Problem 3

Exercise Objective: Build a simple Android To-Do List app that allows users to add and remove tasks.

Problem Statement 3: Create an app with an input field to enter a task and an "Add" button to add the task to the list. Include a "Delete" button next to each task to allow removal from the list.

Expected Output: The app dynamically updates the list as tasks are added or removed.

This is XML code

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textViewTitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="To-Do List"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="16dp"/>

    <EditText
        android:id="@+id/editTextTask"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/textViewTitle"
        android:hint="Enter a task"
        android:layout_marginBottom="16dp"/>

    <Button
        android:id="@+id/buttonAdd"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextTask"
        android:layout_alignParentEnd="true"
        android:text="Add"/>

    <LinearLayout
        android:id="@+id/linear_layout_tasks"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonAdd"
        android:orientation="vertical"
        android:layout_marginTop="16dp"/>

</RelativeLayout>
```

This is JAVA code


```java
package com.example.todolistapp;

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

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

    EditText editTextTask;
    Button buttonAdd;
    LinearLayout linearLayoutTasks;

    int taskId = 0; // Unique identifier for each task

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editTextTask = findViewById(R.id.editTextTask);
        buttonAdd = findViewById(R.id.buttonAdd);
        linearLayoutTasks = findViewById(R.id.linear_layout_tasks);

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

```
    private void addTask() {
        String task = editTextTask.getText().toString().trim();

        if (!task.isEmpty()) {
            final int currentTaskId = taskId++;

            LinearLayout taskLayout = new LinearLayout(this);
            taskLayout.setTag(currentTaskId);
            taskLayout.setOrientation(LinearLayout.HORIZONTAL); // Arrange
task and delete button

            TextView textViewTask = new TextView(this);
            textViewTask.setText(task);
            textViewTask.setTextSize(18);

            Button buttonDelete = new Button(this);
            buttonDelete.setText("Delete");
            buttonDelete.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                    //  unique identifier of the task
                    int tag = (int) taskLayout.getTag();


                    View taskContainer = linearLayoutTasks.findViewWithTag(tag);
                    linearLayoutTasks.removeView(taskContainer);
                }
            });

            LinearLayout.LayoutParams layoutParams = new
LinearLayout.LayoutParams(
                    LinearLayout.LayoutParams.WRAP_CONTENT,
                    LinearLayout.LayoutParams.WRAP_CONTENT
            );
            layoutParams.setMargins(0, 0, 16, 16); // Add margin between tasks
            taskLayout.addView(textViewTask);
            taskLayout.addView(buttonDelete);

            linearLayoutTasks.addView(taskLayout, layoutParams);

            editTextTask.setText("");
        }
```

```
    }
}
```