JGI JAIN DEEMED-TO-BE UNIVERSITY | SCHOOL OF COMPUTER SCIENCE AND IT

Department of Information Technology

Bachelors of Computer Applications (BCA)

Specialization: MACT/ISMA

Subject Name: Andriod Operating System Lab

Subject Code: 19BCAM4C2L/19BCA4CO3L

JGI JAIN DEEMED-TO-BE UNIVERSITY | SCHOOL OF COMPUTER SCIENCE AND IT

LIST OF LAB EXERCISE:

The objective of this course is to learn creation of App development using basic features of Android Operating System.

Lab Experiments for Basic Android are:

1. Display Hello World

2. Add two Edit Text. When a number is entered in Edit Text 1, the square of that number should be displayed in Edit Text 2.

3. Add an Edit Text and a button. When the button is clicked, the text inputted in Edit Text should be retrieved and displayed back to the user.

4. Add input in two Edit Text and add a button. Display anyone randomly in text view when button is clicked.

5. Program a calculator

6. Create a Unit convertor for height

7. Create a Unit convertor for height and weight in the same application. Selection of height/weight can be done using a spinner.

8. Add a spinner. When the spinner is selected, there should be three options (e.g., android, java, testing). When you click on each option, it should go to another page containing some other components. Each of these pages should have a “back” button, which on pressing will take you back to the page with the spinner.

9. Create applications to include ActionBar, Menus, Dialogs and Notifications

10. Create a user login form and registration form. First time users have to register through the registration form and the details should be stored in the database. Then they can login using the login page.

11. Design an android application to include Webview on Andriod studio

12. Design an android application to include No Internet Connection Dialog in Android

1. Display Hello World

System Requirements

You will be delighted, to know that you can start your Android application development on either of the following operating systems −

- Microsoft® Windows® 10/8/7/Vista/2003 (32 or 64-bit)
- Mac® OS X® 10.8.5 or higher, up to 10.9 (Mavericks)
- GNOME or KDE desktop

Second point is that all the required tools to develop Android applications are open source and can be downloaded from the Web. Following is the list of software's you will need before you start your Android application programming.

- Java JDK5 or later version
- Java Runtime Environment (JRE) 6
- Android Studio

```
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:paddingLeft="@dimen/activity_horizontal_margin"
  android:paddingRight="@dimen/activity_horizontal_margin"
  android:paddingTop="@dimen/activity_vertical_margin"
  android:paddingBottom="@dimen/activity_vertical_margin"
tools:context=".MainActivity">

  <TextView android:text="@string/hello_world"
    android:layout_width="550dp"
    android:layout_height="wrap_content" />
</RelativeLayout>
```

Need to run the program by clicking **Run>Run App** or else need to call **shift+f10**key

OUTPUT ON AVD:

2. Add two Edit Text, When a number is entered in Edit Text 1 and Edit Text2 the sum of both number should be displayed in Toast.

activity.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="example.javatpoint.com.sumoftwonumber.MainActivity">

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
       android:layout_centerHorizontal="true"
        android:layout_marginTop="61dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
        tools:layout_editor_absoluteY="53dp" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:layout_below="@+id/editText1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
```

```
        tools:layout_editor_absoluteY="127dp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText2"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="109dp"
        android:text="ADD"
        tools:layout_editor_absoluteX="148dp"
        tools:layout_editor_absoluteY="266dp" />
</RelativeLayout>
```

Activity class

File: MainActivity.java

```
package example.javatpoint.com.sumoftwonumber;
import android.support.v7.app.AppCompatActivity;
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 {
    private EditText edittext1, edittext2;
    private Button buttonSum;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        addListenerOnButton();
  }
      public void addListenerOnButton() {
```

```
    edittext1 = (EditText) findViewById(R.id.editText1);
     edittext2 = (EditText) findViewById(R.id.editText2);
   buttonSum = (Button) findViewById(R.id.button);

    buttonSum.setOnClickListener(new View.OnClickListener() {
      @Override
       public void onClick(View view) {
          String value1=edittext1.getText().toString();
          String value2=edittext2.getText().toString();
          int a=Integer.parseInt(value1);
          int b=Integer.parseInt(value2);
          int sum=a+b;
          Toast.makeText(getApplicationContext(),String.valueOf(sum), Toast.LENGTH_LONG).sh
ow();
        }
     });
  }
}
```

OUTPUT ON AVD:

3.Add an Edit Text and a button. When the button is clicked, the text inputted in Edit Text should be retrieved and displayed back to the user.

```
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:gravity="center">>
  <Edittext
    android:id="@+id/text_view_id"
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:text="GeeksforGeeks" />

  <Button
    android:id="@+id/button_id"
    android:layout_width="300dp"
    android:layout_height="40dp"
    android:layout_below="@+id/edittext_id"
    android:layout_marginTop="20dp"
    android:text="Submit"
    android:textColor="#fff"
    android:background="@color/colorPrimary"/>

</RelativeLayout>
```

ACTIVITY.CLASS

```
package com.project.edittext;

import androidx.appcompat.app.AppCompatActivity;
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 {

  private EditText editText;
  private Button button;

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

    editText
      = (EditText)findViewById(R.id.edittext_id);
    button
```

```
        = (Button)findViewById(R.id.button_id);
 button.setOnClickListener(
        new View.OnClickListener() {

            @Override
            public void onClick(View v)
            {
                String name
                    = editText.getText()
                          .toString();
                Toast.makeText(MainActivity.this,
                               "Welcome to BCA "
                                   + name,
                               Toast.LENGTH_SHORT)
                    .show();
            }
        });
    }
}
```

OUTPUT ON AVD:

4. Add input in two Edit Text and add a button. Display anyone randomly in text view when button is clicked.

Activitymain.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:paddingLeft="10dp"
    android:paddingTop="10dp"
    android:paddingRight="10dp"
    tools:context=".MainActivity">


    <EditText
        android:id="@+id/editText1"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:ems="10"
        android:hint="Input 1"
        android:importantForAutofill="no"
        android:inputType="textPersonName"
        android:minHeight="48dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:ems="10"
        android:hint="Input 2"
        android:importantForAutofill="no"
        android:inputType="textPersonName"
        android:minHeight="48dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.842"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText1" />

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

```
        android:layout_marginTop="8dp"
        android:text="Click"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText2" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Main Activity

```
Button btn = findViewById(R.id.button);
    btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            TextView textView = findViewById(R.id.textview);
            EditText editText1 = findViewById(R.id.edittext1);
            EditText editText2 = findViewById(R.id.edittext2);

            Random rand = new Random();
            int which = Math.round(rand.nextFloat()) ;
            if(which ==1)textView.setText(editText1.getText().toString());
            else textView.setText(editText2.getText().toString());
        }
    });
```

OUTPUT ON AVD:

5. Design a Calculator App on Andriod Studio

Acitivit_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_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

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

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

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

    <!-- A button to perform a modulus function. -->
    <Button
        android:id="@+id/button"
        android:layout_width="92dp"
        android:layout_height="48dp"
        android:layout_marginStart="113dp"
        android:layout_marginTop="356dp"
        android:layout_marginEnd="206dp"
        android:layout_marginBottom="199dp"
        android:backgroundTint="@android:color/holo_red_light"
        android:onClick="doMod"
        android:text="%(mod)"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

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

Main_ACTIVITY_JAVA

```
public class MainActivity extends AppCompatActivity {

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

    @Override
```

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

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

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

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

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

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

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

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

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

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

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

return true;
  }

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

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

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

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

    // a public method to perform subtraction
    public void doSub(View v) {

        // get the input numbers
        if (getNumbers()) {
            int sum = num1 - num2;
            t1.setText(Integer.toString(sum));
        }
    }
// a public method to perform multiplication
    public void doMul(View v) {

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

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

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

            // displaying the text in text view assigned as t1
            double sum = num1 / (num2 * 1.0);
            t1.setText(Double.toString(sum));
        }
    }

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

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

}

OUTPUT ON AVD:

6. Create a Unit convertor for height on Andriod Studio

Activity_main_xml

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:inputType="numberDecimal"
    android:hint="Enter the length in metres"
    android:ems="10"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="74dp"
    android:id="@+id/editText" />

  <Button
    android:text="Convert to centimetre"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="95dp"
    android:id="@+id/button" />

  <TextView
    android:text="Centimetre"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24sp"
    android:layout_below="@+id/editText"
```

```
    android:gravity="center"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="72dp"
    android:id="@+id/textView" />
```

main_activity.java

```
public class MainActivity extends AppCompatActivity {

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

    Button mbutton;
    final EditText mET;
    final TextView mTV;

    mbutton= (Button) findViewById(R.id.button);
    mET=(EditText) findViewById(R.id.editText);
    mTV=(TextView) findViewById(R.id.textView);

    mbutton.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        Double convert= Double.parseDouble(mET.getText().toString());
         mTV.setText(String.valueOf(convert*100));          //Just put the formula here
accordingly!!!
         mTV.setTextColor(Color.RED);
```

OUTPUT ON AVD:

Activity_main_xml

```
<Spinner
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/spinner_from"
android:layout_alignParentTop="true"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true" />
<EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="numberDecimal"
android:ems="10"
android:id="@+id/editText_from"
android:layout_below="@+id/spinner_from"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true" />
<Spinner
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/spinner_to"
android:layout_below="@+id/editText_from"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true" />
<EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:inputType="numberDecimal"
android:clickable="false"
android:focusable="false"
android:focusableInTouchMode="false"
```

```
android:cursorVisible="false"
android:ems="10"
android:id="@+id/editText_to"
android:layout_below="@+id/spinner_to"
android:layout_alignParentStart="true"
android:layout_alignParentEnd="true" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Convert"
android:id="@+id/button_convert"
android:layout_centerVertical="true"
android:layout_centerHorizontal="true"
android:onClick="convert" />
```

Activity_main.class

```
public void convert(View view) {
Spinner fromSpinner, toSpinner;
EditText fromEditText, toEditText;
fromSpinner = (Spinner) findViewById(R.id.spinner_from);
toSpinner = (Spinner) findViewById(R.id.spinner_to);
fromEditText = (EditText) findViewById(R.id.editText_from);
toEditText = (EditText) findViewById(R.id.editText_to);
// Get the string from the Spinners and number from the EditText
String fromString = (String) fromSpinner.getSelectedItem();
String toString = (String) toSpinner.getSelectedItem();
double input = Double.valueOf(fromEditText.getText().toString());
// Convert the strings to something in our Unit enu,
Converter.Unit fromUnit = Converter.Unit.fromString(fromString);
Converter.Unit toUnit = Converter.Unit.fromString(toString);
// Create a converter object and convert!
```

```
Converter converter = new Converter(fromUnit, toUnit);
double result = converter.convert(input);
toEditText.setText(String.valueOf(result));
}
```

OUTPUT ON AVD:

9: Create Andriod application to include ActionBar, Menus, Dialogs and Notifications.

Activity_main_xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <!-- action button for search -->
    <item android:title="search"
        android:id="@+id/search"
        android:orderInCategory="100"
        app:showAsAction="ifRoom"
        android:icon="@drawable/search_icon"/>

    <!-- action button for refresh -->
    <item android:title="refresh"
        android:id="@+id/refresh"
        android:orderInCategory="100"
        app:showAsAction="ifRoom"
        android:icon="@drawable/refresh_icon"/>

    <!-- action button for copy -->
    <item android:title="copy"
```

```
        android:id="@+id/copy"
        android:orderInCategory="100"
        app:showAsAction="never"
        android:icon="@drawable/copy_icon"/>
</menu>
```

Activity_main.class

```
public class MainActivity extends AppCompatActivity {

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

        // calling this activity's function to
        // use ActionBar utility methods
        ActionBar actionBar = getSupportActionBar();

        // providing title for the ActionBar
        actionBar.setTitle("  GfG | Action Bar");

        // providing subtitle for the ActionBar
        actionBar.setSubtitle("   Design a custom Action Bar");

        // adding icon in the ActionBar
        actionBar.setIcon(R.drawable.app_logo);

        // methods to display the icon in the ActionBar
        actionBar.setDisplayUseLogoEnabled(true);
        actionBar.setDisplayShowHomeEnabled(true);

    }

@Override
    public boolean onCreateOptionsMenu( Menu menu ) {

        getMenuInflater().inflate(R.menu.main, menu);
        return super.onCreateOptionsMenu(menu);
    }

    // methods to control the operations that will
    // happen when user clicks on the action buttons
    @Override
    public boolean onOptionsItemSelected( @NonNull MenuItem item ) {

        switch (item.getItemId()){
            case R.id.search:
                Toast.makeText(this, "Search Clicked", Toast.LENGTH_SHORT).show();
                break;
```

```
            case R.id.refresh:
                Toast.makeText(this, "Refresh Clicked", Toast.LENGTH_SHORT).show();
                break;
            case R.id.copy:
                Toast.makeText(this, "Copy Clicked", Toast.LENGTH_SHORT).show();
                break;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

OUTPUT ON AVD:

10. Design an android application that has a user login form and registration form. First time users have to register through the registration form and the details should be stored in the database. Then they can login using the login page.

Activity_main_XML

```
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:hint="UserName"
android:id="@+id/username"/>
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
```

```
android:hint="password"

android:id="@+id/password"

android:inputType="textPassword"

/>

<Button

android:layout_width="match_parent"

android:layout_height="wrap_content"

android:text="Login"
```

MainActivity.java

Creating MainActivity.java, responsible to read the input from the about layout and validate the user inputs.

```
package com.onlinetutorialspoint.official.simplelogin;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import java.util.Objects;

public class MainActivity extends AppCompatActivity {

EditText username,password;

Button login;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

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

```
username=findViewById(R.id.username);

password=findViewById(R.id.password);

login=findViewById(R.id.login);

login.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

if(Objects.equals(username.getText().toString(),
"admin")&&Objects.equals(password.getText().toString(),"admin"))

{

Toast.makeText(MainActivity.this,"You have Authenticated
Successfully",Toast.LENGTH_LONG).show();

}else

{

Toast.makeText(MainActivity.this,"Authentication Failed",Toast.LENGTH_LONG).show();

}

}

});

}

}
```

Signup.xml

```
 <EditText
       android:id="@+id/editName"
       android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:layout_marginTop="150dp"
       android:ems="10"
       android:hint="Name"
       android:inputType="textPersonName"
       app:layout_constraintBottom_toTopOf="@+id/editEmail"
       app:layout_constraintEnd_toEndOf="parent"
       app:layout_constraintStart_toStartOf="parent"
       app:layout_constraintTop_toTopOf="parent"
```

```
    app:layout_constraintVertical_bias="0.13" />

<EditText
    android:id="@+id/editEmail"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Email"

    android:inputType="textEmailAddress"
    app:layout_constraintBottom_toTopOf="@+id/editPass"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editName" />

<EditText
    android:id="@+id/editPass"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Password"
    android:inputType="textPassword"
    app:layout_constraintBottom_toTopOf="@+id/buttonAcount"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editEmail" />

<Button
    android:id="@+id/buttonAcount"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="300dp"
    android:background="@drawable/botton_shape"
    android:text="Sign Up"
    android:textAllCaps="false"
    android:textColor="@color/colorWhite"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editPass" />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:layout_marginBottom="13dp"
    android:text="Create a New Acount"
    android:textColor="#303F9F"
    android:textSize="25sp"
```

```
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/editName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Signup.class

```
public class SignUpActivity extends AppCompatActivity {
EditText etname,etemail,etpass;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_sign_up);
       etname=findViewById(R.id.editName);
        etemail=findViewById(R.id.editEmail);
         etpass=findViewById(R.id.editPass);

        Button btn_new=findViewById(R.id.buttonAcount);
        final String name=etname.getText().toString().trim();
        final String email=etemail.getText().toString().trim();
        final String pass=etpass.getText().toString().trim();

        btn_new.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                createNewAcount(name,email,pass);
            }
        });

    }

    private void createNewAcount(String name, String email, String pass) {
        if (TextUtils.isEmpty(name)){
            etname.setError("Please Enter Name");
            etname.requestFocus();
            return;
        }
        if (TextUtils.isEmpty(email)){
            etemail.setError("Please Enter Email");
            etemail.requestFocus();
            return;
        }
        if (TextUtils.isEmpty(pass)){
            etpass.setError("Please Enter Password");
            etpass.requestFocus();
            return;
        }
```

```
      Call<ResponseBody>call=
MyRetrofit.getInstance().getMyApi().createNewAcount(name,email,pass);
      call.enqueue(new Callback<ResponseBody>() {
         @Override
         public void onResponse(Call<ResponseBody> call, Response<ResponseBody> response) {
            try {
               String hi=response.body().string();
               Toast.makeText(getApplicationContext(),hi,Toast.LENGTH_LONG).show();
            } catch (IOException e) {
               e.printStackTrace();
            }

         }

         @Override
         public void onFailure(Call<ResponseBody> call, Throwable t) {

         }
      });
   }
}
```

Manifest.xml

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.uniqueandrocode.loginandregistration">
<uses-permission android:name="android.permission.INTERNET"/>
   <application
      android:allowBackup="true"
      android:icon="@mipmap/ic_launcher"
      android:label="@string/app_name"
      android:roundIcon="@mipmap/ic_launcher_round"
      android:supportsRtl="true"
      android:theme="@style/AppTheme">
      <activity android:name=".ProfileActivity"></activity>
      <activity android:name=".SignUpActivity" />
      <activity android:name=".MainActivity">
         <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

OUTPUT ON AVD:

11. Design an android application to include Webview on Andriod studio

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"
    tools:context=".MainActivity" >
    <WebView
        android:id="@+id/WebView1"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</LinearLayout>
```

AndriodManifest.xml

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

    package="com.example.myapplication">
    <uses-permission android:name="android.permission.INTERNET"/>


    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
```

```
    android:theme="@style/Theme.MyApplication">
    <activity

        android:name=".MainActivity"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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


    </application>



</manifest>
```

MainActivity.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.webkit.WebView;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        WebView w = findViewById(R.id.WebView1);
        w.loadUrl("https://www.google.com");
    }
```

OUTPUT ON AVD:

12. Design an android application to include No Internet Connection Dialog in Android

Activity_main.xml

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

<!-- Relative layout as parent layout-->
<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">

   <!-- Button to perform the action of Internet alert-->
   <Button
      android:id="@+id/btn_check"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_centerInParent="true"
      android:text="Check Internet Connection" />

</RelativeLayout>
```

```
package com.example.myapplication;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.content.DialogInterface;
import android.net.ConnectivityManager;
import android.net.NetworkCapabilities;
import android.os.Build;
import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      if(!isNetworkAvailable()==true)
      {
         new AlertDialog.Builder(this)
               .setIcon(android.R.drawable.ic_dialog_alert)
               .setTitle("Internet Connection Alert")
```

```
                .setMessage("Please Check Your Internet Connection")
                .setPositiveButton("Close", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialogInterface, int i) {
                        finish();
                    }
                }).show();
        }
        else if(isNetworkAvailable()==true)
        {
            Toast.makeText(MainActivity.this,
                    "Welcome", Toast.LENGTH_LONG).show();
        }

    }

    public boolean isNetworkAvailable() {

        ConnectivityManager connectivityManager = (ConnectivityManager)
getSystemService(Context.CONNECTIVITY_SERVICE);

        if (connectivityManager != null) {


            if (android.os.Build.VERSION.SDK_INT >= Build.VERSION_CODES.Q) {
                NetworkCapabilities capabilities =
connectivityManager.getNetworkCapabilities(connectivityManager.getActiveNetwork());
                if (capabilities != null) {
                    if (capabilities.hasTransport(NetworkCapabilities.TRANSPORT_CELLULAR)) {

                        return true;
                    } else if (capabilities.hasTransport(NetworkCapabilities.TRANSPORT_WIFI)) {

                        return true;
                    } else if (capabilities.hasTransport(NetworkCapabilities.TRANSPORT_ETHERNET)) {

                        return true;
                    }
                }
            }
        }

        return false;

    }
}
```

manifest.xml

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

    package="com.example.myapplication">
    <uses-permission android:name="android.permission.INTERNET">
    </uses-permission>
    <uses-permission android:name="android.permission.ACCESS_WIFI_STATE">
    </uses-permission>
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE">
    </uses-permission>


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

OUTPUT ON AVD: