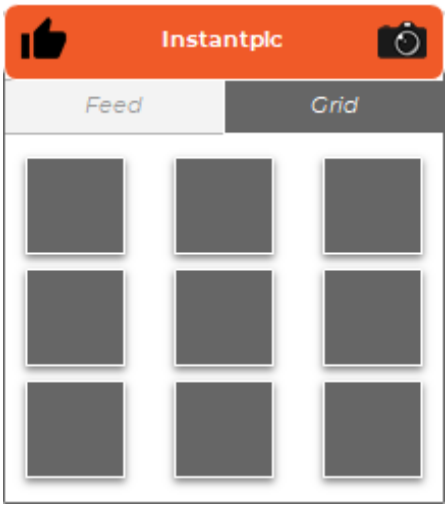
Lab 9: Android GridView Layout

Introduction

Items are shown in a two-dimensional scrolling grid via Android GridView (with rows & columns). The grid items could be dynamically inserted using a ListAdapter rather than being preset**.**

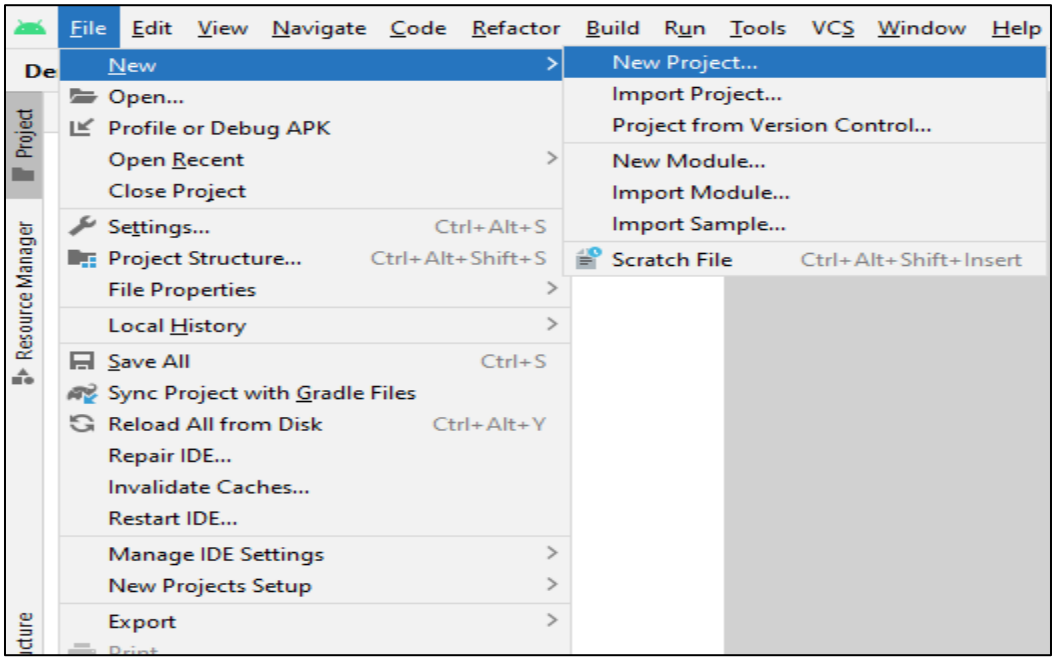


Attribute	Description
id	Used to identify uniquely
columnWidth	Used to specify width of each columns. It can be specified in sp, in, or mm, px, dp,
gravity	Specify the gravity in each cell.
horizontalSpacing	Used to specify spacing between cells horizontally
numColumns	Specify the number of columns to show.

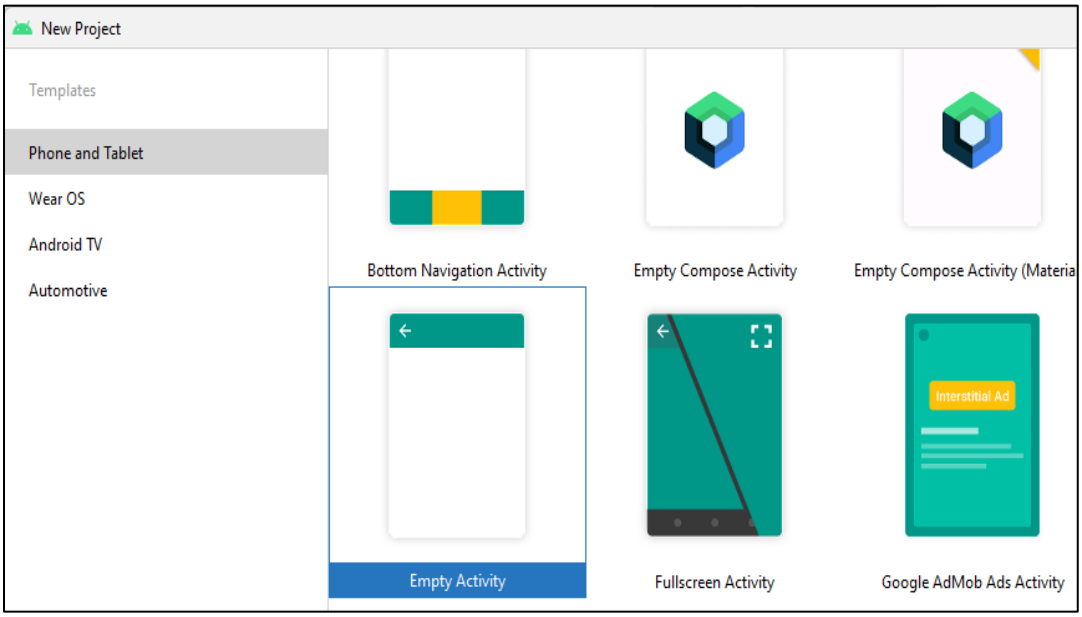
Let’s get Started

This exercise will take you through simple steps to show how to create your own Android application using GridView Layout.

Step 1: Create a New Project in Android Studio as shown below



Step 2: Select Empty Activity as shown below



Step 3: Update MainActivity.java as per the code given below

```
package com.example.demogridlayout;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.GridView;
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        GridView gridview = (GridView) findViewById(R.id.gridview);
        gridview.setAdapter(new ImageAdapter(this));
        gridview.setOnItemClickListener(new AdapterView.OnItemClickListener()
{
            public void onItemClick(AdapterView<?> parent,
                                    View v, int position, long id){
                // Send intent to SingleViewActivity
                Intent i = new Intent(getApplicationContext(),
SingleViewActivity.class);
                // Pass image index
                i.putExtra("id", position);
                startActivity(i);
            }
        });
    }
}
```

Step 4: Update activity_main.xml as per the code given below

```
<?xml version="1.0" encoding="utf-8"?>
<GridView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/gridview"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:columnWidth="90dp"
    android:numColumns="3"
    android:verticalSpacing="10dp"
    android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"
    android:gravity="center"
    />
```

Step 5: Create ImageAdapter.java as per the code given below

```
package com.example.demogridlayout;
import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;

public class ImageAdapter extends BaseAdapter {
    private Context mContext;

    // Constructor
    public ImageAdapter(Context c) {
        mContext = c;
    }

    public int getCount() {
        return mThumbIds.length;
    }

    public Object getItem(int position) {
        return null;
    }

    public long getItemId(int position) {
        return 0;
    }

    // create a new ImageView for each item referenced by the Adapter
    public View getView(int position, View convertView, ViewGroup parent) {
        ImageView imageView;

        if (convertView == null) {
            imageView = new ImageView(mContext);
            imageView.setLayoutParams(new GridView.LayoutParams(185, 185));
            imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
            imageView.setPadding(8, 8, 8, 8);
        }
        else
        {
            imageView = (ImageView) convertView;
        }
        imageView.setImageResource(mThumbIds[position]);
        return imageView;
    }

    // Keep all Images in array
    public Integer[] mThumbIds = {
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
```

```
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
            R.drawable.myimg1, R.drawable.myimg2,
    };
}
```

Step 6: Create SingleViewActivity.java as per the code given below

```
package com.example.demogridlayout;
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.ImageView;

public class SingleViewActivity extends Activity {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.single_view);

        // Get intent data
        Intent i = getIntent();

        // Selected image id
        int position = i.getExtras().getInt("id");
        ImageAdapter imageAdapter = new ImageAdapter(this);

        ImageView imageView = (ImageView) findViewById(R.id.SingleView);
        imageView.setImageResource(imageAdapter.mThumbIds[position]);
    }
}
```

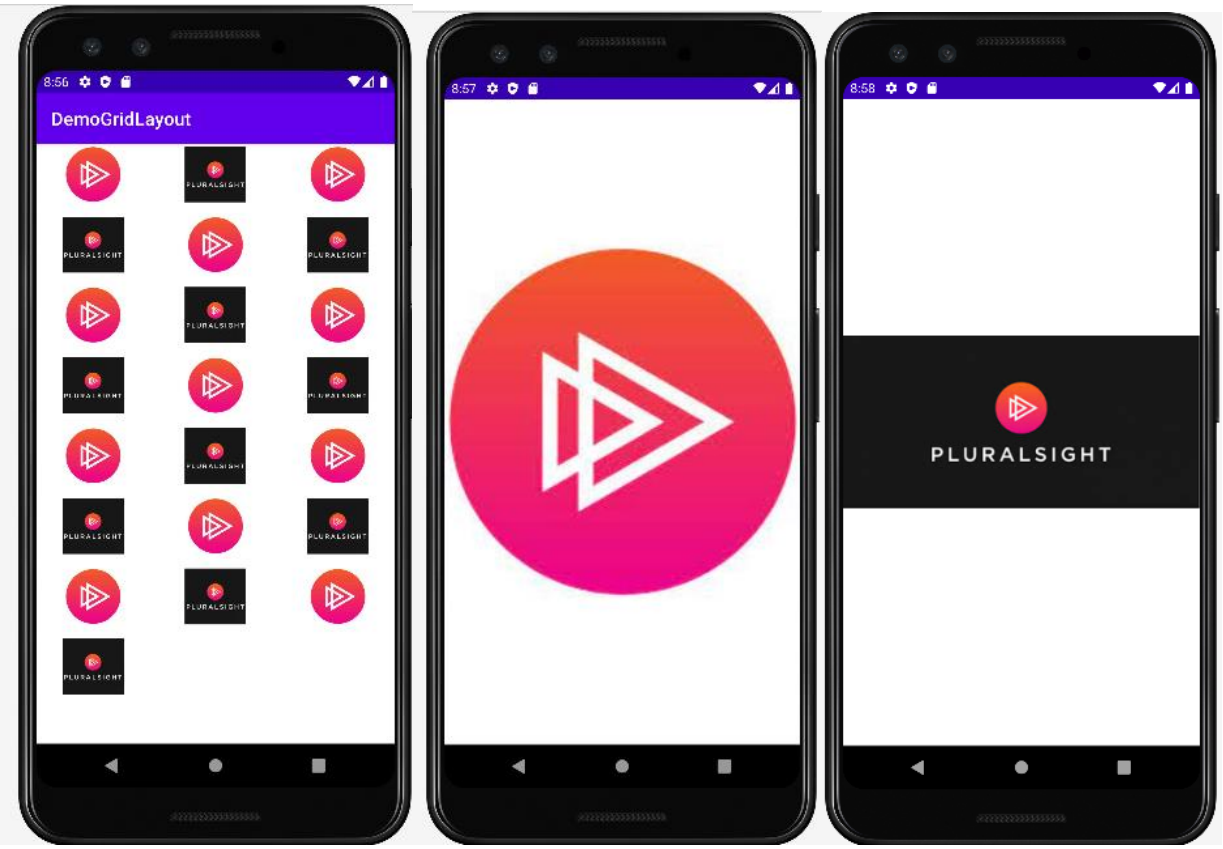
Step 7: Create single_view.xml Layout file as per the code given below

```
<?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" >

    <ImageView android:id="@+id/SingleView"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"/>

</LinearLayout>
```

Step 8: Check Output on Android Emulator.



Voila!! We have successfully completed this lab.