

Global Startup

Android Fragments

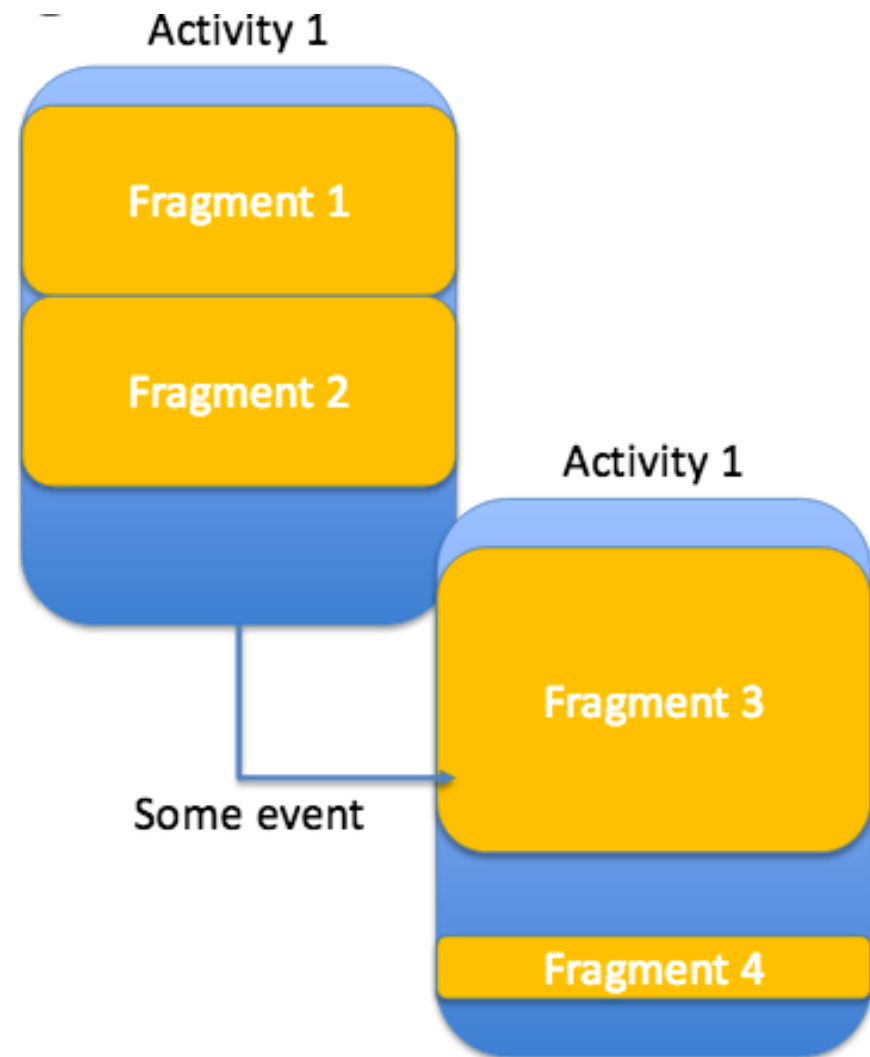
Example source:

<http://developer.android.com/shareables/training/FragmentBasics.zip>



What are they?

- Mini-activities
- Own life-cycle separate from activity
- Live inside an activity

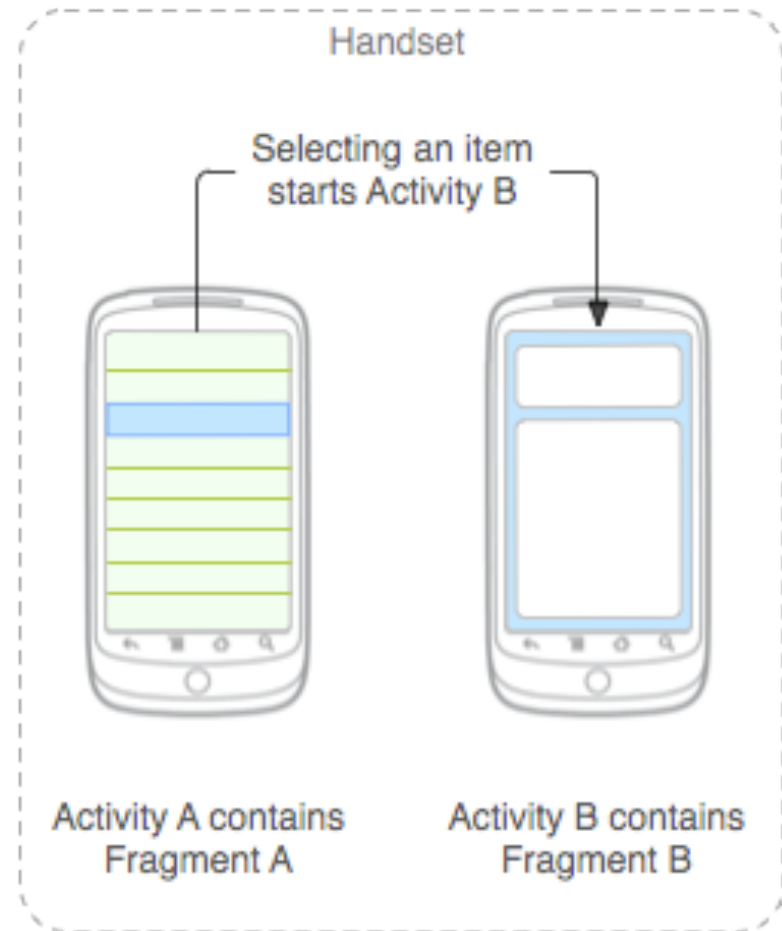
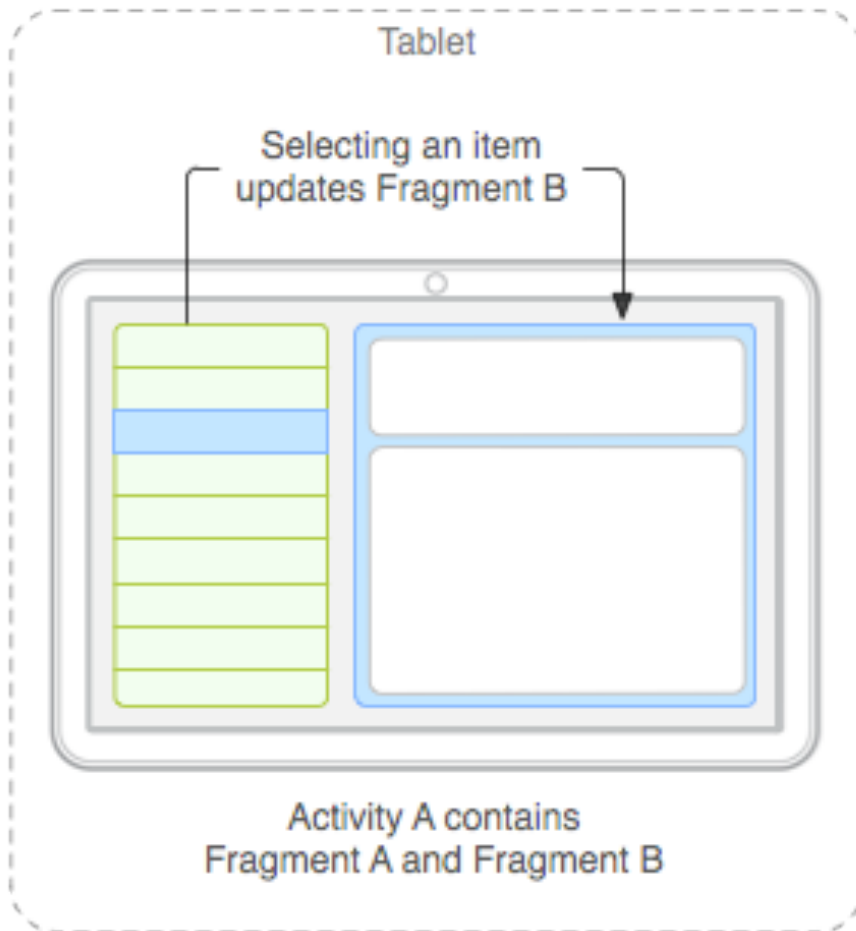


Why Fragments?



Flexible & Dynamic

News Example



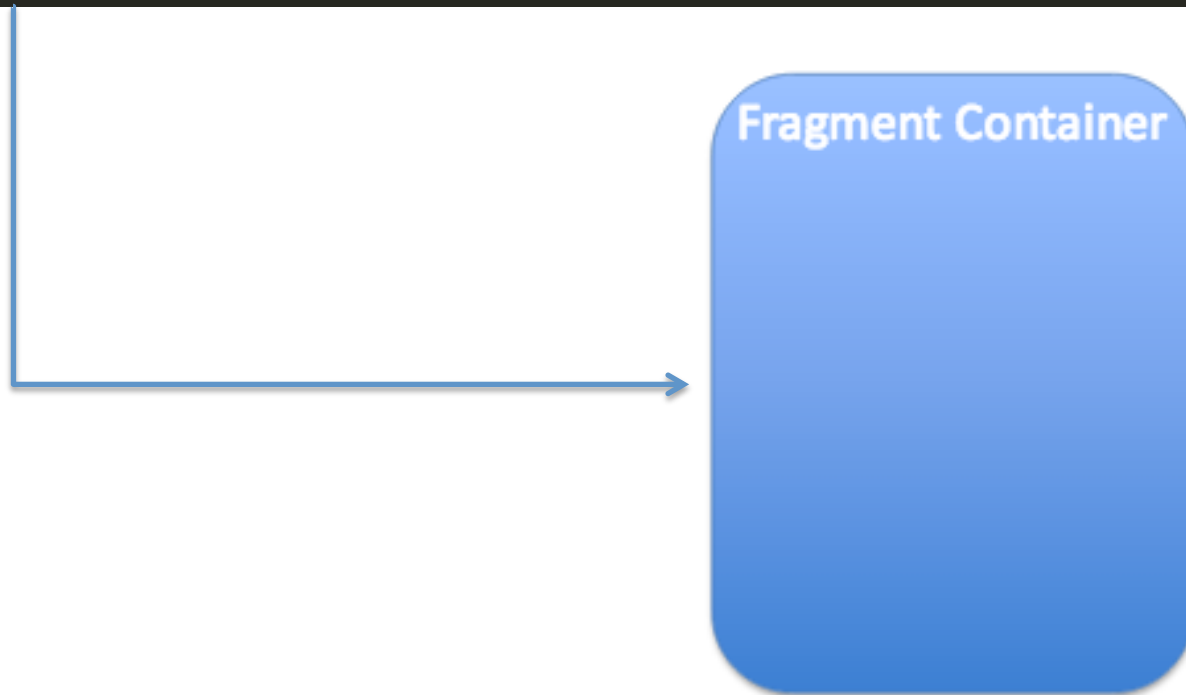
Adding a Fragment to an Activity

```
18 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
19     android:orientation="horizontal"
20     android:layout_width="match_parent"
21     android:layout_height="match_parent">
22
23     <fragment android:name="com.example.android.fragments.HeadlinesFragment"
24         android:id="@+id/headlines_fragment"
25         android:layout_weight="1"
26         android:layout_width="0dp"
27         android:layout_height="match_parent" />
28
29     <fragment android:name="com.example.android.fragments.ArticleFragment"
30         android:id="@+id/article_fragment"
31         android:layout_weight="2"
32         android:layout_width="0dp"
33         android:layout_height="match_parent" />
34
35 </LinearLayout>
```

Source: /res/layout-large/news_articles.xml

Adding a Fragment at Runtime

```
18 <FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"  
19     android:id="@+id/fragment_container"  
20     android:layout_width="match_parent"  
21     android:layout_height="match_parent" />
```



Source: /res/layout/news_articles.xml

Adding a Fragment at Runtime

```
42 // Create an instance of ExampleFragment
43 HeadlinesFragment firstFragment = new HeadlinesFragment();
44
45 // In case this activity was started with special instructions from an Intent,
46 // pass the Intent's extras to the fragment as arguments
47 firstFragment.setArguments(getIntent().getExtras());
48
49 // Add the fragment to the 'fragment_container' FrameLayout
50 getSupportFragmentManager().beginTransaction()
51     .add(R.id.fragment_container, firstFragment).commit();
```

- Create the Fragment
- Add to the FragmentManager
- Commit the changes



Source: /src/.../MainActivity.java

Changing a Fragment

```
78 // Replace whatever is in the fragment_container view with this fragment,  
79 // and add the transaction to the back stack so the user can navigate back  
80 transaction.replace(R.id.fragment_container, newFragment);  
81 transaction.addToBackStack(null);
```

Make sure to addToBackStack!

Otherwise, the “back” button might go to the previous activity

Source: /src/.../MainActivity.java

Fragment Communication

```
29 // The container Activity must implement this interface so the frag can deliver messages
30 public interface OnHeadlineSelectedListener {
31     /** Called by HeadlinesFragment when a list item is selected */
32     public void onArticleSelected(int position);
33 }
```

Source: /src/.../HeadlinesFragment.java

```
22 public class MainActivity extends FragmentActivity
23     implements HeadlinesFragment.OnHeadlineSelectedListener {
```

- Activity facilitates communication
- Implement communication Interface in Activity

Send message to Activity

```
72     @Override
73     public void onItemClick(AdapterView l, View v, int position, long id) {
74         // Notify the parent activity of selected item
75         mCallback.onArticleSelected(position);
76
77         // Set the item as checked to be highlighted when in two-pane layout
78         getListView().setItemChecked(position, true);
```

```
58     @Override
59     public void onAttach(Activity activity) {
60         super.onAttach(activity);
61
62         // This makes sure that the container activity has implemented
63         // the callback interface. If not, it throws an exception.
64         try {
65             mCallback = (OnHeadlineSelectedListener) activity;
66         } catch (ClassCastException e) {
67             throw new ClassCastException(activity.toString()
68                 + " must implement OnHeadlineSelectedListener");
69         }
70     }
```

Take action in the Activity

```
55 public void onArticleSelected(int position) {
56     // The user selected the headline of an article from the HeadlinesFragment
57
58     // Capture the article fragment from the activity layout
59     ArticleFragment articleFrag = (ArticleFragment)
60         getSupportFragmentManager().findFragmentById(R.id.article_fragment);
61
62     if (articleFrag != null) {
63         // If article frag is available, we're in two-pane layout...
64
65         // Call a method in the ArticleFragment to update its content
66         articleFrag.updateArticleView(position);
67
68     } else {
69         // If the frag is not available, we're in the one-pane layout and must swap frags...
70
71         // Create fragment and give it an argument for the selected article
72         ArticleFragment newFragment = new ArticleFragment();
73         Bundle args = new Bundle();
74         args.putInt(ArticleFragment.ARG_POSITION, position);
75         newFragment.setArguments(args);
76         FragmentTransaction transaction = getSupportFragmentManager().beginTransaction();
77
78         // Replace whatever is in the fragment_container view with this fragment,
79         // and add the transaction to the back stack so the user can navigate back
80         transaction.replace(R.id.fragment_container, newFragment);
81         transaction.addToBackStack(null);
82
83         // Commit the transaction
84         transaction.commit();
85     }
86 }
87 }
```

Source: /src/.../MainActivity.java

Fragments use Bundles too

```
55 public void onArticleSelected(int position) {
56     // The user selected the headline of an article from the HeadlinesFragment
57
58     // Capture the article fragment from the activity layout
59     ArticleFragment articleFrag = (ArticleFragment)
60         getSupportFragmentManager().findFragmentById(R.id.article_fragment);
61
62     if (articleFrag != null) {
63         // If article frag is available, we're in two-pane layout...
64
65         // Call a method in the ArticleFragment to update its content
66         articleFrag.updateArticleView(position);
67
68     } else {
69         // If the frag is not available, we're in the one-pane layout and must swap frags...
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71         // Create fragment and give it an argument for the selected article
72         ArticleFragment newFragment = new ArticleFragment();
73         Bundle args = new Bundle();
74         args.putInt(ArticleFragment.ARG_POSITION, position);
75         newFragment.setArguments(args);
76         FragmentTransaction transaction = getSupportFragmentManager().beginTransaction();
77
78         // Replace whatever is in the fragment_container view with this fragment,
79         // and add the transaction to the back stack so the user can navigate back
80         transaction.replace(R.id.fragment_container, newFragment);
81         transaction.addToBackStack(null);
82
83         // Commit the transaction
84         transaction.commit();
85     }
86 }
87 }
```

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