

ListView Example,

Design Layout

```
<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

```
private ListView listView;
```

Write inside the onCreate() method

```
//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 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 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"
```

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

```
</ListView>
```

Create Java Class for Custom View to bind

```
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

```
package com.example.myapp;  
  
import android.content.Context;  
import android.view.LayoutInflater;
```

```

import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
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

```

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

```

```

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

```
<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

```
<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:

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

Bind the view in Activity class

```
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.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    @Override
    public void onItemClick(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

```
<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

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

Radio Button Example

Design a radio for male and female

```
<RadioGroup
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/rdoGender">
    <RadioButton
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Male"
        android:id="@+id/rdoMale"/>

    <RadioButton
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Female"
        android:id="@+id/rdoFemale"/>
</RadioGroup>
```

Write down Activity code for radio selection

```
RadioGroup rdoGender= findViewById(R.id.rdoGender);
rdoGender.clearCheck();
rdoGender.setOnCheckedChangeListener((group, checkedId) -> {
    RadioButton rdoSel=group.findViewById(checkedId);

    Toast.makeText(UIActivity.this,rdoSel.getText(),Toast.LENGTH_SHORT).show();
});
```


Check Box example,

Design Layout as

```
<CheckBox
    android:id="@+id/checkBox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Pizza" />

<CheckBox
    android:id="@+id/checkBox2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Coffee" />

<CheckBox
    android:id="@+id/checkBox3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Burger" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Order" />

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/tvResult"/>
```

Write down the code to handle click in activity

```
CheckBox pizza = findViewById(R.id.checkBox);
CheckBox coffe = findViewById(R.id.checkBox2);
CheckBox burger = findViewById(R.id.checkBox3);
Button buttonOrder = findViewById(R.id.button);
TextView tvResult = findViewById(R.id.tvResult);

buttonOrder.setOnClickListener(v -> {
    int totalamount = 0;
    StringBuffer result = new StringBuffer();
    result.append("Selected Items:");
    if (pizza.isChecked()) {
        result.append("\nPizza 100Rs");
        totalamount += 100;
    }
    if (coffe.isChecked()) {
        result.append("\nCoffe 50Rs");
        totalamount += 50;
    }
    if (burger.isChecked()) {
```

```

        result.append("\nBurger 120Rs");
        totalamount += 120;
    }
    result.append("\nTotal: " + totalamount + "Rs");
    //Displaying the message on the toast
    Log.i("SEL",result.toString());
    tvResult.setText(result.toString());
});

```

Rating Bar example,

Design RatingBar

```

<RatingBar
    android:id="@+id/rtBar"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="submit" />

```

Write down code to handle event

```

RatingBar ratingBar = findViewById(R.id.rtBar);

Button button = findViewById(R.id.button);
button.setOnClickListener(arg0 -> {
    String rating = String.valueOf(ratingBar.getRating());
    Toast.makeText(getApplicationContext(), rating,
    Toast.LENGTH_LONG).show();
});

```

WebView Example

```

<WebView
    android:id="@+id/webView"
    android:layout_width="match_parent"
    android:layout_height="match_parent" />

```

Write down code in activity

```

WebView myWebView = findViewById(R.id.webView);
WebSettings webSettings = myWebView.getSettings();
webSettings.setJavaScriptEnabled(true);
myWebView.setWebViewClient(new WebViewClient());
if(isOnline()) {
    myWebView.loadUrl("https://nast.edu.np/");
}else {
    Toast.makeText(this, "No Internet Connection",
Toast.LENGTH_SHORT).show();
}

```

Check for Network Connection

```

public boolean isOnline() {
    ConnectivityManager cm = (ConnectivityManager)
getSystemService(Context.CONNECTIVITY_SERVICE);
    return cm.getActiveNetworkInfo() != null &&
cm.getActiveNetworkInfo().isConnectedOrConnecting();
}

```

Add Permission Android Manifest

```

<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />

```

Table layout example,

```

<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <TextView
            android:text="Time"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1" />

        <TextClock
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/textClock"
            android:layout_column="2" />

    </TableRow>

    <TableRow>

```

```

        <TextView
            android:text="First Name"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1" />

        <EditText
            android:width="200px"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" />
    </TableRow>

    <TableRow>

        <TextView
            android:text="Last Name"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_column="1" />

        <EditText
            android:width="100px"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" />
    </TableRow>

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <RatingBar
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/ratingBar"
            android:layout_column="2" />
    </TableRow>

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"/>

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Submit"
            android:id="@+id/button"
            android:layout_column="2" />
    </TableRow>

</TableLayout>

```

GridView Example,

SeekBar example

Design layout

```
<TextView
    android:id="@+id/tvMessage"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="NAST College"
    android:textSize="20sp"
    android:textStyle="bold" />

<SeekBar
    android:id="@+id/seekBar"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:max="50" />
```

Activity class code

```
SeekBar seekBar = findViewById(R.id.seekBar);
TextView textVie = findViewById(R.id.tvMessage);

seekBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {

    @Override
    public void onProgressChanged(SeekBar seekBar, int progress, boolean
fromUser) {
        textVie.setTextSize(progress + 1);
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {

    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {

    }
});
```