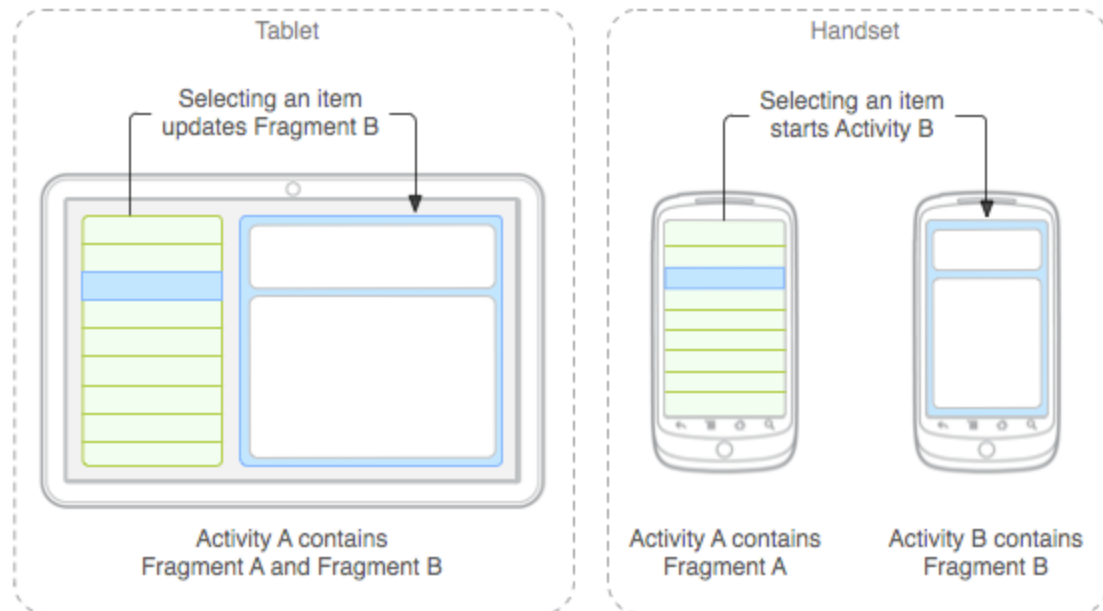
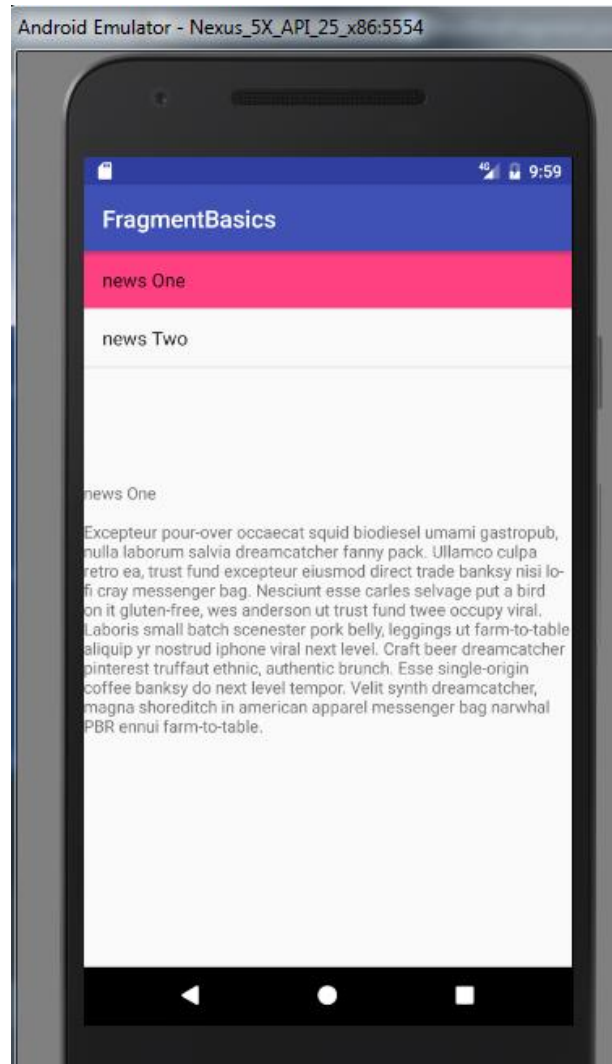


Fragments

- 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 New Project

 **New Project**
Android Studio

Configure your new project

Application name:

Company Domain:

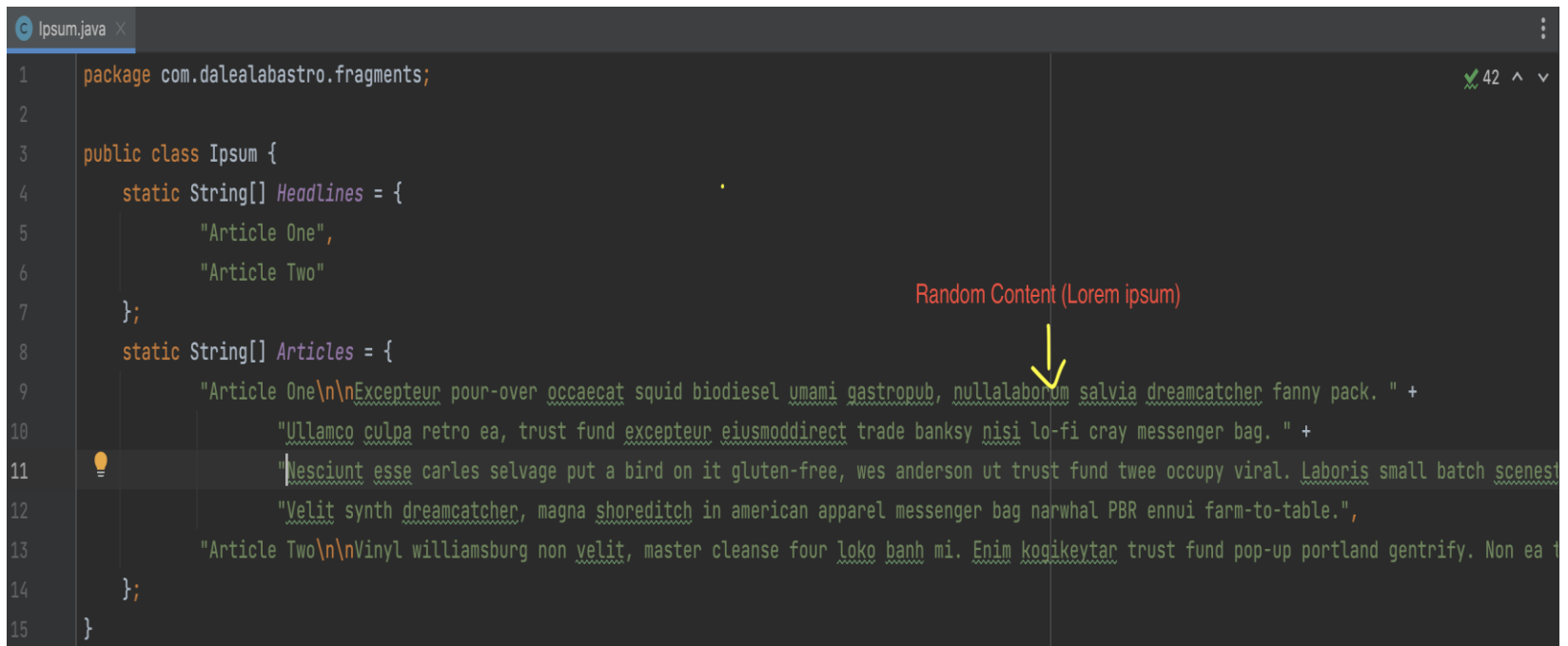
Package name: [Edit](#)

☐ Include C++ Support

Project location: ...

Previous Next Cancel Finish

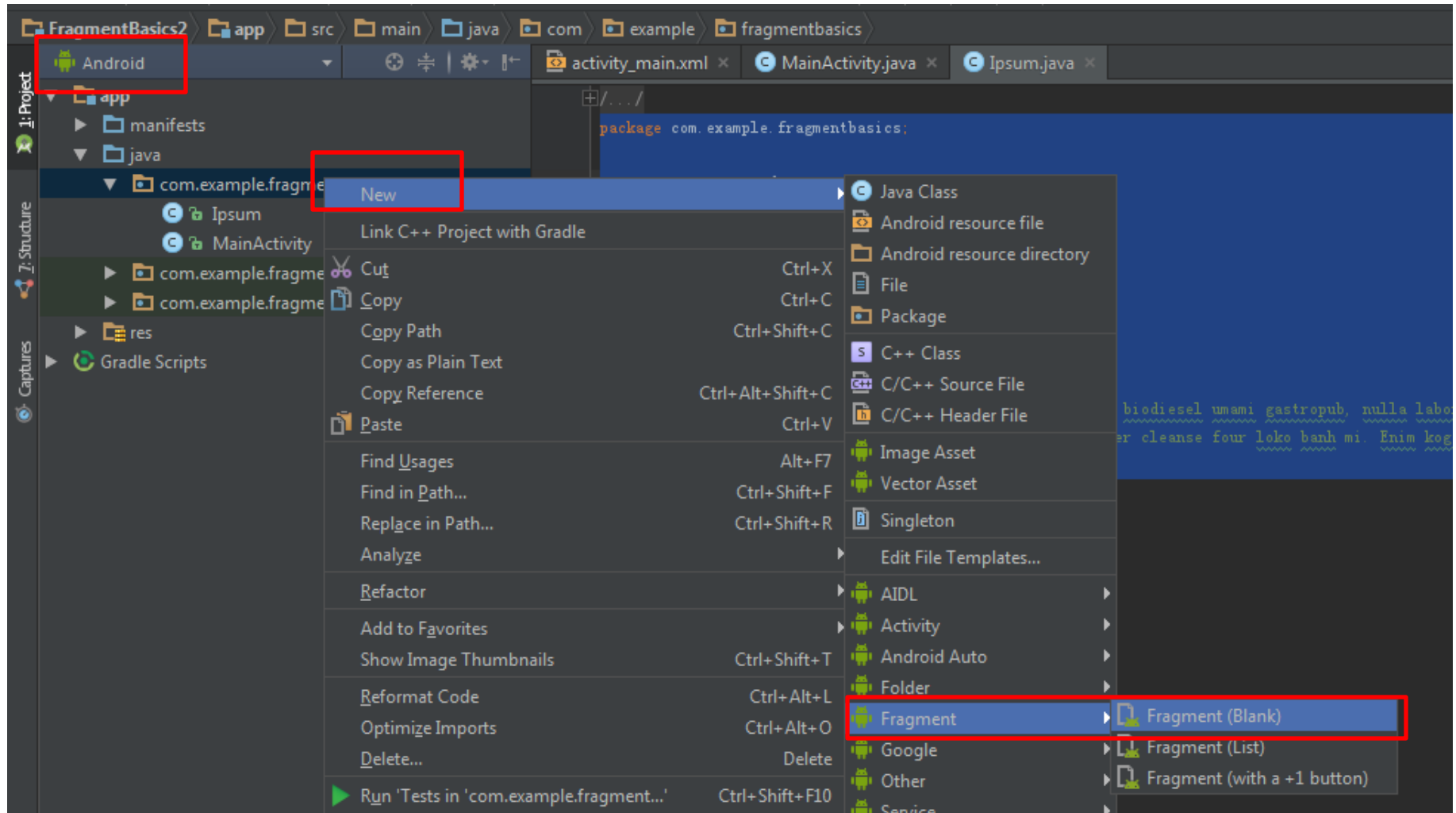
- Create Ipsum.java class, copy and paste lorem ipsum content as the news:



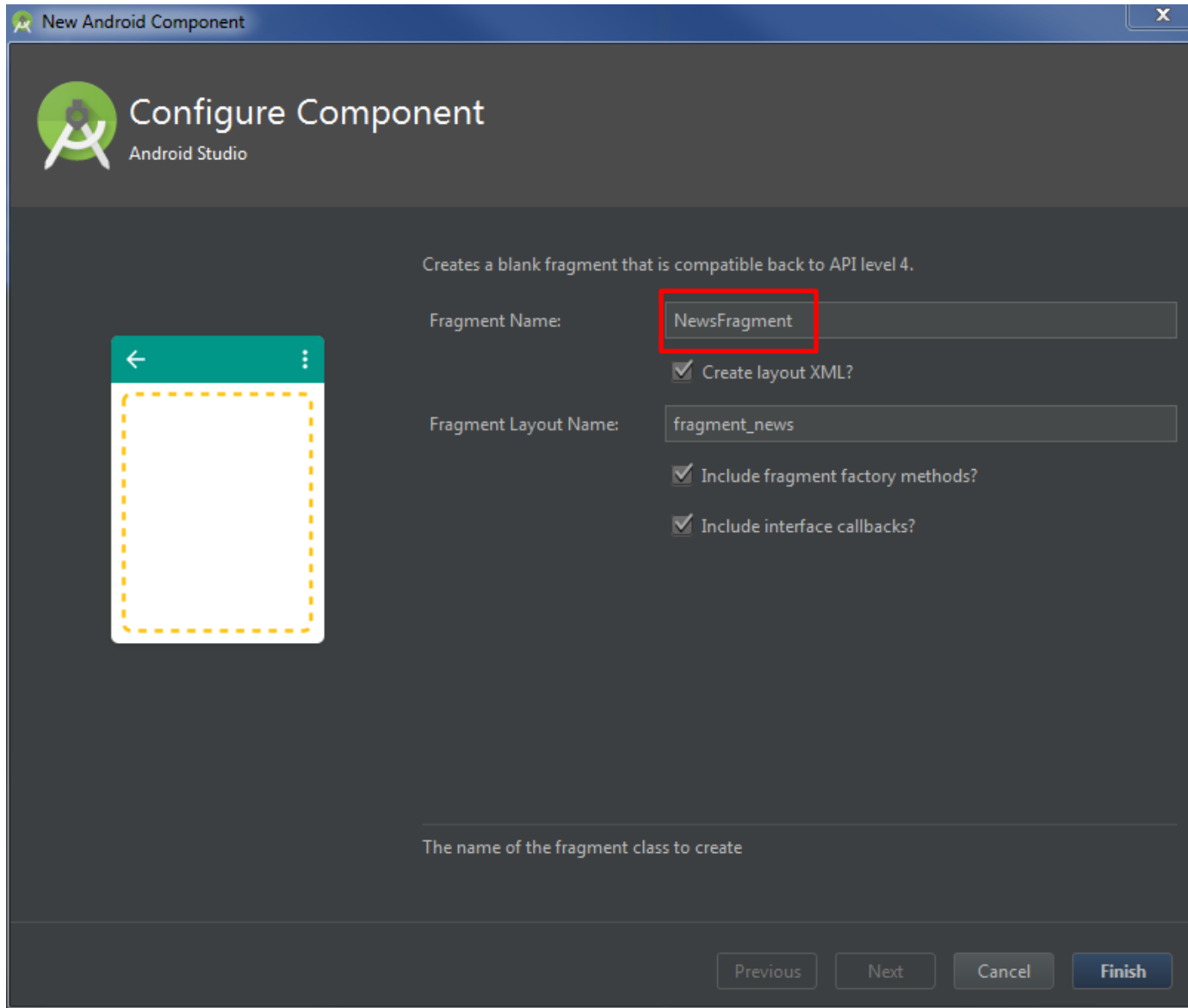
The screenshot shows a code editor with a file named 'Ipsum.java'. The code defines a package 'com.dalealabastro.fragments' and a public class 'Ipsum'. Inside the class, there are two static String arrays: 'Headlines' and 'Articles'. 'Headlines' contains 'Article One' and 'Article Two'. 'Articles' contains four strings, each representing a news article. The first article is 'Article One' followed by a multi-line Lorem Ipsum text block. A red arrow points from the text 'Random Content (Lorem ipsum)' to the start of this text block. The second article is 'Article Two' followed by another multi-line Lorem Ipsum text block. The code is as follows:

```
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, nullalaborum salvia dreamcatcher fanny pack. " +
10        "Ullamco culpa retro ea, trust fund excepteur eiusmoddirect 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 scenest
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 kogikeytar trust fund pop-up portland gentrify. Non ea t
14    };
15 }
```

- Create a new fragment

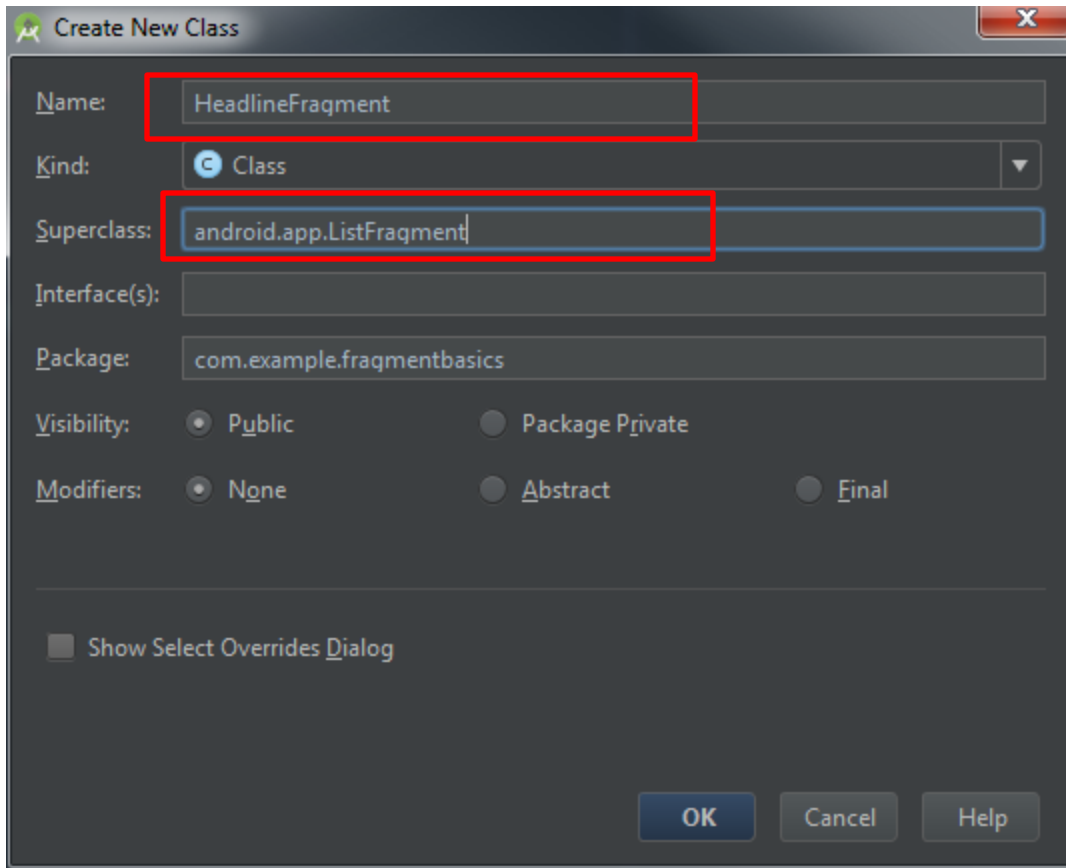


- Configure the new fragment



```
1 package com.dalealabastro.fragments;
2
3 import android.os.Bundle;
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     public View onCreateView(LayoutInflater inflater, ViewGroup container,
24                             Bundle savedInstanceState) {
25         // Inflate the layout for this fragment
26         return inflater.inflate(R.layout.fragment_news, container, attachToRoot: false);
27     }
28
29     @Override
30     public void onStart() {
31         super.onStart();
32
33         // During startup, check if there are arguments passed to the fragment.
34         // onStart is a good place to do this because the layout has already been
35         // applied to the fragment at this point so we can safely call the method
36         // below that sets the article text.
37
38         Bundle args = getArguments();
39         if (args != null) {
40
41             // Set article based on argument passed in
42             updateArticleView(args.getInt(ARG_POSITION));
43
44         } else if (mCurrentPosition != -1) {
45             // Set article based on saved instance state defined during onCreateView
46             updateArticleView(mCurrentPosition);
47         }
48     }
49
50     public void updateArticleView(int position) {
51         TextView article = (TextView) getActivity().findViewById(R.id.news);
52         article.setText(Ipssum.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



Create New Class

Name:

Kind:

Superclass:

Interface(s):

Package:

Visibility: ☒ Public ☐ Package Private

Modifiers: ☒ None ☐ Abstract ☐ Final

☐ Show Select Overrides Dialog

OK Cancel Help

- Define an Interface in HeadlineFragment

```
HeadlineFragment.java
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.AdapterView;
17 import android.widget.AdapterView.OnItemClickListener;
18 import android.widget.AdapterView.OnItemSelectedListener;
19 import android.widget.AdapterView.OnItemClickListener;
20 import android.widget.AdapterView.OnItemSelectedListener;
21 import com.dalealabastro.fragments.placeholder.PlaceholderContent;
22
23 public class HeadlineFragment extends ListFragment {
24     OnHeadlineSelectedListener mCallback;
25     // Container Activity must implement this interface
26
27     public interface OnHeadlineSelectedListener {
28         public void onArticleSelected(int position);
29     }
30
31     @Override
32     public void onAttach(Activity activity) {
33         super.onAttach(activity);
34         // This makes sure that the container activity has implemented
35         // the callback interface. If not, it throws an exception
36         try {
37             mCallback = (OnHeadlineSelectedListener) activity;
38         } catch (ClassCastException e) {
39             throw new ClassCastException(activity.toString()
40                 + " must implement OnHeadlineSelectedListener");
41         }
42     }
43
44     @Override
45     public void onListItemClick(ListView l, View v, int position, long id) {
46         // Notify the parent activity of selected item
47         mCallback.onArticleSelected(position);
48         // Set the item as checked to be highlighted when in two-pane layout
49         getListView().setItemChecked(position, true);
50     }
51
52 }
```

- 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

```
MainActivity.java
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 x
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>
```

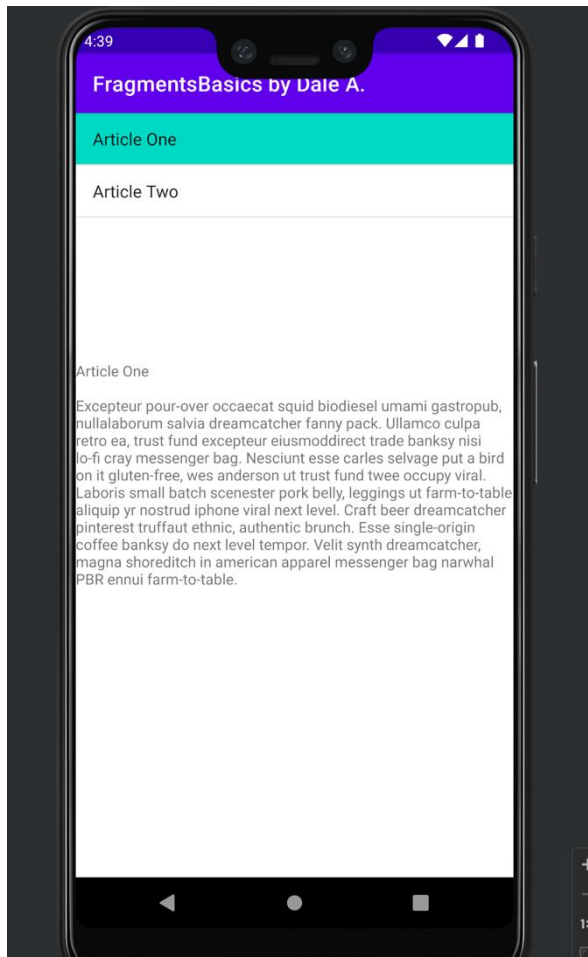
- Create fragment_headline_list.xml

```
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" />
```

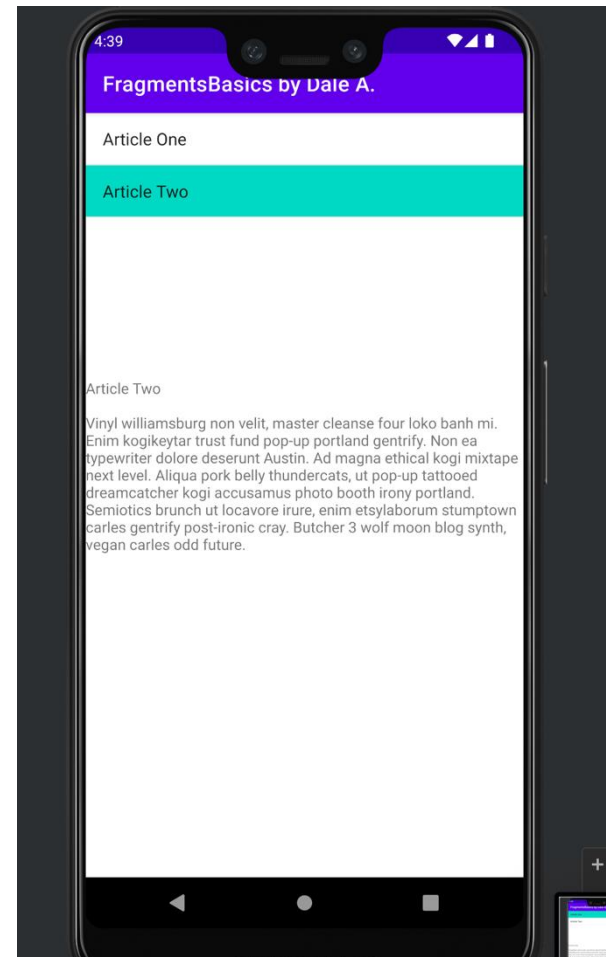
- Create fragment_news.xml

```
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.