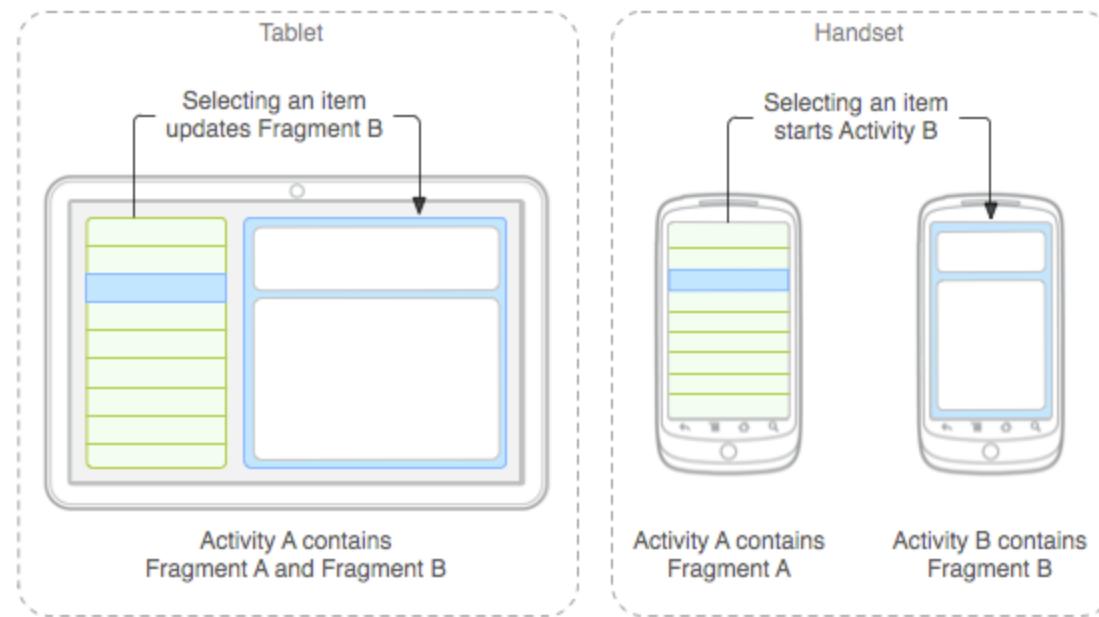
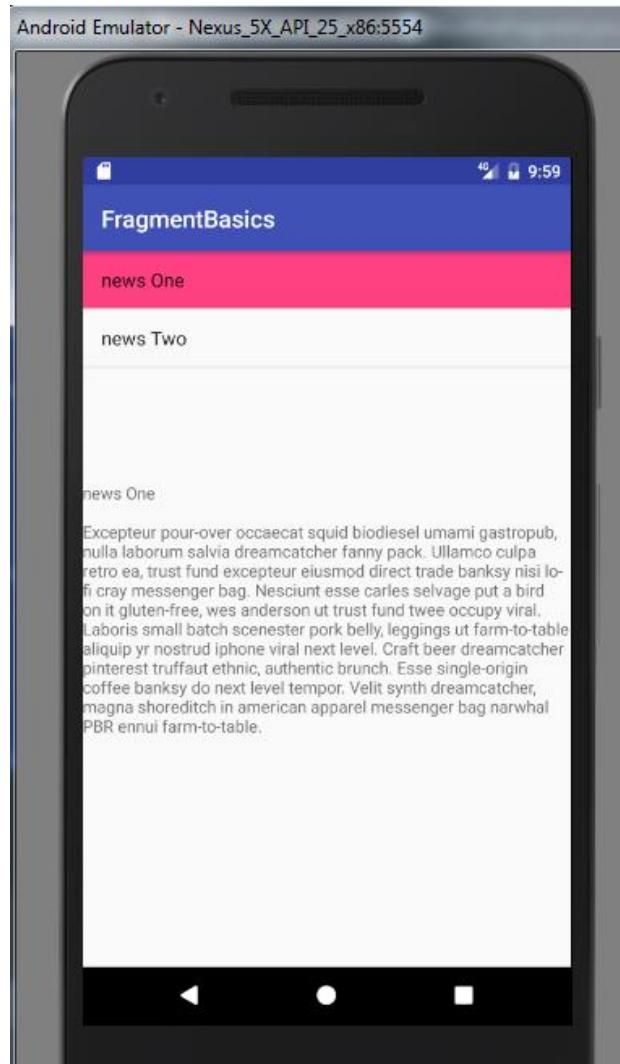


Fragments

- A Fragment represents a portion of user interface in an Activity.
- can combine multiple fragments in a single activity, or reuse a fragment in multiple activities.



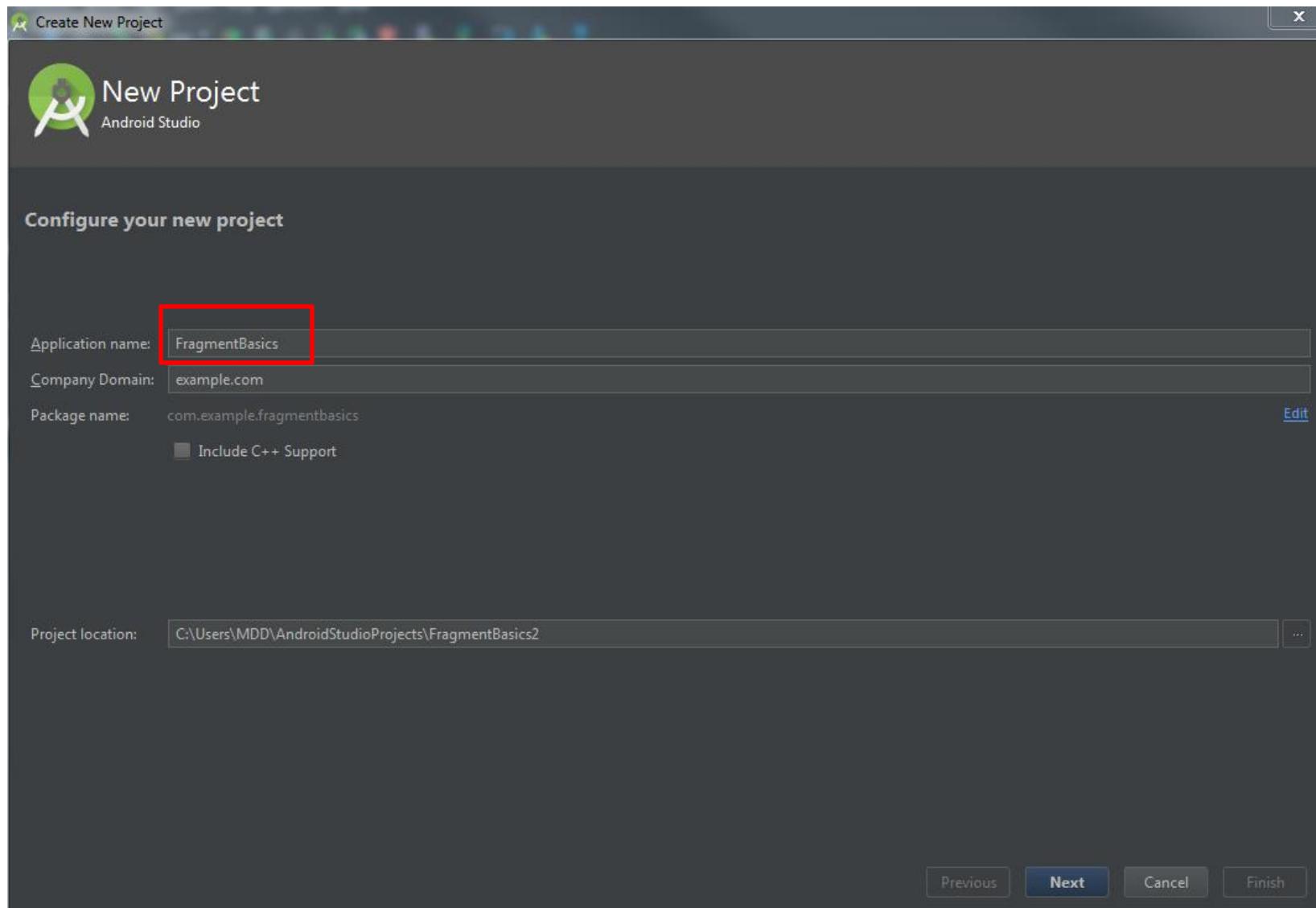
Let's do this



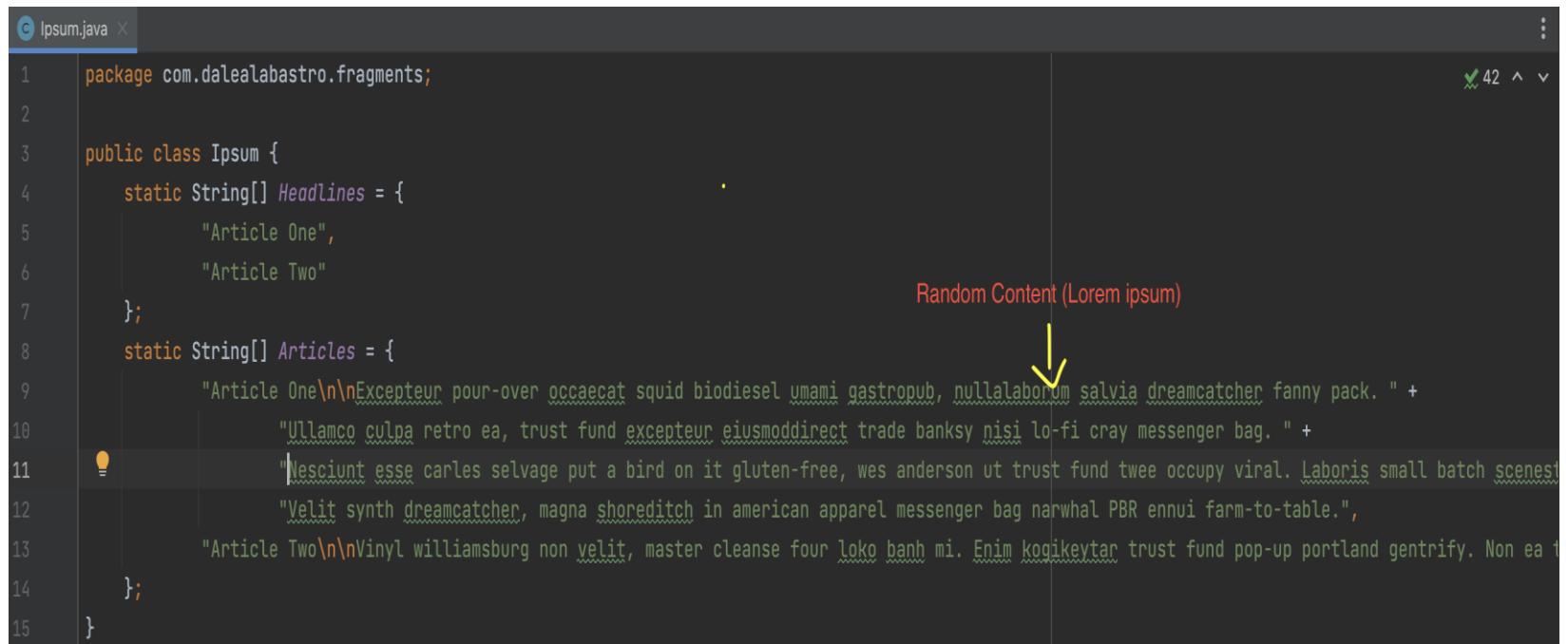
Lab 1.b FragmentBasics

- Create two fragments. One is a list fragment that contains all news headlines, the other is a fragment that displays the news article
- Display the two fragments inside a single activity

Build the first app with fragments



- Create Ipsum.java class, copy and paste lorem ipsum content as the news:



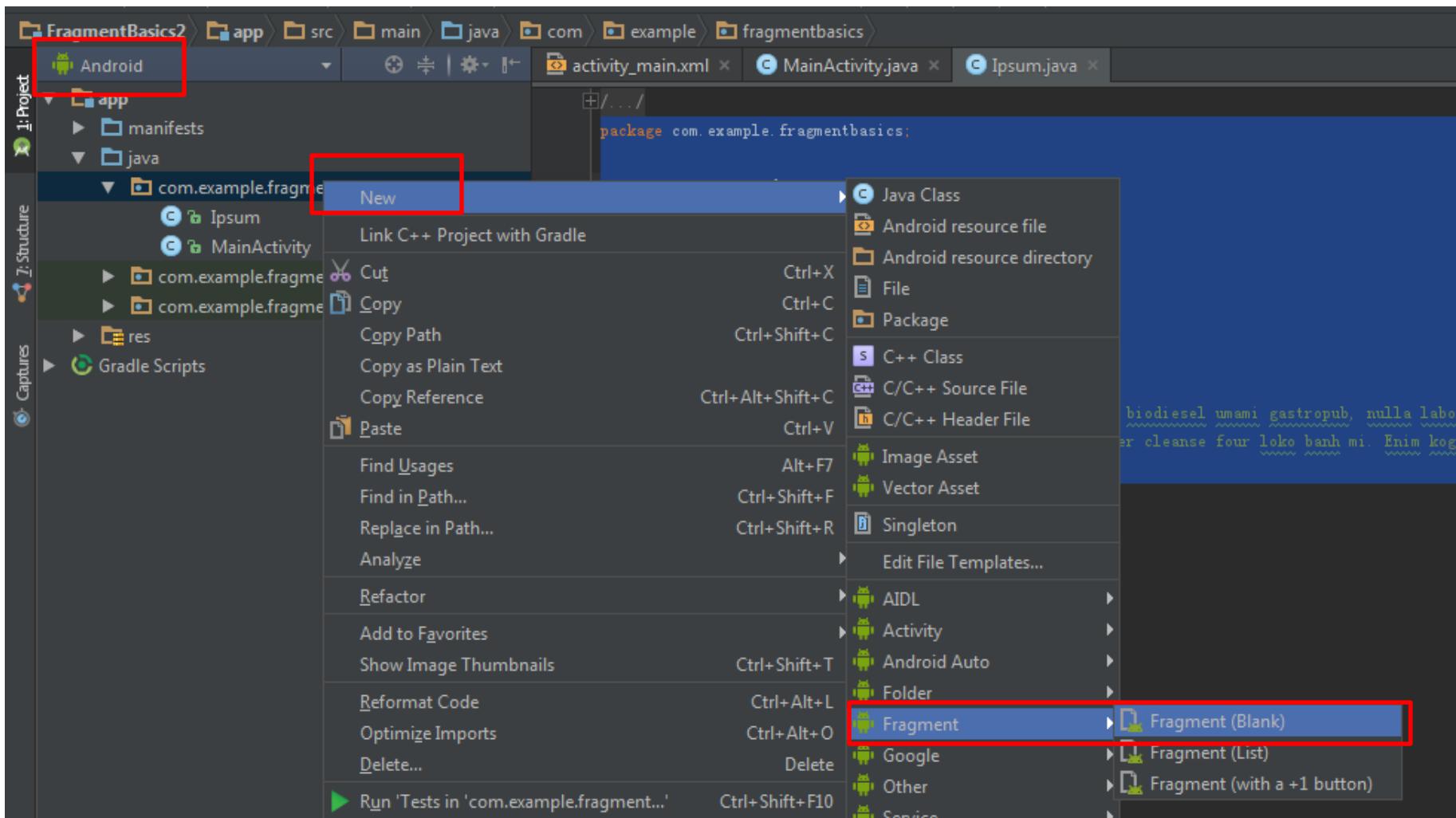
```

1 package com.dalealabastro.fragments;
2
3 public class Ipsum {
4     static String[] Headlines = {
5         "Article One",
6         "Article Two"
7     };
8     static String[] Articles = {
9         "Article One\n\nExcepteur pour-over occaecat squid biodiesel umami gastropub, nulla laboreum salvia dreamcatcher fanny pack. " +
10            "Ullamco culpa retro ea, trust fund excepteur eiusmod direct trade banksy nisi lo-fi cray messenger bag. " +
11            "Nesciunt esse carles selvage put a bird on it gluten-free, wes anderson ut trust fund twee occupy viral. Laboris small batch scenester",
12            "Velit synth dreamcatcher, magna shoreditch in american apparel messenger bag narwhal PBR ennui farm-to-table.",
13            "Article Two\n\nVinyl williamsburg non velit, master cleanse four loko banh mi. Enim kogi keytar trust fund pop-up portland gentrify. Non ea t
14    };
15 }

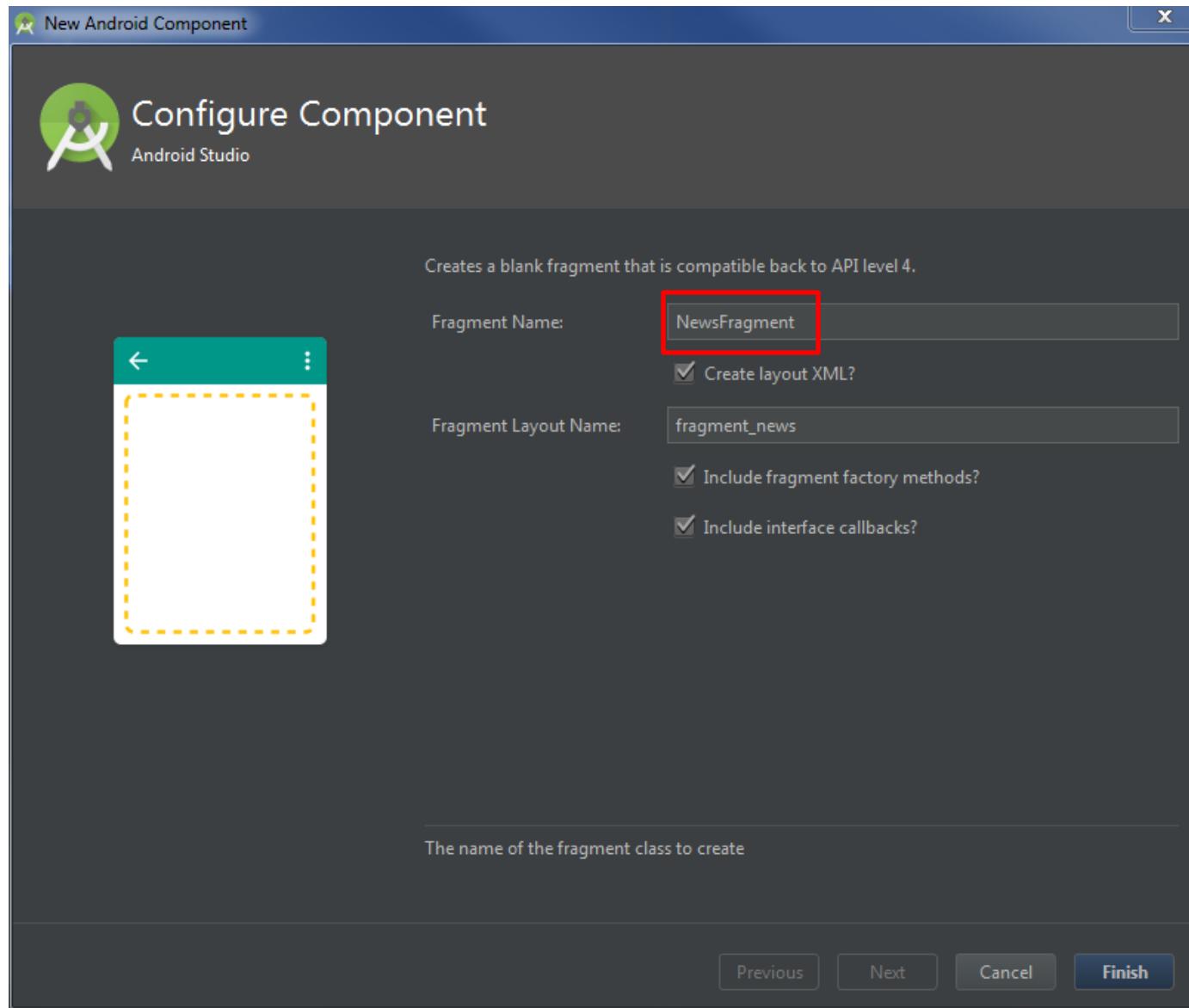
```

Random Content (Lorem ipsum)

• Create a new fragment

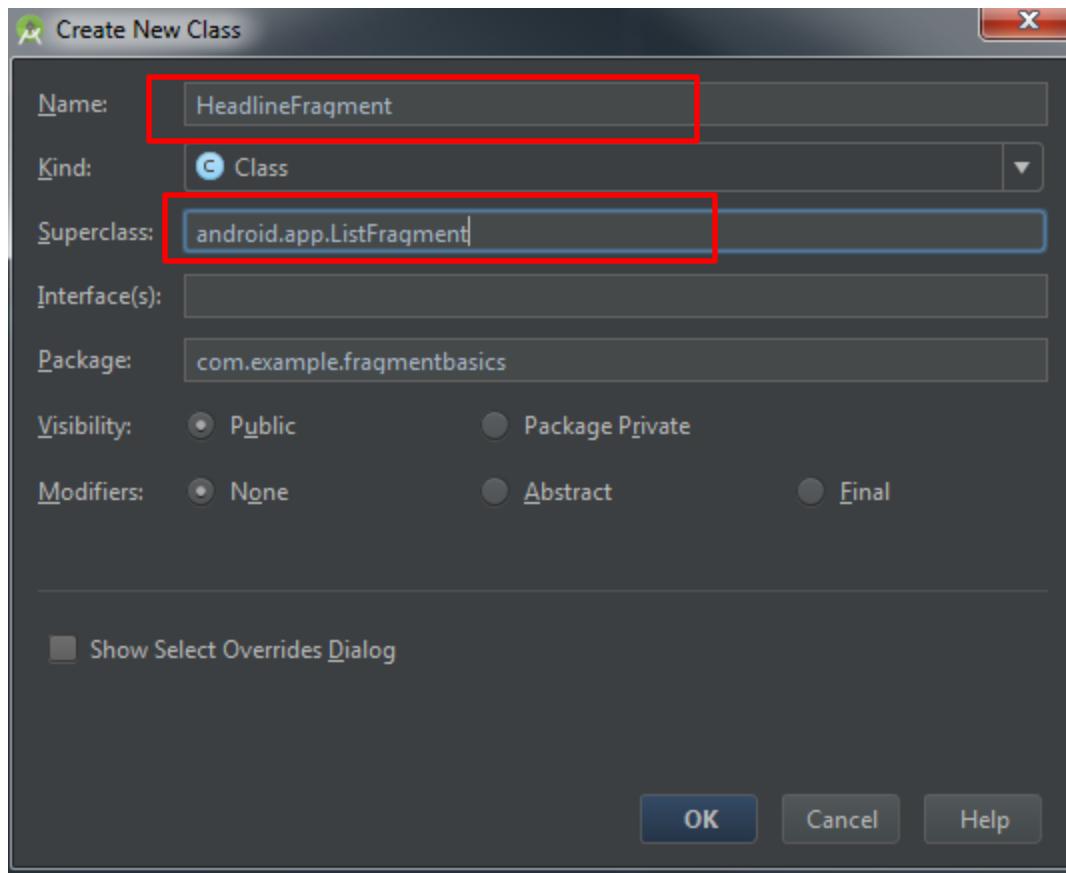


- Configure the new fragment

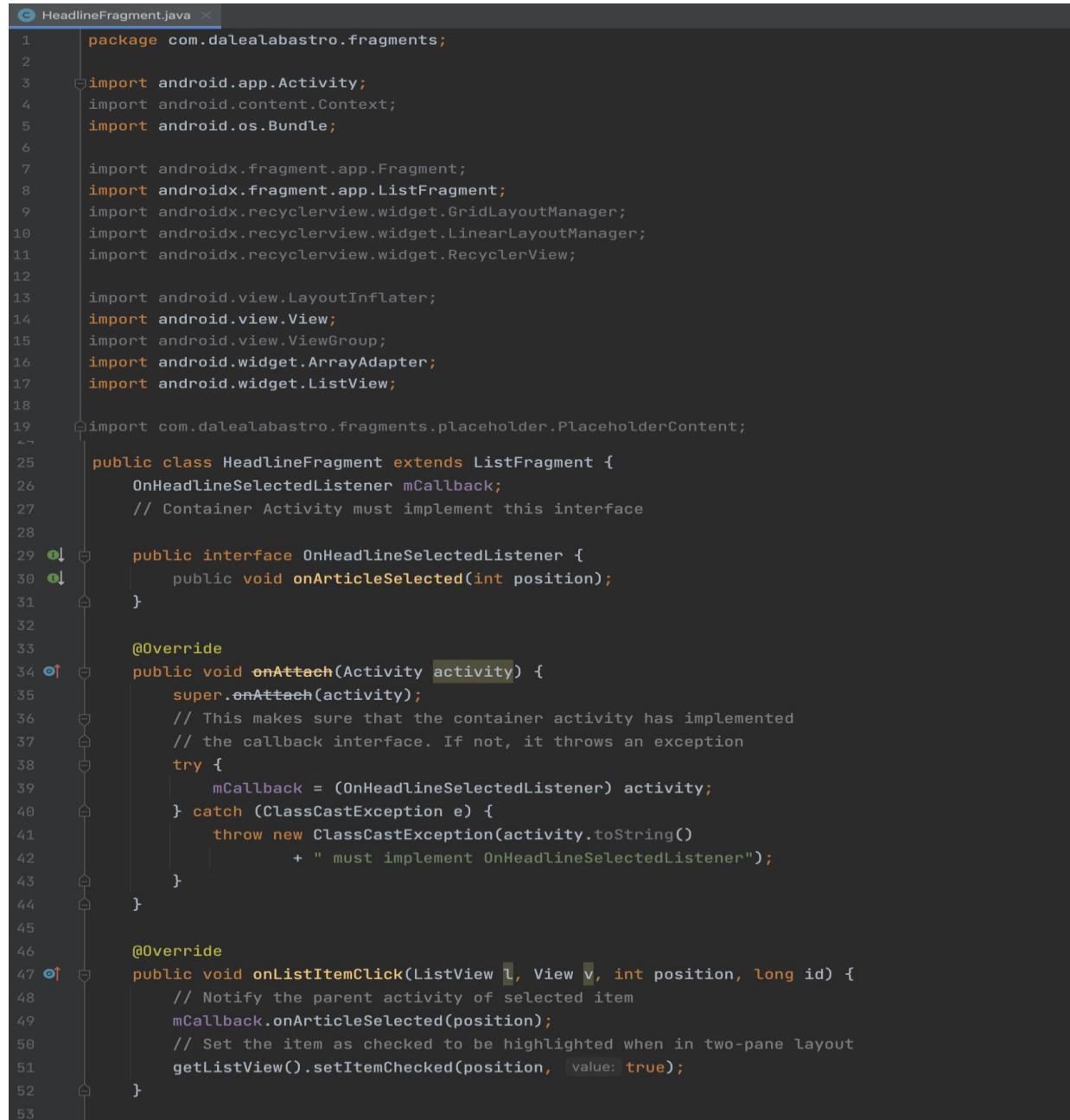


```
NewsFragment.java ×
1 package com.dalealabastro.fragments;
2
3 import android.os.Bundle;                                Imports Section
4
5 import androidx.fragment.app.Fragment;
6
7 import android.view.LayoutInflater;
8 import android.view.View;
9 import android.view.ViewGroup;
10 import android.widget.TextView;
11
12 /**
13 * A simple {@link Fragment} subclass.
14 * Use the {@link NewsFragment #newInstance} factory method to
15 * create an instance of this fragment.
16 */
17
18 public class NewsFragment extends Fragment {
19     final static String ARG_POSITION = "position";
20     int mCurrentPosition = -1;
21
22     @Override
23     @Override
24     public View onCreateView(LayoutInflater inflater, ViewGroup container,
25                             Bundle savedInstanceState) {
26         // Inflate the layout for this fragment
27         return inflater.inflate(R.layout.fragment_news, container, attachToRoot: false);
28     }
29
30     @Override
31     public void onStart() {
32         super.onStart();
33
34         // During startup, check if there are arguments passed to the fragment.
35         // onStart is a good place to do this because the layout has already been
36         // applied to the fragment at this point so we can safely call the method
37         // below that sets the article text.
38
39         Bundle args = getArguments();
40         if (args != null) {
41
42             // Set article based on argument passed in
43             updateArticleView(args.getInt(ARG_POSITION));
44
45         } else if (mCurrentPosition != -1) {
46             // Set article based on saved instance state defined during onCreateView
47             updateArticleView(mCurrentPosition);
48         }
49
50         public void updateArticleView(int position) {
51             TextView article = (TextView) getActivity().findViewById(R.id.news);
52             article.setText(Ipsum.Articles[position]);
53             mCurrentPosition = position;
54         }
55
56         @Override
57         public void onSaveInstanceState(Bundle outState) {
58             super.onSaveInstanceState(outState);
59             // Save the current article selection in case we need to recreate the fragment
60             outState.putInt(ARG_POSITION, mCurrentPosition);
61         }
62     }
}
```

- Create a second list fragment:
HeadlineFragment.java



- Define an Interface in HeadlineFragment

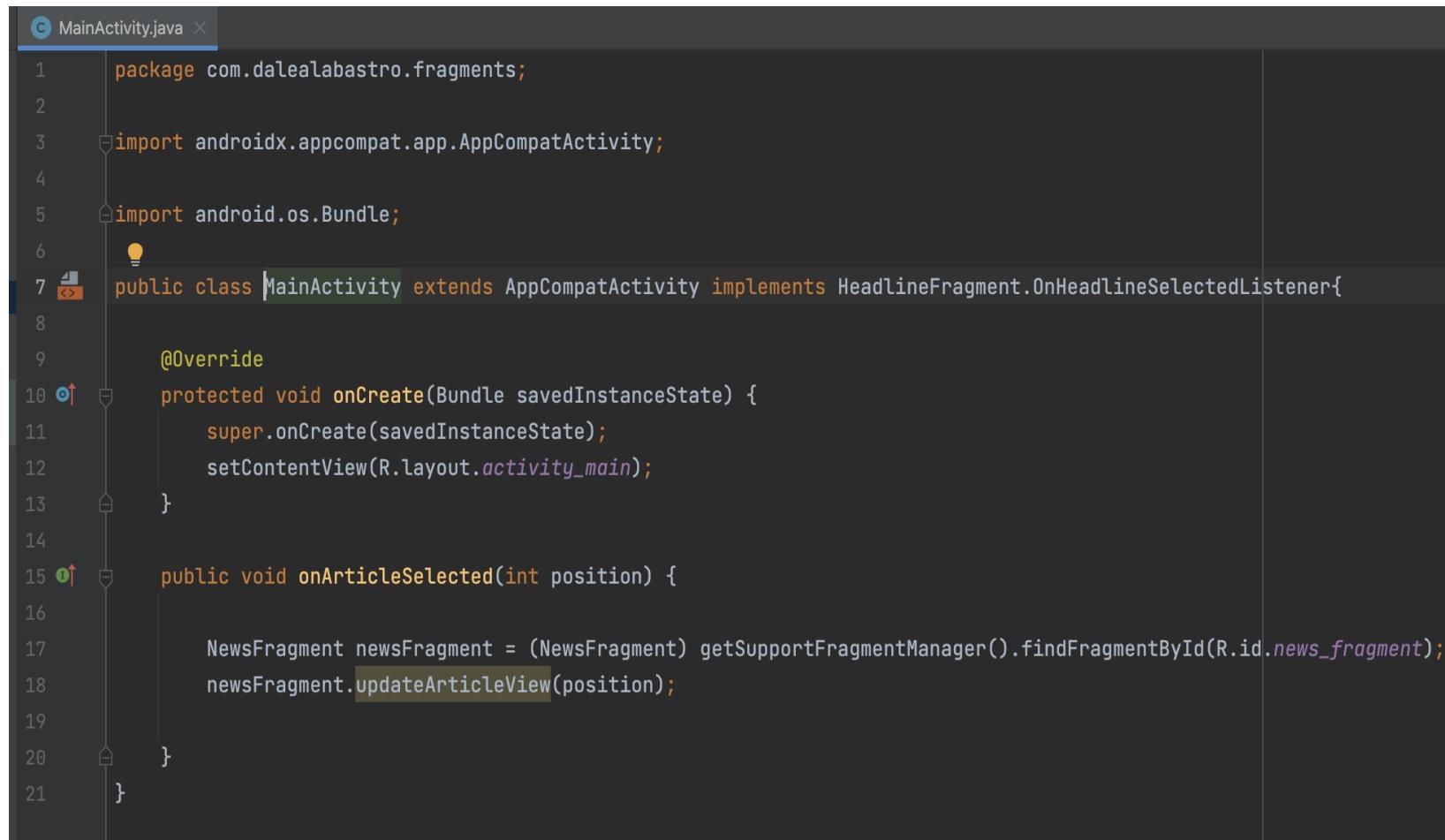


```
1 package com.dalealabastro.fragments;
2
3 import android.app.Activity;
4 import android.content.Context;
5 import android.os.Bundle;
6
7 import androidx.fragment.app.Fragment;
8 import androidx.fragment.app.ListFragment;
9 import androidx.recyclerview.widget.GridLayoutManager;
10 import androidx.recyclerview.widget.LinearLayoutManager;
11 import androidx.recyclerview.widget.RecyclerView;
12
13 import android.view.LayoutInflater;
14 import android.view.View;
15 import android.view.ViewGroup;
16 import android.widget.ArrayAdapter;
17 import android.widget.ListView;
18
19 import com.dalealabastro.fragments.placeholder.PlaceholderContent;
20
21 public class HeadlineFragment extends ListFragment {
22     OnHeadlineSelectedListener mCallback;
23     // Container Activity must implement this interface
24
25     public interface OnHeadlineSelectedListener {
26         public void onArticleSelected(int position);
27     }
28
29     @Override
30     public void onAttach(Activity activity) {
31         super.onAttach(activity);
32         // This makes sure that the container activity has implemented
33         // the callback interface. If not, it throws an exception
34         try {
35             mCallback = (OnHeadlineSelectedListener) activity;
36         } catch (ClassCastException e) {
37             throw new ClassCastException(activity.toString()
38                 + " must implement OnHeadlineSelectedListener");
39         }
40     }
41
42     @Override
43     public void onListItemClick(ListView l, View v, int position, long id) {
44         // Notify the parent activity of selected item
45         mCallback.onArticleSelected(position);
46         // Set the item as checked to be highlighted when in two-pane layout
47         getListView().setItemChecked(position, value: true);
48     }
49
50
51
52
53 }
```

- Implement onCreate and onStart for HeadlineFragement class

```
53
54
55     @Override
56     public void onCreate(Bundle savedInstanceState) {
57         super.onCreate(savedInstanceState);
58         int layout = android.R.layout.simple_list_item_activated_1;
59         setListAdapter(new ArrayAdapter<String>(getActivity(), layout, Ipsum.Headlines));
60     }
61
62     @Override
63     public void onStart() {
64         super.onStart();
65
66         if (getFragmentManager().findFragmentById(R.id.news_fragment) != null) {
67             getListView().setChoiceMode(ListView.CHOICE_MODE_SINGLE);
68         }
69     }
70
71
72
73
74
75 }
```

- In the MainActivity.java, implement the interface for the list fragment



The screenshot shows the code editor for MainActivity.java in Android Studio. The code implements the OnHeadlineSelectedListener interface for the NewsFragment. The interface implementation is located in the onArticleSelected() method.

```
1 package com.dalealabastro.fragments;
2
3 import androidx.appcompat.app.AppCompatActivity;
4
5 import android.os.Bundle;
6
7 public class MainActivity extends AppCompatActivity implements HeadlineFragment.OnHeadlineSelectedListener{
8
9     @Override
10    protected void onCreate(Bundle savedInstanceState) {
11        super.onCreate(savedInstanceState);
12        setContentView(R.layout.activity_main);
13    }
14
15    public void onArticleSelected(int position) {
16
17        NewsFragment newsFragment = (NewsFragment) getSupportFragmentManager().findFragmentById(R.id.news_fragment);
18        newsFragment.updateArticleView(position);
19
20    }
21}
```

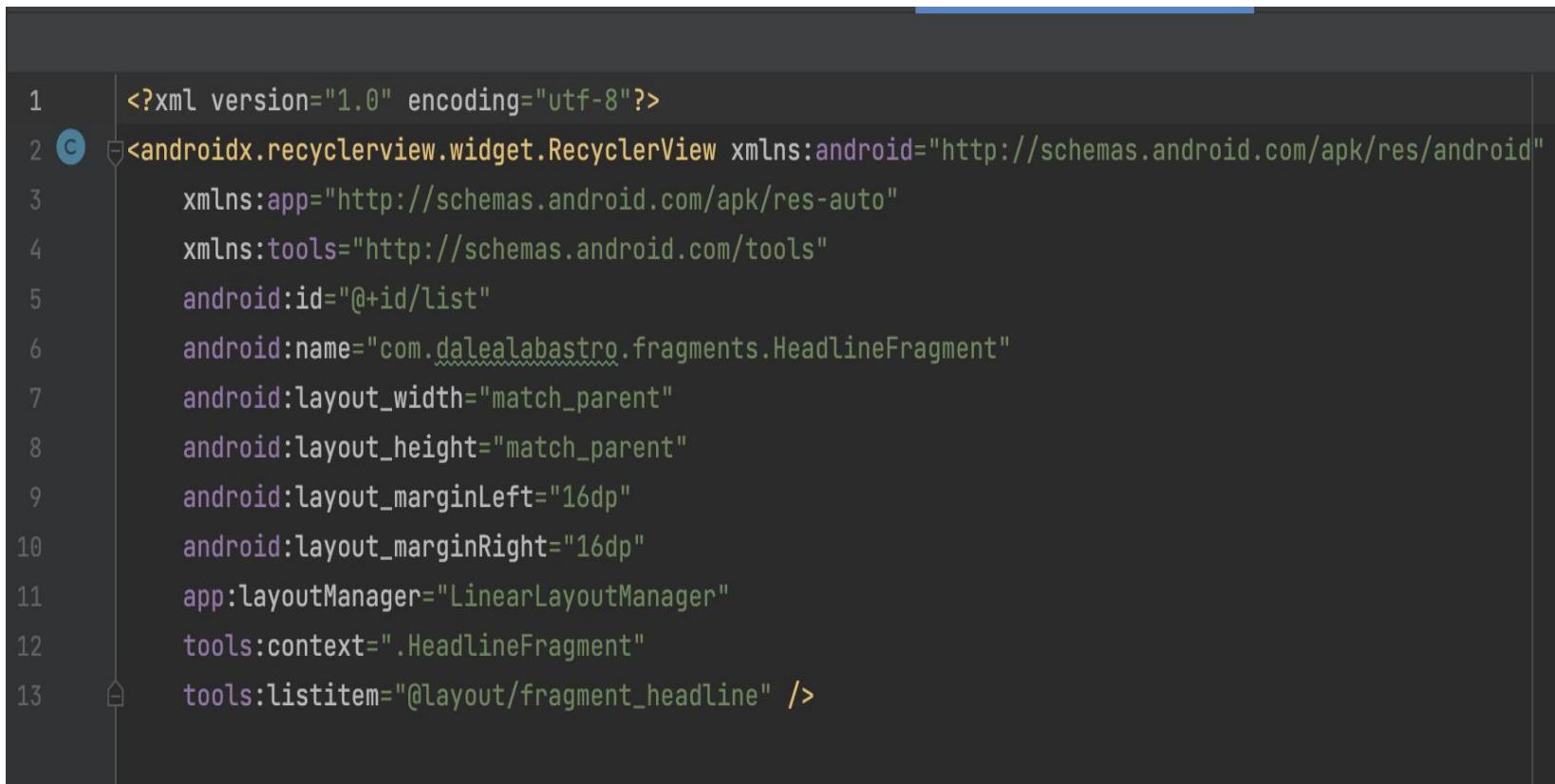
- Organize these two fragments in activity_main.xml

```
activity_main.xml
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="vertical"
4     android:id="@+id/fragment_container"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent">
7     <fragment android:name="com.dalealabastro.fragments.HeadlineFragment"
8         android:id="@+id/headlines_fragment"
9         android:layout_weight="1"
10        android:layout_width="match_parent"
11        android:layout_height="wrap_content"  />
12
13     <fragment android:name="com.dalealabastro.fragments.NewsFragment"
14         android:id="@+id/news_fragment"
15         android:layout_weight="2"
16         android:layout_width="match_parent"
17         android:layout_height="wrap_content"  />
18
19 </LinearLayout>
```

- Create the fragment_headline.xml

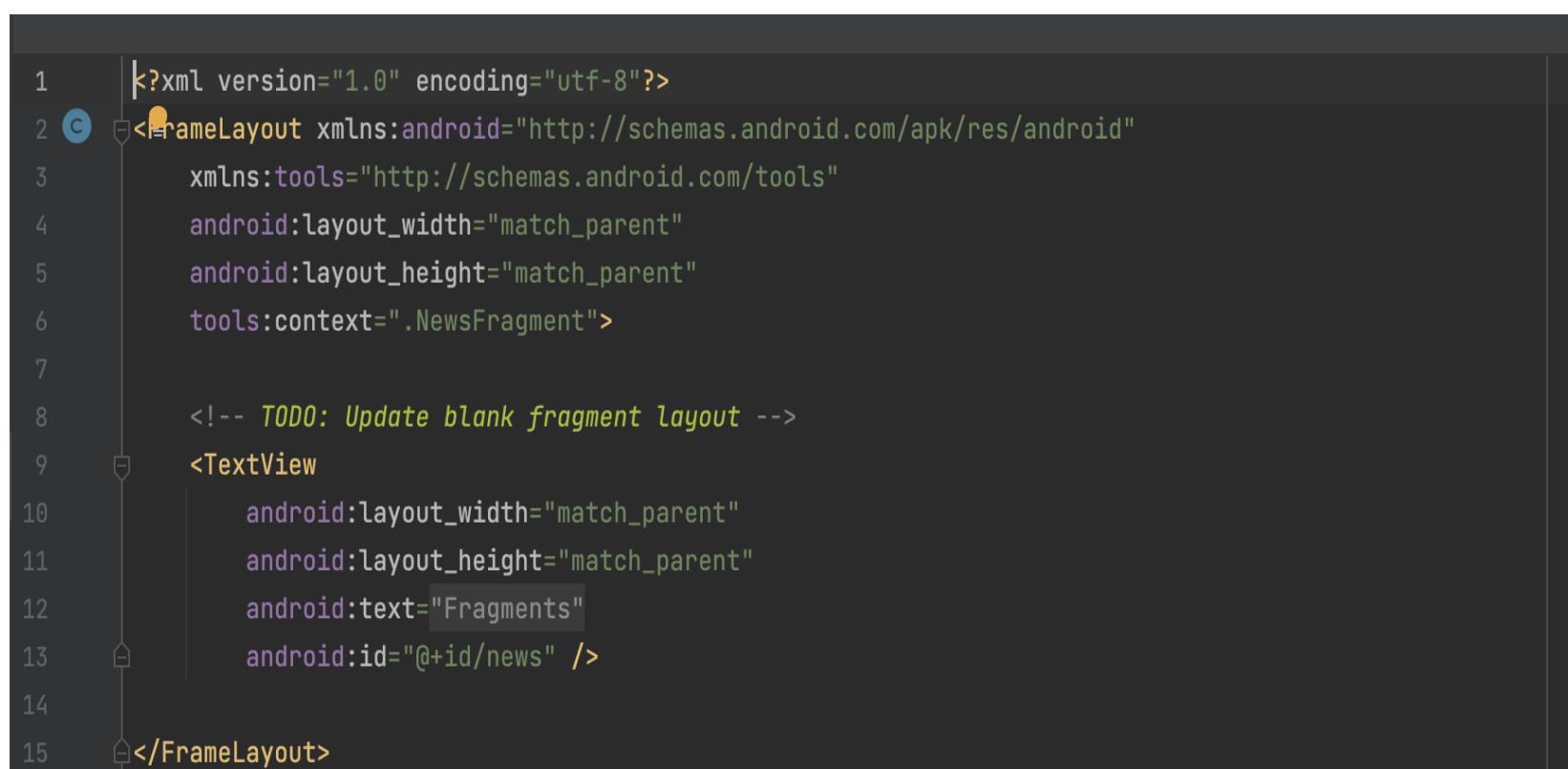
```
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      android:layout_width="wrap_content"
4      android:layout_height="wrap_content"
5      android:orientation="horizontal">
6
7      <TextView
8          android:id="@+id/item_number"
9          android:layout_width="wrap_content"
10         android:layout_height="wrap_content"
11         android:layout_margin="16dp"
12         android:textAppearance="?attr/textAppearanceListItem" />
13
14      <TextView
15          android:id="@+id/content"
16          android:layout_width="wrap_content"
17          android:layout_height="wrap_content"
18          android:layout_margin="16dp"
19          android:textAppearance="?attr/textAppearanceListItem" />
20  </LinearLayout>
```

- Create fragment_headline_list.xml



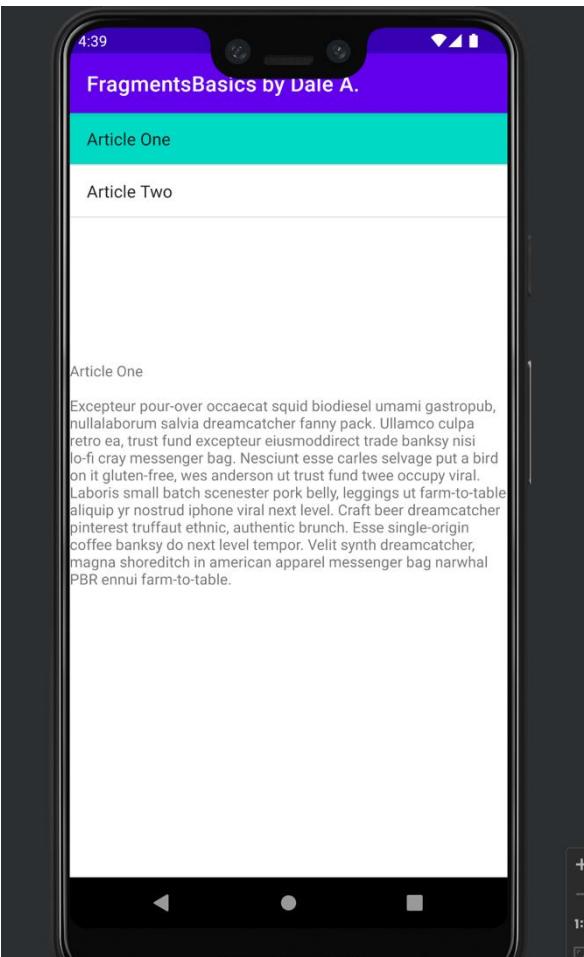
```
1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.recyclerview.widget.RecyclerView xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:id="@+id/list"
6     android:name="com.dalealabastro.fragments.HeadlineFragment"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     android:layout_marginLeft="16dp"
10    android:layout_marginRight="16dp"
11    app:layoutManager="LinearLayoutManager"
12    tools:context=".HeadlineFragment"
13    tools:listitem="@layout/fragment_headline" />
```

- Create fragment_news.xml

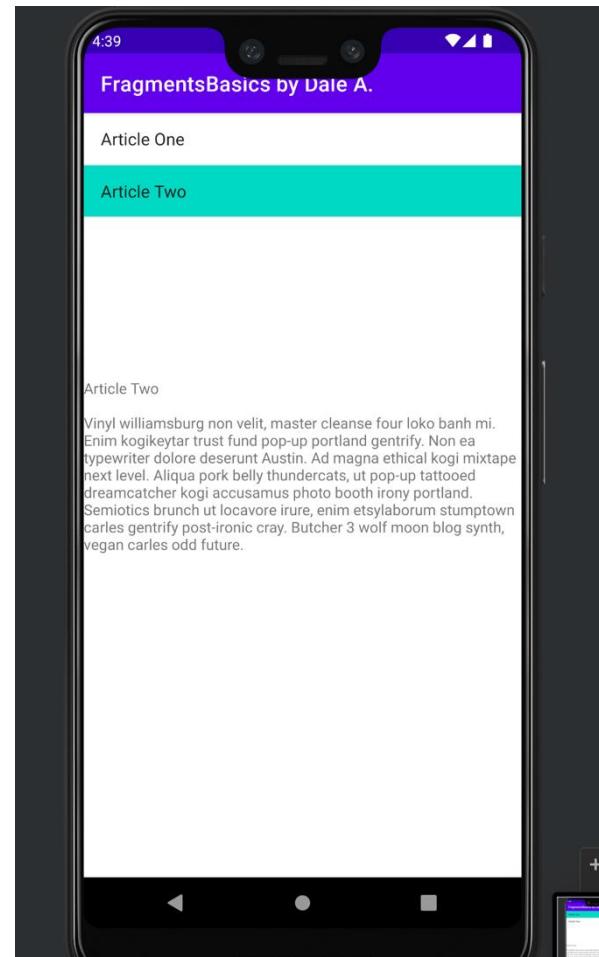


```
1  <?xml version="1.0" encoding="utf-8"?>
2  <FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:tools="http://schemas.android.com/tools"
4      android:layout_width="match_parent"
5      android:layout_height="match_parent"
6      tools:context=".NewsFragment">
7
8      <!-- TODO: Update blank fragment layout -->
9      <TextView
10         android:layout_width="match_parent"
11         android:layout_height="match_parent"
12         android:text="Fragments"
13         android:id="@+id/news" />
14
15  </FrameLayout>
```

Run the app



Article 1 Selected



Article 2 Selected

Extra credits

- change of phone orientations. Build an app with two fragments (a headline fragment and a news fragment).
- The app should display only a single fragment when the phone is held in portrait position, and display both fragments at the same time when the phone is held in landscape position.