ListView Example,

Design Layout

```xml
<ListView
    android:id="@+id/listView"
    android:layout_width="match_parent"
    android:layout_height="match_parent" />
```

Bind the ListView in Activity class

Declare inside the class

```java
private ListView listView;
```

Write inside the onCreate() method

```java
//bind view to object
listView = findViewById(R.id.listView);

//create array for list view
String[] pl = {"C", "C++", "Java", "Kotlin", "Python", "PHP", "C#",
"JavaScript", "Ruby", "Swift", "R" };

//create adapter with simple list item
ArrayAdapter<String> arrayAdapter = new ArrayAdapter<>(UIActivity.this,
android.R.layout.simple_list_item_1, pl);

//set adapter to list view
listView.setAdapter(arrayAdapter);

//handling item click listener
listView.setOnItemClickListener((parent, view, position, id) -> {
    String item = parent.getItemAtPosition(position).toString();
    Toast.makeText(UIActivity.this, item, Toast.LENGTH_SHORT).show();
});
```

Now Run the project and you will see list of items in the screen and you can click an item.

Custom List View Example

Design a custom_list_view.xml file inside layout

```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="wrap_content"
    android:orientation="horizontal">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="84dp"
        android:layout_height="84dp"
        android:padding="16dp" />

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

        <TextView
            android:id="@+id/textView1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="16dp"
            android:gravity="bottom|left"
            android:textColor="@android:color/black"
            android:textSize="18sp"
            android:textStyle="bold" />

        <TextView
            android:id="@+id/textView2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginBottom="16dp"
            android:gravity="top|left"
            android:textColor="@android:color/black"
            android:textSize="14sp" />

    </LinearLayout>

</LinearLayout>
```

Design layout where you want to show custom layout

```xml
<?xml version="1.0" encoding="utf-8"?>
<ListView
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/listView"
    android:layout_width="match_parent"
```

```xml
        android:layout_height="match_parent"
        tools:context=".CustomListActivity">


</ListView>
```

Create Java Class for Custom View to bind

```java
public class NumbersView {

    private int ivImageId;

    private String titleText;

    private String detailText;

    public NumbersView(int ivImageId, String titleText, String detailText) {
        this.ivImageId = ivImageId;
        this.titleText = titleText;
        this.detailText = detailText;
    }

    public int getIvImageId() {
        return ivImageId;
    }

    public void setIvImageId(int ivImageId) {
        this.ivImageId = ivImageId;
    }

    public String getTitleText() {
        return titleText;
    }

    public void setTitleText(String titleText) {
        this.titleText = titleText;
    }

    public String getDetailText() {
        return detailText;
    }

    public void setDetailText(String detailText) {
        this.detailText = detailText;
    }
}
```

Create a View Adapter for Binding

```java
package com.example.myapp;

import android.content.Context;
import android.view.LayoutInflater;
```

```java
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import java.util.ArrayList;

public class NumbersViewAdapter extends ArrayAdapter<NumbersView> {

    public NumbersViewAdapter(@NonNull Context context,
ArrayList<NumbersView> arrayList) {
        super(context, 0, arrayList);
    }

    @NonNull
    @Override
    public View getView(int position, @Nullable View convertView, @NonNull
ViewGroup parent) {
        View activeView = convertView;

        if (activeView == null) {
            activeView =
LayoutInflater.from(getContext()).inflate(R.layout.custom_list_view, parent,
false);
        }

        NumbersView item = getItem(position);

        ImageView imageView = activeView.findViewById(R.id.imageView);
        assert item != null;
        imageView.setImageResource(item.getIvImageId());


        TextView textView1 = activeView.findViewById(R.id.textView1);
        textView1.setText(item.getDetailText());

        TextView textView2 = activeView.findViewById(R.id.textView2);
        textView2.setText(item.getDetailText());

        // then return the recyclable view
        return activeView;
    }
}
```

Create activity

```java
import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;
```

```java
import android.widget.ListView;

import java.util.ArrayList;

public class CustomListActivity extends AppCompatActivity {

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


        final ArrayList<NumbersView> arrayList = new ArrayList<>();

        arrayList.add(new NumbersView(R.drawable.profile, "1", "One"));
        arrayList.add(new NumbersView(R.drawable.profile, "2", "Two"));
        arrayList.add(new NumbersView(R.drawable.profile, "3", "Three"));
        arrayList.add(new NumbersView(R.drawable.profile, "4", "Four"));
        arrayList.add(new NumbersView(R.drawable.profile, "5", "Five"));
        arrayList.add(new NumbersView(R.drawable.profile, "6", "Six"));
        arrayList.add(new NumbersView(R.drawable.profile, "7", "Seven"));
        arrayList.add(new NumbersView(R.drawable.profile, "8", "Eight"));
        arrayList.add(new NumbersView(R.drawable.profile, "9", "Nine"));
        arrayList.add(new NumbersView(R.drawable.profile, "10", "Ten"));
        arrayList.add(new NumbersView(R.drawable.profile, "11", "Eleven"));
        arrayList.add(new NumbersView(R.drawable.profile, "12", "Twelve"));
        arrayList.add(new NumbersView(R.drawable.profile, "13", "Thirteen"));
        arrayList.add(new NumbersView(R.drawable.profile, "14", "Fourteen"));
        arrayList.add(new NumbersView(R.drawable.profile, "15", "Fifteen"));


        NumbersViewAdapter numbersArrayAdapter = new NumbersViewAdapter(this,
arrayList);

        ListView numbersListView = findViewById(R.id.listView);

        numbersListView.setAdapter(numbersArrayAdapter);

            numbersListView.setOnItemClickListener(new
            AdapterView.OnItemClickListener() {
                @Override
                public void onItemClick(AdapterView<?> parent, View view, int
            position, long id) {

                    Toast.makeText(CustomListActivity.this,
            arrayList.get(position).getDetailText(),
            Toast.LENGTH_SHORT).show();
                }
            });

    }
}
```

Spinner Example

Design the layout

```xml
<Spinner
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:background="#EB2F2F"
    android:id="@+id/spCountry"
    android:entries="@array/countries"/>
```

Create inside string.xml file

```xml
<array name="countries">
    <item>Nepal</item>
    <item>China</item>
    <item>India</item>
    <item>USA</item>
    <item>Japan</item>
</array>
```

Run the program you will see dropdown control in the screen

OR

Design a layout as:

```xml
<Spinner
    android:layout_width="match_parent"
    android:layout_height="60dp"
    android:background="#EB2F2F"
    android:id="@+id/spCountry"/>
```

Bind the view in Activity class

```java
Spinner spinner = findViewById(R.id.spCountry);

// create a list of data for spinner to display
List<String> spinnerArray = new ArrayList<>();
spinnerArray.add("Nepal");
spinnerArray.add("China");
spinnerArray.add("India");
spinnerArray.add("USA");
spinnerArray.add("Japan");

//Create Adapter for data to bind in spinner
ArrayAdapter<String> adapter = new ArrayAdapter<>(
        this, android.R.layout.simple_spinner_item, spinnerArray);

//set dropdown resources
```

```
adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item
);
spinner.setAdapter(adapter);

//handling click event
spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
    @Override
    public void onItemSelected(AdapterView<?> parent, View view, int
position, long id) {
        String selected = spinner.getSelectedItem().toString();
        Toast.makeText(UIActivity.this, selected, Toast.LENGTH_SHORT).show();
    }

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

    }
});
```

Image Button Example

Design Layout

Insert Image to drawable folder

```
<ImageButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/imgButton"
    android:src="@drawable/nepal" />
```

OR

Design Layout

Insert Image to drawable folder

```
<ImageButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:scaleType="fitCenter"
    android:id="@+id/imgButton" />
```

```
Write down the code in Activity class

ImageButton btnImage  =findViewById(R.id.imgButton);

btnImage.setImageResource(R.drawable.nepal
```

ImageView Example

From Layout Design

```xml
<ImageView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:scaleType="centerInside"
    android:id="@+id/ivProfile"
    app:srcCompat="@drawable/profile"
/>
```

From Activity Code

```java
ImageView imageView = findViewById(R.id.ivProfile);
imageView.setImageResource(R.drawable.profile);
```