPassword.getText().toString().equals("rushik")){

            btnLogin.setEnabled(true);

            btnLogin.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View view) {
                    Toast.makeText(getApplicationContext(), "Login Successful",
                    Toast.LENGTH_SHORT).show();
                    Intent intent = new Intent(getApplicationContext(), MainActivity2.class);
                    startActivity(intent);
                }
            });
        }
        else{
            btnLogin.setEnabled(false);
        }
    }
}

```

activity_main2.xml

```

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

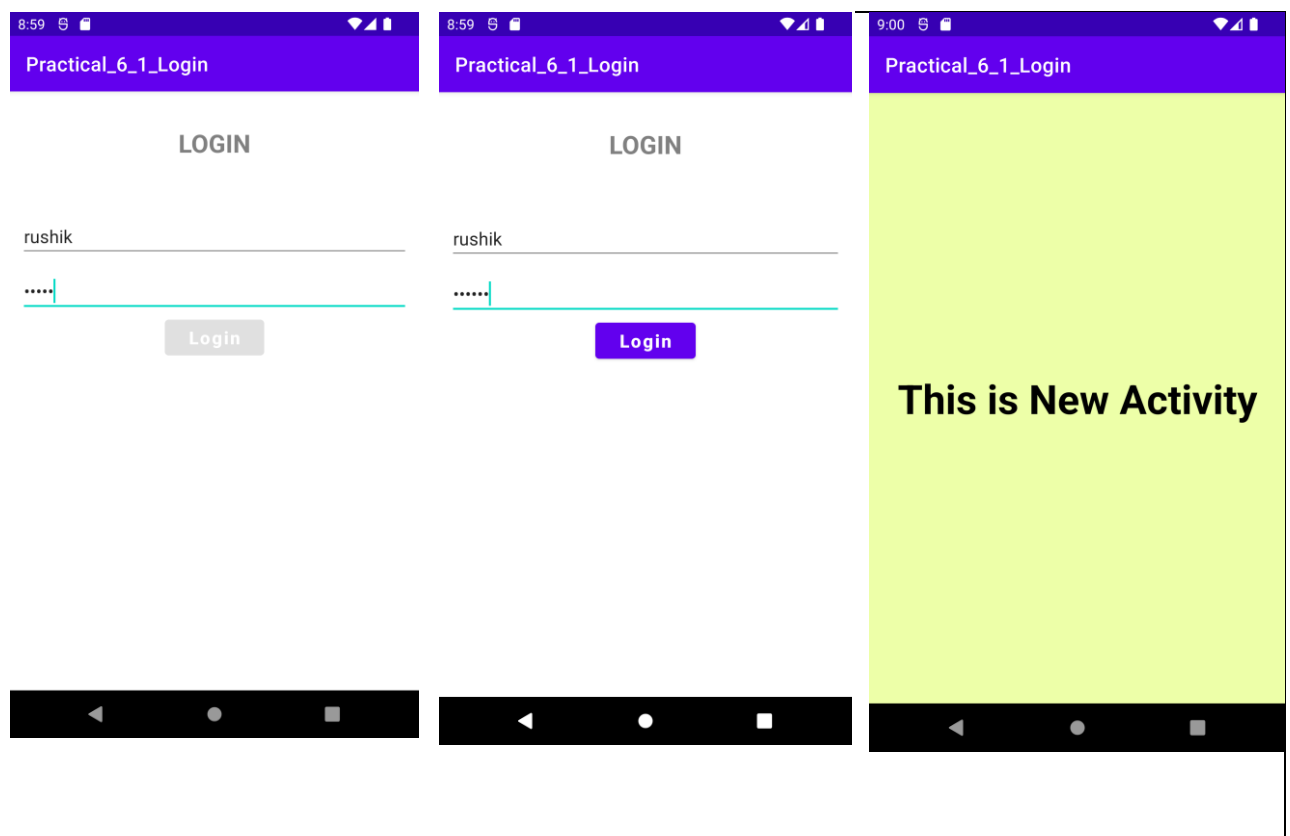
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

```

```
xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"  
android:layout_height="match_parent"  
android:background="#EDFFA8"  
tools:context=".MainActivity2">
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="This is New Activity"  
    android:textSize="40dp"  
    android:textStyle="bold"  
    android:id="@+id/textView"  
    android:textColor="@color/black"  
    android:layout_centerVertical="true"  
    android:layout_centerHorizontal="true" />  
</RelativeLayout>
```

Output:



Practical 6.2

Aim: Understand Menu option. Create an application that will change color of the screen, based on selected options from the menu.

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:id="@+id/cl"
    tools:context=".MainActivity">

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

MainActivity.java

```
package com.example.optionmenu;

import androidx.appcompat.app.AppCompatActivity;
import androidx.constraintlayout.widget.ConstraintLayout;
import android.graphics.Color;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    ConstraintLayout constraintLayout;

    @Override

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

```
        constraintLayout = findViewById(R.id.cl);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_example, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        Toast.makeText(this, "Selected Item: " +item.getTitle(),
        Toast.LENGTH_SHORT).show();

        switch (item.getItemId())
        {
            case R.id.i1:
                constraintLayout.setBackgroundColor(Color.parseColor("#DD0000"));
                return true;
            case R.id.i2:
                constraintLayout.setBackgroundColor(Color.parseColor("#0000DD"));
                return true;
            case R.id.i3:
                constraintLayout.setBackgroundColor(Color.parseColor("#00DD00"));
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }
}
```

menu_example.xml

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

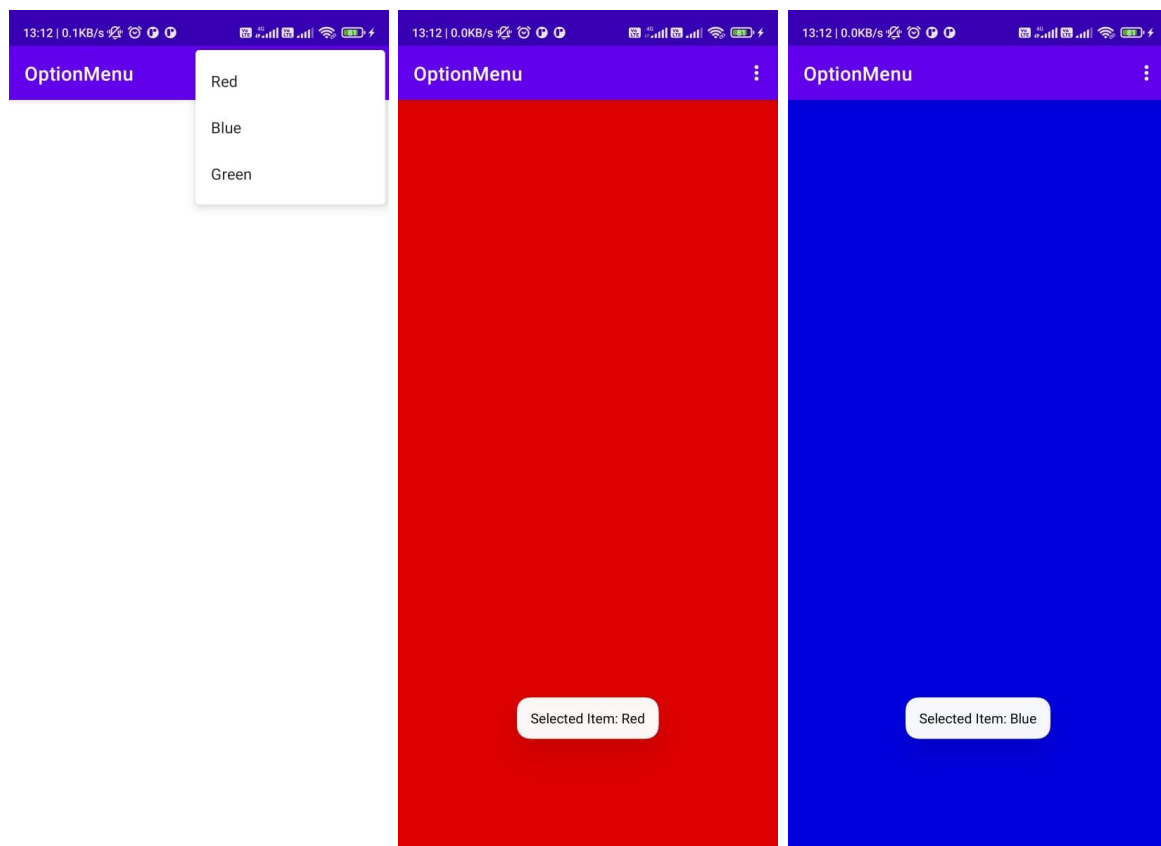
<menu xmlns:android="http://schemas.android.com/apk/res/android">

    <item android:id="@+id/i1"
        android:title="Red"
    />

    <item android:id="@+id/i2"
        android:title="Blue"
    />

    <item android:id="@+id/i3"
        android:title="Green"
    />

</menu>
```

Output:

Practical 7

Aim: Create an application to make a Phone call on specific entered number by user in the EditText.

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">
    <EditText
        android:id="@+id/num"
        android:layout_width="match_parent"
        android:layout_height="70dp"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="150dp"
        android:layout_marginRight="30dp"
        android:hint="Enter number"
        android:inputType="number"
    />
    <Button
        android:id="@+id/btn"
        android:layout_width="match_parent"
        android:layout_height="70dp"
        android:layout_marginTop="200dp"
        android:text="call"
        android:layout_marginRight="50dp"
        android:layout_marginLeft="50dp"
```



```
    />
</LinearLayout>
```

MainActivity.java

```
package com.example.prac71;

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 {

    EditText ed1;

    Button bt;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        ed1 = findViewById(R.id.num);

        bt = findViewById(R.id.btn);

        bt.setOnClickListener(new View.OnClickListener() {

            @Override

            public void onClick(View view) {

                String number = ed1.getText().toString();

                Intent i = new Intent(Intent.ACTION_CALL, Uri.parse("tel:" + number));

                startActivity(i);

            }

        });

    }

}
```

```
}
```

Output:

9428232348

CALL

Practical 8.1

Aim: Create an Android Application where user will enter the destination email address, subject and a message. On clicking Send button, it will prompt email client only and email will compose. Also put some logic over EditText field that no one fields are empty otherwise notify with toast.

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">

    <EditText
        android:id="@+id/email"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"
        android:layout_marginTop="150dp"
        android:layout_centerHorizontal="true"
        android:hint="Enter email"
        />

    <EditText
        android:id="@+id/sub"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:layout_marginRight="30dp"
        android:layout_marginLeft="30dp"
```

```
        android:layout_centerHorizontal="true"
        android:layout_below="@id/email"
        android:layout_marginTop="20dp"
        android:hint="Enter subject"
    />
<EditText
    android:id="@+id/msg"
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:layout_marginRight="30dp"
    android:layout_marginLeft="30dp"
    android:layout_centerHorizontal="true"
    android:layout_below="@id/sub"
    android:layout_marginTop="20dp"
    android:hint="Enter Message"
    />
<com.google.android.material.button.MaterialButton
    android:id="@+id/btn"
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:layout_below="@id/msg"
    android:layout_centerHorizontal="true"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_marginTop="30dp"
    android:text="Send"
    android:textSize="26dp"
    app:cornerRadius="30dp"
    android:backgroundTint="@color/black"
    />
```

```
</RelativeLayout>
```

MainActivity.java

```
package com.example.prac81;

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

import com.google.android.material.button.MaterialButton;

public class MainActivity extends AppCompatActivity {
    EditText em, sb, msg;
    MaterialButton bt;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        bt = findViewById(R.id.btn);
        em = findViewById(R.id.email);
        sb = findViewById(R.id.sub);
        msg = findViewById(R.id.msg);
        bt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String email = em.getText().toString();
```

```
String subject = sb.getText().toString();
String message = msg.getText().toString();
if(email.equals("")||subject.equals("")||message.equals(""))
{
    Toast.makeText(MainActivity.this, "Enter all the fields",
Toast.LENGTH_SHORT).show();
}
else
{
    Intent intent = new Intent(Intent.ACTION_SEND);
    intent.putExtra(Intent.EXTRA_EMAIL, new String[]{email});
    intent.putExtra(Intent.EXTRA_SUBJECT, subject);
    intent.putExtra(Intent.EXTRA_TEXT, message);
    intent.setType("message/rfc822");
    startActivity(Intent.createChooser(intent,"Choose an email client"));
}
}
});
}
@Override
public boolean onCreateOptionsMenu(Menu menu) {
    getMenuInflater().inflate(R.menu.activity_main,menu);
    return true;
}
}
```

Output:

project8.1

rushikrathod@gmail.com


Good morning

Hello everyone I am Rushik

SEND

← Compose

From physicsmaths500@gmail.com

To  rushikrathod@gmail.com

Good morning

Hello everyone I am Rushik

Practical 8.2

Aim: Create an Application in which user pass the data with intent object to another activity.

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">
    <EditText
        android:id="@+id/text"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:layout_centerHorizontal="true"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"
        android:layout_marginTop="150dp"
        android:hint="Enter your name"
    />
    <com.google.android.material.button.MaterialButton
        android:id="@+id/btn"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:layout_below="@id/text"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:layout_marginLeft="30dp"
        android:layout_marginRight="30dp"
```



```
        android:text="enter"
        android:textSize="26dp"
        app:cornerRadius="30dp"
        android:backgroundTint="@color/black"
    />
</RelativeLayout>
```

activity_main2.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=".MainActivity2">
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome, "
        android:textSize="26dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.prac82;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import com.google.android.material.button.MaterialButton;

public class MainActivity extends AppCompatActivity {
    EditText ed;
    MaterialButton bt;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ed = findViewById(R.id.text);
        bt = findViewById(R.id.btn);
        bt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String name = ed.getText().toString();
                Intent intent = new Intent(MainActivity.this, MainActivity2.class);
                intent.putExtra("Name",name);
                startActivity(intent);
            }
        });
    }
}
```

MainActivity2.java

```
package com.example.prac82;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {
    TextView textView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        textView = findViewById(R.id.textView);
        Bundle extras = getIntent().getExtras();
        if(extras!=null)
        {
            String Name = extras.getString("Name");
            textView.setText(textView.getText().toString() + Name);
        }
    }
}
```

Output:project8.2project8.2**ENTER**

Welcome, Rushik

Practical 9

Aim: Create an application to make Insert, update, Delete and retrieve operation on the SQLite database.

Source Code:

DBHelper.java

```
package com.example.prac9;

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

public class DBHelper extends SQLiteOpenHelper {

    public DBHelper(Context context)
    {
        super(context, "Userdata.db", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase DB) {
        DB.execSQL("create table users(id TEXT primary key, name TEXT, surname TEXT, marks TEXT)");
    }

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

    public Boolean InsertData(String id, String name, String surname, String marks)
    {
```

```
SQLiteDatabase DB = this.getWritableDatabase();
ContentValues contentValues = new ContentValues();
contentValues.put("id",id);
contentValues.put("name",name);
contentValues.put("surname",surname);
contentValues.put("marks",marks);
long res = DB.insert("users",null,contentValues);
if(res==-1)
{
    return false;
}
else
{
    return true;
}
}

public Boolean UpdateDate(String id, String name, String surname, String marks)
{
    SQLiteDatabase DB = this.getWritableDatabase();
    ContentValues contentValues = new ContentValues();
    contentValues.put("id",id);
    contentValues.put("name",name);
    contentValues.put("surname",surname);
    contentValues.put("marks",marks);
    Cursor cursor = DB.rawQuery("select * from users where id=?", new String[]{id});
    if(cursor.getCount()>0)
    {
        long res = DB.update("users", contentValues, "id=?",new String[]{id});
        if(res==-1)
        {
```

```
        return false;
    }
    else
    {
        return true;
    }
}
return false;
}

public Boolean DeleteDate(String id)
{
    SQLiteDatabase DB= this.getWritableDatabase();
    Cursor cursor =DB.rawQuery("Select * from users where id=?", new String[]{id} );
    if (cursor.getCount()>0)
    {
        long result = DB.delete("users", "id=?",new String[]{id});
        if(result==1)
        {
            return false;
        }
        else
        {
            return true;
        }
    }
    return false;
}

public Cursor ViewData()
{

```

```
        SQLiteDatabase DB = this.getWritableDatabase();  
        Cursor cursor = DB.rawQuery("select * from users",null);  
        return cursor;  
    }  
}
```

MainActivity.java

```
package com.example.prac9;  
  
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 {  
    Button insert, update, view, delete;  
    EditText id, name, surname, marks;  
    DBHelper DB;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
        insert = findViewById(R.id.insert);  
        update = findViewById(R.id.update);  
        view = findViewById(R.id.view);  
    }  
}
```



```
delete = findViewById(R.id.delete);
id = findViewById(R.id.id);
name = findViewById(R.id.name);
surname = findViewById(R.id.surname);
marks = findViewById(R.id.marks);
DB = new DBHelper(this);

insert.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String Id = id.getText().toString();
        String Name = name.getText().toString();
        String Surname = surname.getText().toString();
        String Marks = marks.getText().toString();

        Boolean checkInsert = DB.InsertData(Id, Name, Surname, Marks);
        if(checkInsert==true)
        {
            Toast.makeText(MainActivity.this, "Data inserted successfully!",
Toast.LENGTH_SHORT).show();
        }
        else
        {
            Toast.makeText(MainActivity.this, "Cannot insert data",
Toast.LENGTH_SHORT).show();
        }
    }
});

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

```
String Id = id.getText().toString();
String Name = name.getText().toString();
String Surname = surname.getText().toString();
String Marks = marks.getText().toString();
Boolean checkUpdate = DB.UpdateDate(Id, Name, Surname, Marks);
if(checkUpdate==true)
{
    Toast.makeText(MainActivity.this, "Data updated successfully",
Toast.LENGTH_SHORT).show();
}
else
{
    Toast.makeText(MainActivity.this, "Unable to update data!",
Toast.LENGTH_SHORT).show();
}

}

});

view.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Cursor res = DB.ViewData();
        if(res.getCount()==0)
        {
            Toast.makeText(MainActivity.this, "No data exists",
Toast.LENGTH_SHORT).show();
            return;
        }
        StringBuffer buffer = new StringBuffer();
        while(res.moveToNext())
```

```
{
    buffer.append("Id: "+res.getString(0)+"\n");
    buffer.append("Name: "+res.getString(1)+"\n");
    buffer.append("Surname: "+res.getString(2)+"\n");
    buffer.append("Marks: "+res.getString(3)+"\n");
}

AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
builder.setCancelable(true);
builder.setTitle("User data");
builder.setMessage(buffer.toString());
builder.show();
}
});

delete.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String Id = id.getText().toString();
        if(Id.equals(""))
        {
            Toast.makeText(MainActivity.this, "Please enter ID",
Toast.LENGTH_SHORT).show();
        }
        else
        {
            Boolean checkDelete = DB.DeleteDate(Id);
            if(checkDelete==true)
            {
                Toast.makeText(MainActivity.this, "Data deleted!",
Toast.LENGTH_SHORT).show();
            }
        }
    }
});
```

```
        else
        {
            Toast.makeText(MainActivity.this, "Unable to delete",
Toast.LENGTH_SHORT).show();
        }
    }
}
});
}
```

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">

    <EditText
        android:id="@+id/id"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:layout_centerHorizontal="true"
        android:layout_marginLeft="30dp"
        android:layout_marginTop="150dp"
        android:layout_marginRight="30dp"
        android:hint="Enter ID" />

    <EditText
```

```
android:id="@+id/name"
android:layout_width="match_parent"
android:layout_height="50dp"
android:layout_below="@id/id"
android:layout_centerHorizontal="true"
android:layout_marginLeft="30dp"
android:layout_marginTop="10dp"
android:layout_marginRight="30dp"
android:hint="Enter name" />
```

<EditText

```
android:id="@+id/surname"
android:layout_width="match_parent"
android:layout_height="50dp"
android:layout_below="@id/name"
android:layout_centerHorizontal="true"
android:layout_marginLeft="30dp"
android:layout_marginTop="10dp"
android:layout_marginRight="30dp"
android:hint="Enter surname" />
```

<EditText

```
android:id="@+id/marks"
android:layout_width="match_parent"
android:layout_height="50dp"
android:layout_below="@id/surname"
android:layout_centerHorizontal="true"
android:layout_marginLeft="30dp"
android:layout_marginTop="10dp"
android:layout_marginRight="30dp"
```

```
        android:hint="Enter marks" />
<LinearLayout
    android:id="@+id/ll1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_below="@+id/marks"
    android:layout_marginTop="50dp"
    android:layout_centerHorizontal="true"
    >
    <Button
        android:id="@+id/insert"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginHorizontal="50dp"
        android:text="Insert"
        android:backgroundTint="@color/black"
        />

    <Button
        android:id="@+id/view"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginHorizontal="50dp"
        android:backgroundTint="@color/black"
        android:text="View" />
</LinearLayout>
<LinearLayout
    android:id="@+id/ll2"
    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_below="@+id/ll1"
        android:layout_marginTop="50dp"
        android:layout_centerHorizontal="true"
    >
    <Button
        android:id="@+id/update"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginHorizontal="50dp"
        android:text="Update"
        android:backgroundTint="@color/black"
    />

    <Button
        android:id="@+id/delete"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_marginHorizontal="50dp"
        android:backgroundTint="@color/black"
        android:text="Dalete" />
</LinearLayout>
</RelativeLayout>
```

Output:

project9

rushikrathod@gmail.com

Rushik

rathod

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INSERT VIEW

Data inserted successfully!

UPDATE DELETE

project9

rushikrathod@gmail.com

User data
Id: rushikrathod@gmail.com
Name: Rushik
Surname: rathod
Marks: 95

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INSERT VIEW

UPDATE DELETE