1. Create "hello world" application to display "hello world" in the middle of the screen in the emulator as well as android phone.

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">

    <TextView
        android:layout_width="250dp"
        android:layout_height="40dp"
        android:text="Hello World!"
        android:textAlignment="center"
        android:textSize="30sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="TextSizeCheck" />

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

MainActivity.java

```
package com.example.helloworld;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

2. Create an android app to display various android lifecycle phases.

MainActivity.java

```
package com.example.lifecycle;

import androidx.appcompat.app.AppCompatActivity;

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);
        Toast.makeText(getApplicationContext(), "onCreate Called",
Toast.LENGTH_LONG).show();
    }
```

```
    protected void onStart() {
        super.onStart();
        Toast.makeText(getApplicationContext(), "onStart Called",
Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onRestart() {
        super.onRestart();
        Toast.makeText(getApplicationContext(), "onRestart Called",
Toast.LENGTH_LONG).show();
    }

    protected void onResume() {
        super.onResume();
        Toast.makeText(getApplicationContext(), "onResume Called",
Toast.LENGTH_LONG).show();
    }

    protected void onPause() {
        super.onPause();
        Toast.makeText(getApplicationContext(), "onPause Called",
Toast.LENGTH_LONG).show();
    }

    protected void onStop() {
        super.onStop();
        Toast.makeText(getApplicationContext(), "onStop Called",
Toast.LENGTH_LONG).show();
    }

    protected void onDestroy() {
        super.onDestroy();
        Toast.makeText(getApplicationContext(), "onDestroy Called",
Toast.LENGTH_LONG).show();
    }
}
```

3. Create a calculator app that performs addition, subtraction, division and multiplication operation on numbers.

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">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        tools:layout_editor_absoluteX="125dp"
        tools:layout_editor_absoluteY="91dp">

        <EditText
            android:id="@+id/ed1"
            android:layout_width="match_parent"
            android:layout_height="70dp"
            android:ems="10"
            android:inputType="text"
            android:text="Enter First Number" />
```

```
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <Button
                android:id="@+id/bt1"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="+"
                android:textStyle="bold" />

            <Button
                android:id="@+id/bt2"
                android:layout_width="102dp"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="-"
                android:textStyle="bold" />

            <Button
                android:id="@+id/bt3"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="X"
                android:textStyle="bold" />

            <Button
                android:id="@+id/bt4"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:text="/"
                android:textStyle="bold" />
        </LinearLayout>

        <EditText
            android:id="@+id/ed2"
            android:layout_width="match_parent"
            android:layout_height="70dp"
            android:ems="10"
            android:inputType="text"
            android:text="Enter Second Number" />

        <Button
            android:id="@+id/bt5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Calculate" />

        <Space
            android:layout_width="match_parent"
            android:layout_height="25dp" />

        <TextView
            android:id="@+id/tv1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:textSize="25dp" />

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

MainActivity.java

```java
package com.example.calculator;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    EditText Num1, Num2;
    Button add, sub, mul, div, cal;
    TextView Result;
    String op= "";

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

        Num1=findViewById(R.id.ed1);
        Num2=findViewById(R.id.ed2);
        add=findViewById(R.id.bt1);
        sub=findViewById(R.id.bt2);
        mul=findViewById(R.id.bt3);
        div=findViewById(R.id.bt4);
        cal=findViewById(R.id.bt5);
        Result=findViewById(R.id.tv1);

        add.setOnClickListener(v -> op="+");
        sub.setOnClickListener(v -> op="-");
        mul.setOnClickListener(v -> op="*");
        div.setOnClickListener(v -> op="/");

        cal.setOnClickListener(new View.OnClickListener()
        {
            @SuppressLint("SetTextI18n")
            @Override
            public void onClick(View v)
            {
                String t1=Num1.getText().toString();
                String t2=Num2.getText().toString();

                if(!t1.isEmpty() && !t2.isEmpty())
                {
                    float num1 = Float.parseFloat(t1);
                    float num2 = Float.parseFloat(t2);

                    if(op.equals("+"))
                    {
                        Result.setText(String.format("Result : %s", num1 + num2));

                    }
                    if(op.equals("-"))
                    {
                        Result.setText(String.format("Result : %s", num1 - num2));

                    }
                    if(op.equals("*"))
                    {
                        Result.setText(String.format("Result : %s", num1 * num2));

                    }
                    if(op.equals("/"))
                    {
```

```
                        if(num2!=0) {
                            Result.setText(String.format("Result : %s", num1 / num2));
                        }
                        else
                        {
                            Result.setText("Cannot divide with zero");
                        }

                    }
                }
                else{
                    Result.setText("Please enter both numbers");
                }
            }
        });
    }
}
```

4. Write an Android application to convert into different currencies for example, Rupees to dollar

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">

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

        <Spinner
            android:id="@+id/spinnerFromCurrency"
            android:layout_width="match_parent"
            android:layout_height="64dp"
            android:layout_below="@id/etAmount" />

        <EditText
            android:id="@+id/etAmount"
            android:layout_width="match_parent"
            android:layout_height="69dp"
            android:hint="Enter Amount"
            android:inputType="numberDecimal" />

        <Spinner
            android:id="@+id/spinnerToCurrency"
            android:layout_width="match_parent"
            android:layout_height="55dp"
            android:layout_below="@id/spinnerFromCurrency" />

        <Button
            android:id="@+id/btnConvert"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_below="@id/spinnerToCurrency"
            android:layout_centerHorizontal="true"
            android:text="Convert" />

        <TextView
            android:id="@+id/tvResult"
```

```
            android:layout_width="match_parent"
            android:layout_height="48dp"
            android:layout_below="@id/btnConvert"
            android:layout_centerHorizontal="true"
            android:text=""
            android:textSize="20sp" />
    </LinearLayout>

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

MainActivity.java

```
package com.example.first_app;

import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText etAmount;
    Spinner spinnerFromCurrency, spinnerToCurrency;
    Button btnConvert;
    TextView tvResult;

    private static final String[] CURRENCIES = {"Rupees", "Dollar", "Euro"};

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

        etAmount = findViewById(R.id.etAmount);
        spinnerFromCurrency = findViewById(R.id.spinnerFromCurrency);
        spinnerToCurrency = findViewById(R.id.spinnerToCurrency);
        btnConvert = findViewById(R.id.btnConvert);
        tvResult = findViewById(R.id.tvResult);

        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, CURRENCIES);
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        spinnerFromCurrency.setAdapter(adapter);
        spinnerToCurrency.setAdapter(adapter);

        btnConvert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                convertCurrency();
            }
        });
    }

    private void convertCurrency() {
        String amountStr = etAmount.getText().toString().trim();
        if (amountStr.isEmpty()) {
            tvResult.setText("Please enter an amount");
        }
        else {
            double amount = Double.parseDouble(amountStr);
            String fromRate = spinnerFromCurrency.getSelectedItem().toString();
```

```
            String toRate = spinnerToCurrency.getSelectedItem().toString();
            double result = 0;

            if(fromRate.equals("Rupees")) {
                if (toRate.equals("Dollar")) {
                    result = amount*0.012;
                }
                else if (toRate.equals("Euro")) {
                    result = amount*0.011;
                }
                else{
                    result=amount;
                }
            }
            else if (fromRate.equals("Dollar")) {
                if (toRate.equals("Rupees")) {
                    result = amount*83.38;
                }
                else if (toRate.equals("Euro")) {
                    result = amount*0.93;
                }
                else{
                    result=amount;
                }
            }
            else if (fromRate.equals("Euro")) {
                if (toRate.equals("Dollar")) {
                    result = amount*1.07;
                }
                else if (toRate.equals("Rupees")) {
                    result = amount*89.50;
                }
                else{
                    result=amount;
                }
            }

//            double result = (amount / fromRate) * toRate;
            tvResult.setText(String.format("%.2f", result));
        }

    }
}
```

5. Create a spinner application with strings taken from resource directory res/values/strings.xml and on changing the spinner value, image will change. Image is saved in the drawable directory.

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">

    <ImageView
        android:id="@+id/backgroundImageView"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:scaleType="centerCrop"
        android:src="@drawable/ic_launcher_background"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="ContentDescription" />

    <Spinner
        android:id="@+id/spinner1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:entries="@array/S"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="@+id/backgroundImageView" />

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

MainActivity.xml

```
package com.example.image;


import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ImageView;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Spinner spinner = findViewById(R.id.spinner1);
        ImageView backgroundImageView = findViewById(R.id.backgroundImageView);
        spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            @Override
            public void onItemSelected(AdapterView<?> adapterView, View view, int i,
long l) {
                String selectedItem = adapterView.getItemAtPosition(i).toString();
                Toast.makeText(getApplicationContext(), selectedItem,
Toast.LENGTH_SHORT).show();

                // Load different images based on the selected item
                switch (selectedItem) {
                    case "Image 1":
                        backgroundImageView.setImageResource(R.drawable.a);
                        break;
                    case "Image 2":
                        backgroundImageView.setImageResource(R.drawable.b);
                        break;
                    case "Image 3":
                        backgroundImageView.setImageResource(R.drawable.c);
                        break;
                    case "Image 4":
                        backgroundImageView.setImageResource(R.drawable.d);
                        break;
                    default:
                        // Handle default case or do nothing
                        break;
                }
            }
```

```
            @Override
            public void onNothingSelected(AdapterView<?> adapterView) {

            }
        });
    }
}
```

6. Create an app that uses radio button group which calculates discount on shopping bill amount. Use edittext to enter bill amount and select one of three radio buttons to determine a discount for 10, 15, or 20 percent. the discount is calculated upon selection of one of the buttons and displayed in a textview control.

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="wrap_content"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:orientation="vertical"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        tools:ignore="MissingConstraints">

        <TextView
            android:id="@+id/tv1"
            android:layout_width="match_parent"
            android:layout_height="51dp"
            android:text="Bill Calculator"
            android:textAlignment="center"
            android:textSize="30sp"
            android:textStyle="bold"
            tools:ignore="TextSizeCheck" />

        <EditText
            android:id="@+id/ed1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:ems="10"
            android:hint="Enter Amount"
            android:inputType="text"
            android:textSize="26sp" />

        <com.google.android.material.textfield.TextInputLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"/>

        <TextView
            android:id="@+id/tv2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Choose Discount"
            android:textSize="24sp"
            tools:text="Choose Discount" />

        <RadioGroup
            android:id="@+id/rg1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content">
```

```
            <RadioButton
                android:id="@+id/r1"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="10%"
                android:textSize="16sp"
                android:textStyle="bold" />

            <RadioButton
                android:id="@+id/r2"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="15%"
                android:textSize="16sp"
                android:textStyle="bold" />

            <RadioButton
                android:id="@+id/r3"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="20%"
                android:textSize="16sp"
                android:textStyle="bold" />
        </RadioGroup>

        <Button
            android:id="@+id/b1"
            android:layout_width="match_parent"
            android:layout_height="50dp"
            android:text="Calculate"
            android:textSize="20sp"
            android:textStyle="bold" />

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <TextView
                android:id="@+id/tv4"
                android:layout_width="180dp"
                android:layout_height="match_parent"
                android:text="Total Amount :"
                android:textAlignment="center"
                android:textSize="24sp" />

            <TextView
                android:id="@+id/tv3"
                android:layout_width="match_parent"
                android:layout_height="47dp"
                android:textAlignment="center"
                android:textSize="24sp" />
        </LinearLayout>

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

MainActivity.java

```
package com.example.bill;

import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
```

```
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.view.View;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    EditText amt;
    Button cal;
    RadioGroup rg;
    RadioButton rb1, rb2, rb3;
    TextView total;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        amt = findViewById(R.id.ed1);
        cal = findViewById(R.id.b1);
        rg = findViewById(R.id.rg1);
        rb1=findViewById(R.id.r1);
        rb2=findViewById(R.id.r2);
        rb3=findViewById(R.id.r3);
        total = findViewById(R.id.tv3);

        cal.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                calculate();
            }
        });
    }

    private void calculate()
    {
        double Amount = Double.parseDouble(amt.getText().toString());
        int rid = rg.getCheckedRadioButtonId();
        double Total;
        if(Amount>0)
        {
            if(rid != -1)
            {
                RadioButton selected = findViewById(rid);
                String discount = selected.getText().toString();

                switch (discount) {
                    case "10%":
                        Total = Amount * 0.9;
                        total.setText(String.format("%.2f", Total));
                        break;
                    case "15%":
                        Total = Amount * 0.85;
                        total.setText(String.format("%.2f", Total));
                        break;
                    case "20%":
                        Total = Amount * 0.8;
                        total.setText(String.format("%.2f", Total));
                        break;
                }

            }
            else{
                total.setText("Please select a discount");
            }

        }
        else
```

```
        {
            total.setText("Please enter an amount");
        }
    }
}
```

7. Create an application that uses checkbox for construction of a shopping list so the user can check off items as they are picked up. The checked items should be displayed in a textview control.

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">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Shopping List"
            android:textSize="24sp"
            android:textStyle="bold"
            android:layout_gravity="center_horizontal"
            android:layout_marginBottom="16dp"/>

        <CheckBox
            android:id="@+id/checkBox_item1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="false"
            android:text="MILK" />

        <CheckBox
            android:id="@+id/checkBox_item2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="false"
            android:text="EGG" />

        <CheckBox
            android:id="@+id/checkBox_item3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:checked="false"
            android:text="BREAD" />

        <Button
            android:id="@+id/button_display_items"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Display Checked Items"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="16dp"/>

        <TextView
            android:id="@+id/textView_display"
```

```
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="16dp"
            android:hint="Your items"
            android:textSize="18sp" />

    </LinearLayout>


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

MainActivity.java

```
package com.example.checklist;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    CheckBox checkBoxItem1, checkBoxItem2, checkBoxItem3;
    Button buttonDisplayItems;
    TextView textViewDisplay;

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

        checkBoxItem1 = findViewById(R.id.checkBox_item1);
        checkBoxItem2 = findViewById(R.id.checkBox_item2);
        checkBoxItem3 = findViewById(R.id.checkBox_item3);
        buttonDisplayItems = findViewById(R.id.button_display_items);
        textViewDisplay = findViewById(R.id.textView_display);

        buttonDisplayItems.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                displayCheckedItems();
            }
        });
    }

    private void displayCheckedItems() {
        StringBuilder result = new StringBuilder("Checked Items:\n");

        if (checkBoxItem1.isChecked()) {
            result.append("MILK - 10 Rs.\n");
        }
        if (checkBoxItem2.isChecked()) {
            result.append("EGGS - 20 Rs.\n");
        }
        if (checkBoxItem3.isChecked()) {
            result.append("BREAD - 30 Rs.\n\n");
        }

        int totalAmount = 0;
        if (checkBoxItem1.isChecked()) {
            totalAmount += 10;
        }
```

```
        if (checkBoxItem2.isChecked()) {
            totalAmount += 20;
        }
        if (checkBoxItem3.isChecked()) {
            totalAmount += 30;
        }

        result.append("Total Amount: Rs." + totalAmount);

        textViewDisplay.setText(result.toString());
    }
}
```

8. Create a login application to verify username and password. On successful login, redirect to another activity that has a textview to display "welcome user" with logout button. On click of logout button, a dialog should appear with ok and cancel buttons. On click of oK button, go back to the login activity and on click of cancel button, stay on the same activity.

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"
    android:padding="16dp">

    <EditText
        android:id="@+id/etUsername"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username" />

    <EditText
        android:id="@+id/etPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword" />

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

</LinearLayout>
```

MainActivity.java

```
// MainActivity.java
package com.example.loginapp;

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

public class MainActivity extends AppCompatActivity {

    private EditText etUsername;
    private EditText etPassword;
    private Button btnLogin;
```

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

        etUsername = findViewById(R.id.etUsername);
        etPassword = findViewById(R.id.etPassword);
        btnLogin = findViewById(R.id.btnLogin);

        btnLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String username = etUsername.getText().toString();
                String password = etPassword.getText().toString();

                if (username.equals("user") && password.equals("password")) {
                    Intent intent = new Intent(MainActivity.this,
WelcomeActivity.class);
                    intent.putExtra("username", username);
                    startActivity(intent);
                    finish();
                } else {
                    Toast.makeText(MainActivity.this, "Invalid username or password",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

activity_welcome.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"
    android:padding="16dp">

    <TextView
        android:id="@+id/tvWelcome"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome"
        android:textSize="24sp"
        android:layout_gravity="center_horizontal"
        android:padding="16dp"/>

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

</LinearLayout>
```

WelcomeActivity.java

```
// WelcomeActivity.java
package com.example.loginapp;

import android.content.DialogInterface;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
```

```
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

public class WelcomeActivity extends AppCompatActivity {

    private TextView tvWelcome;
    private Button btnLogout;

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

        tvWelcome = findViewById(R.id.tvWelcome);
        btnLogout = findViewById(R.id.btnLogout);

        String username = getIntent().getStringExtra("username");
        tvWelcome.setText("Welcome " + username);

        btnLogout.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                showLogoutDialog();
            }
        });
    }

    private void showLogoutDialog() {
        new AlertDialog.Builder(this)
                .setTitle("Logout")
                .setMessage("Are you sure you want to logout?")
                .setPositiveButton("OK", new DialogInterface.OnClickListener() {
                    @Override
                    public void onClick(DialogInterface dialog, int which) {
                        Intent intent = new Intent(WelcomeActivity.this,
MainActivity.class);
                        startActivity(intent);
                        finish();
                    }
                })
                .setNegativeButton("Cancel", null)
                .show();
    }
}
```

Q9. Write an android application to convert a ball from size of radius 2(colour red) to radius 4(colour blue) to radius 6 (colour green). The ball must rotate in circle for 1 minute before changing size and colour.

BallView.java

```
package com.example.loginapp;

import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.util.AttributeSet;
import android.view.View;

public class BallView extends View {
    private Paint paint;
```

```
    private float radius;
    private int color;
    private float angle;

    public BallView(Context context, AttributeSet attrs) {
        super(context, attrs);
        init();
    }

    public BallView(Context context) {
        super(context);
        init();
    }

    private void init() {
        paint = new Paint(Paint.ANTI_ALIAS_FLAG);
        radius = 2;
        color = Color.RED;
        angle = 0;
    }

    @Override
    protected void onDraw(Canvas canvas) {
        super.onDraw(canvas);
        paint.setColor(color);

        // Calculate the position of the ball in a circular path
        float centerX = getWidth() / 2;
        float centerY = getHeight() / 2;
        float x = centerX + (float) (Math.cos(Math.toRadians(angle)) * centerX / 2);
        float y = centerY + (float) (Math.sin(Math.toRadians(angle)) * centerY / 2);

        canvas.drawCircle(x, y, radius * 20, paint);
    }

    public void setRadius(float radius) {
        this.radius = radius;
        invalidate();
    }

    public void setColor(int color) {
        this.color = color;
        invalidate();
    }

    public void setAngle(float angle) {
        this.angle = angle;
        invalidate();
    }
}
```

MainActivity2.java

```
package com.example.loginapp;

import android.animation.AnimatorSet;
import android.animation.ObjectAnimator;
import android.graphics.Color;
import android.os.Bundle;
import android.widget.FrameLayout;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity2 extends AppCompatActivity {

    private BallView ballView;
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        ballView = new BallView(this);
        FrameLayout.LayoutParams params = new FrameLayout.LayoutParams(
                FrameLayout.LayoutParams.MATCH_PARENT,
                FrameLayout.LayoutParams.MATCH_PARENT
        );
        setContentView(ballView, params);

        startAnimation();
    }

    private void startAnimation() {
        // Animation to rotate the ball
        ObjectAnimator rotateAnimator = ObjectAnimator.ofFloat(ballView, "angle", 0,
360);
        rotateAnimator.setDuration(60000); // 1 minute
        rotateAnimator.setRepeatCount(ObjectAnimator.INFINITE);

        // Animations to change size and color
        ObjectAnimator sizeAnimator1 = ObjectAnimator.ofFloat(ballView, "radius", 2,
4);
        sizeAnimator1.setDuration(60000); // 1 minute
        ObjectAnimator sizeAnimator2 = ObjectAnimator.ofFloat(ballView, "radius", 4,
6);
        sizeAnimator2.setDuration(60000); // 1 minute

        ObjectAnimator colorAnimator1 = ObjectAnimator.ofArgb(ballView, "color",
Color.RED, Color.BLUE);
        colorAnimator1.setDuration(60000); // 1 minute
        ObjectAnimator colorAnimator2 = ObjectAnimator.ofArgb(ballView, "color",
Color.BLUE, Color.GREEN);
        colorAnimator2.setDuration(60000); // 1 minute

        // Animator set to chain the size and color animations
        AnimatorSet sizeColorSet1 = new AnimatorSet();
        sizeColorSet1.play(sizeAnimator1).with(colorAnimator1);

        AnimatorSet sizeColorSet2 = new AnimatorSet();
        sizeColorSet2.play(sizeAnimator2).with(colorAnimator2).after(sizeColorSet1);

        // Start animations
        rotateAnimator.start();
        sizeColorSet2.start();
    }
}
```

Q10. Create an application to perform the operations of create, insert, delete, view and update, using sqlite database.

DatabaseHelper.java

```
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper {

    private static final String DATABASE_NAME = "userdb";
    private static final int DATABASE_VERSION = 1;

    public static final String TABLE_USERS = "users";
```

```
    public static final String COLUMN_ID = "id";
    public static final String COLUMN_NAME = "name";
    public static final String COLUMN_EMAIL = "email";

    private static final String TABLE_CREATE =
            "CREATE TABLE " + TABLE_USERS + " (" +
                    COLUMN_ID + " INTEGER PRIMARY KEY AUTOINCREMENT, " +
                    COLUMN_NAME + " TEXT, " +
                    COLUMN_EMAIL + " TEXT" +
                    ");";

    public DatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL(TABLE_CREATE);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_USERS);
        onCreate(db);
    }
}
```

User.java

```
public class User {
    private long id;
    private String name;
    private String email;

    public User() {
    }

    public User(long id, String name, String email) {
        this.id = id;
        this.name = name;
        this.email = email;
    }

    public long getId() {
        return id;
    }

    public void setId(long id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getEmail() {
        return email;
    }

    public void setEmail(String email) {
        this.email = email;
```

```
    }
}
```

userDAO.java

```
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.SQLException;
import android.database.sqlite.SQLiteDatabase;

import java.util.ArrayList;
import java.util.List;

public class UserDAO {
    private SQLiteDatabase database;
    private DatabaseHelper dbHelper;
    private String[] allColumns = {DatabaseHelper.COLUMN_ID,
DatabaseHelper.COLUMN_NAME, DatabaseHelper.COLUMN_EMAIL};

    public UserDAO(Context context) {
        dbHelper = new DatabaseHelper(context);
    }

    public void open() throws SQLException {
        database = dbHelper.getWritableDatabase();
    }

    public void close() {
        dbHelper.close();
    }

    public User createUser(String name, String email) {
        ContentValues values = new ContentValues();
        values.put(DatabaseHelper.COLUMN_NAME, name);
        values.put(DatabaseHelper.COLUMN_EMAIL, email);
        long insertId = database.insert(DatabaseHelper.TABLE_USERS, null, values);
        Cursor cursor = database.query(DatabaseHelper.TABLE_USERS,
                allColumns, DatabaseHelper.COLUMN_ID + " = " + insertId, null,
                null, null, null);
        cursor.moveToFirst();
        User newUser = cursorToUser(cursor);
        cursor.close();
        return newUser;
    }

    public void deleteUser(User user) {
        long id = user.getId();
        database.delete(DatabaseHelper.TABLE_USERS, DatabaseHelper.COLUMN_ID
                + " = " + id, null);
    }

    public List<User> getAllUsers() {
        List<User> users = new ArrayList<>();
        Cursor cursor = database.query(DatabaseHelper.TABLE_USERS,
                allColumns, null, null, null, null, null);
        cursor.moveToFirst();
        while (!cursor.isAfterLast()) {
            User user = cursorToUser(cursor);
            users.add(user);
            cursor.moveToNext();
        }
        cursor.close();
        return users;
    }
```

```
    public User updateUser(long id, String name, String email) {
        ContentValues values = new ContentValues();
        values.put(DatabaseHelper.COLUMN_NAME, name);
        values.put(DatabaseHelper.COLUMN_EMAIL, email);
        database.update(DatabaseHelper.TABLE_USERS, values, DatabaseHelper.COLUMN_ID +
" = " + id, null);
        Cursor cursor = database.query(DatabaseHelper.TABLE_USERS,
                allColumns, DatabaseHelper.COLUMN_ID + " = " + id, null,
                null, null, null);
        cursor.moveToFirst();
        User updatedUser = cursorToUser(cursor);
        cursor.close();
        return updatedUser;
    }

    private User cursorToUser(Cursor cursor) {
        User user = new User();
        user.setId(cursor.getLong(0));
        user.setName(cursor.getString(1));
        user.setEmail(cursor.getString(2));
        return user;
    }
}
```

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=".MainActivity3">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp">

        <EditText
            android:id="@+id/editTextName"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Name" />

        <EditText
            android:id="@+id/editTextEmail"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Email" />

        <EditText
            android:id="@+id/editTextId"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="ID (for Update/Delete)"
            android:inputType="number" />

        <Button
            android:id="@+id/buttonAdd"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Add" />
```

```
        <Button
            android:id="@+id/buttonDelete"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Delete" />

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

        <Button
            android:id="@+id/buttonView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="View All" />

        <ListView
            android:id="@+id/listViewUsers"
            android:layout_width="match_parent"
            android:layout_height="0dp"
            android:layout_weight="1" />
    </LinearLayout>

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

MainActivity3.java

```
package com.example.loginapp;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.SimpleAdapter;

import androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;

public class MainActivity3 extends AppCompatActivity {

    private UserDAO userDAO;
    private EditText editTextName, editTextEmail, editTextId;
    private Button buttonAdd, buttonDelete, buttonUpdate, buttonView;
    private ListView listViewUsers;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main3);

        userDAO = new UserDAO(this);
        userDAO.open();

        editTextName = findViewById(R.id.editTextName);
        editTextEmail = findViewById(R.id.editTextEmail);
        editTextId = findViewById(R.id.editTextId);
        buttonAdd = findViewById(R.id.buttonAdd);
        buttonDelete = findViewById(R.id.buttonDelete);
        buttonUpdate = findViewById(R.id.buttonUpdate);
        buttonView = findViewById(R.id.buttonView);
```

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

        buttonAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String name = editTextName.getText().toString();
                String email = editTextEmail.getText().toString();
                userDAO.createUser(name, email);
                viewAllUsers();
            }
        });

        buttonDelete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                long id = Long.parseLong(editTextId.getText().toString());
                User user = new User();
                user.setId(id);
                userDAO.deleteUser(user);
                viewAllUsers();
            }
        });

        buttonUpdate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                long id = Long.parseLong(editTextId.getText().toString());
                String name = editTextName.getText().toString();
                String email = editTextEmail.getText().toString();
                userDAO.updateUser(id, name, email);
                viewAllUsers();
            }
        });

        buttonView.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                viewAllUsers();
            }
        });

        // Initially load all users
        viewAllUsers();
    }

    private void viewAllUsers() {
        List<User> users = userDAO.getAllUsers();
        List<HashMap<String, String>> userMaps = new ArrayList<>();

        for (User user : users) {
            HashMap<String, String> map = new HashMap<>();
            map.put("id", String.valueOf(user.getId()));
            map.put("name", user.getName());
            map.put("email", user.getEmail());
            userMaps.add(map);
        }

        SimpleAdapter adapter = new SimpleAdapter(this, userMaps,
android.R.layout.simple_list_item_2,
                new String[]{"name", "email"}, new int[]{android.R.id.text1,
android.R.id.text2});
        listViewUsers.setAdapter(adapter);
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
```

```
            userDAO.close();
        }
}
```

CRUD

DatabaseHelper.java

```
package com.example.crudapp;


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

public class DatabaseHelper extends SQLiteOpenHelper {

    private static final String DATABASE_NAME = "example.db";
    private static final int DATABASE_VERSION = 1;

    public static final String TABLE_NAME = "items";
    public static final String COLUMN_ID = "_id";
    public static final String COLUMN_NAME = "name";

    private static final String TABLE_CREATE =
            "CREATE TABLE " + TABLE_NAME + " (" +
                    COLUMN_ID + " INTEGER PRIMARY KEY AUTOINCREMENT, " +
                    COLUMN_NAME + " TEXT NOT NULL);";

    public DatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL(TABLE_CREATE);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
        onCreate(db);
    }
}
```

DatabaseManager.java

```
package com.example.crudapp;

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

public class DatabaseManager {
    private DatabaseHelper dbHelper;
    private SQLiteDatabase database;

    public DatabaseManager(Context context) {
        dbHelper = new DatabaseHelper(context);
    }

    public void open() throws SQLException {
        database = dbHelper.getWritableDatabase();
```

```
    }

    public void close() {
        dbHelper.close();
    }

    public long insertItem(String name) {
        ContentValues values = new ContentValues();
        values.put(DatabaseHelper.COLUMN_NAME, name);
        return database.insert(DatabaseHelper.TABLE_NAME, null, values);
    }

    public Cursor getAllItems() {
        return database.query(DatabaseHelper.TABLE_NAME, null, null, null,
null, null, null);
    }

    public int updateItem(long id, String name) {
        ContentValues values = new ContentValues();
        values.put(DatabaseHelper.COLUMN_NAME, name);
        return database.update(DatabaseHelper.TABLE_NAME, values,
DatabaseHelper.COLUMN_ID + " = " + id, null);
    }

    public void deleteItem(long id) {
        database.delete(DatabaseHelper.TABLE_NAME, DatabaseHelper.COLUMN_ID
+ " = " + id, null);
    }
}
```

Main activity.java

```
package com.example.crudapp;



import androidx.appcompat.app.AppCompatActivity;
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.SimpleCursorAdapter;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private DatabaseManager dbManager;
    private EditText editTextName;
    private Button buttonAdd, buttonUpdate, buttonDelete;
    private ListView listView;
    private SimpleCursorAdapter adapter;
    private long selectedItemId = -1;

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

```
        dbManager = new DatabaseManager(this);
        dbManager.open();

        editTextName = findViewById(R.id.editTextName);
        buttonAdd = findViewById(R.id.buttonAdd);
        buttonUpdate = findViewById(R.id.buttonUpdate);
        buttonDelete = findViewById(R.id.buttonDelete);
        listView = findViewById(R.id.listView);

        buttonAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                addItem();
            }
        });

        buttonUpdate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                updateItem();
            }
        });

        buttonDelete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                deleteItem();
            }
        });

        listView.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                Cursor cursor = (Cursor) adapter.getItem(position);
                selectedItemId =
cursor.getLong(cursor.getColumnIndexOrThrow(DatabaseHelper.COLUMN_ID));
                String name =
cursor.getString(cursor.getColumnIndexOrThrow(DatabaseHelper.COLUMN_NAME));
                editTextName.setText(name);
            }
        });

        displayListView();
    }

    private void addItem() {
        String name = editTextName.getText().toString();
        if (!name.isEmpty()) {
            dbManager.insertItem(name);
            displayListView();
            editTextName.setText("");
        } else {
            Toast.makeText(this, "Please enter a name",
Toast.LENGTH_SHORT).show();
        }
    }

    private void updateItem() {
```

```
        String name = editTextName.getText().toString();
        if (selectedItemId != -1 && !name.isEmpty()) {
            dbManager.updateItem(selectedItemId, name);
            displayListView();
            editTextName.setText("");
            selectedItemId = -1;
        } else {
            Toast.makeText(this, "Please select an item and enter a name",
Toast.LENGTH_SHORT).show();
        }
    }

    private void deleteItem() {
        if (selectedItemId != -1) {
            dbManager.deleteItem(selectedItemId);
            displayListView();
            editTextName.setText("");
            selectedItemId = -1;
        } else {
            Toast.makeText(this, "Please select an item to delete",
Toast.LENGTH_SHORT).show();
        }
    }

    private void displayListView() {
        Cursor cursor = dbManager.getAllItems();

        String[] from = new String[] { DatabaseHelper.COLUMN_NAME };
        int[] to = new int[] { android.R.id.text1 };

        adapter = new SimpleCursorAdapter(this,
android.R.layout.simple_list_item_1, cursor, from, to, 0);
        listView.setAdapter(adapter);
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        dbManager.close();
    }
}
```

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">

    <EditText
        android:id="@+id/editTextName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter name" />

    <Button
        android:id="@+id/buttonAdd"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextName"
```

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

    <Button
        android:id="@+id/buttonUpdate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextName"
        android:layout_toEndOf="@id/buttonAdd"
        android:text="Update" />

    <Button
        android:id="@+id/buttonDelete"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextName"
        android:layout_toEndOf="@id/buttonUpdate"
        android:text="Delete" />

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonAdd"
        android:layout_marginTop="16dp" />
</RelativeLayout>
```