

MODULE 11

FRAGMENT

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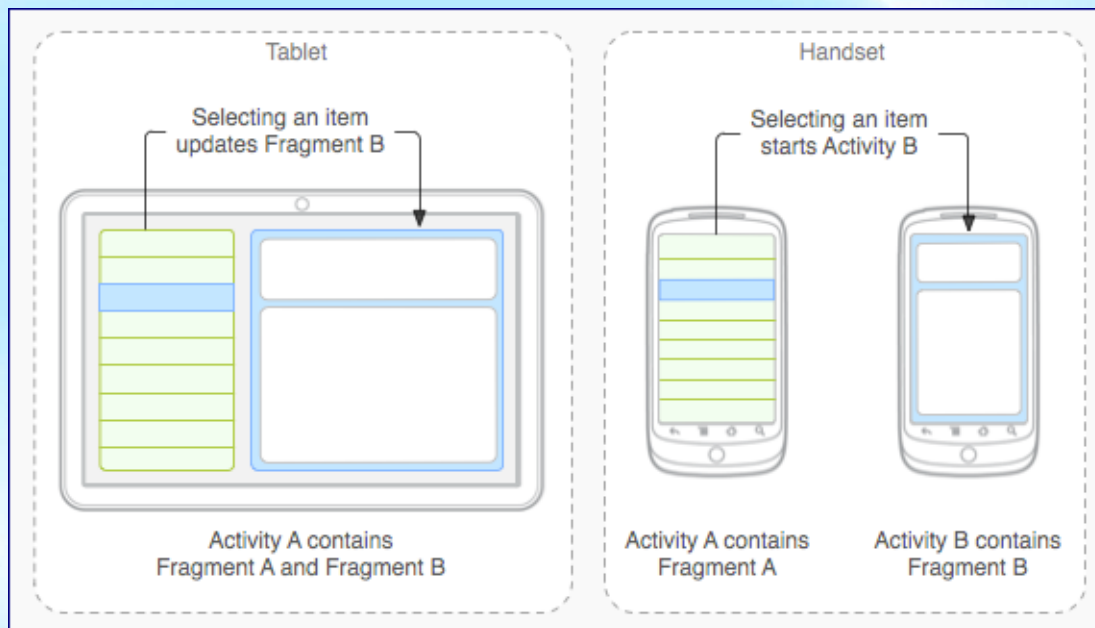
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What's a Fragment?

- ▶ Represents a portion of user interface
 - Defines its own view layout
 - Has its own lifecycle
- ▶ Must be embedded in an activity
 - Can be added or removed while the activity is running
 - Insert a fragment into activity layout using `<fragment>` element
- ▶ Multiple fragments can be combined in a single activity
 - To build a multi-pane UI
 - To reuse a fragment in multiple activities

What's a Fragment?

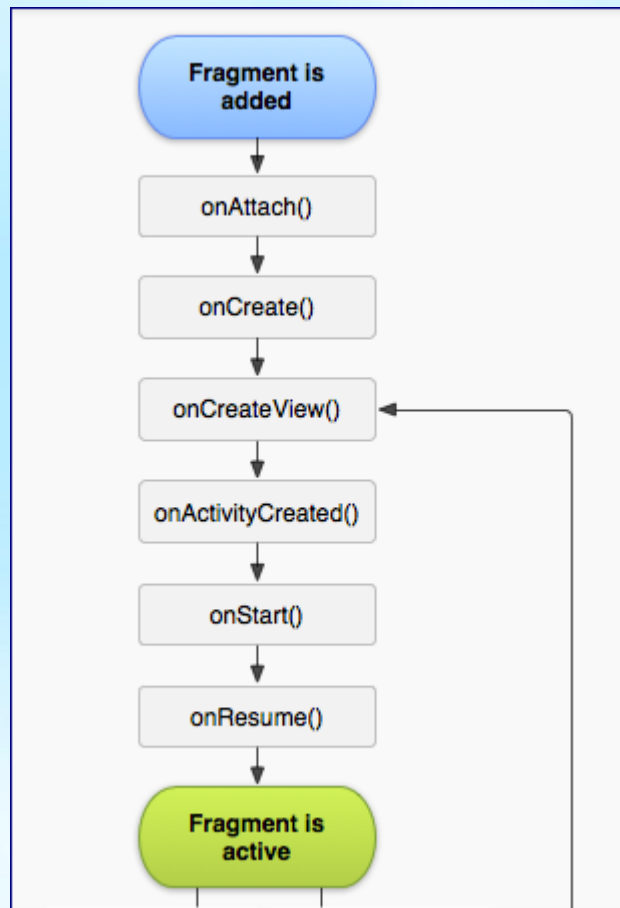
- ▶ Introduced in Android 3.0 (API level 11)
 - To support more dynamic and flexible UI designs on large screens
 - E.g, tablet's screen has more room to combine UI components



Source: <http://developer.android.com/guide/components/fragments.html>

Fragment Lifecycle

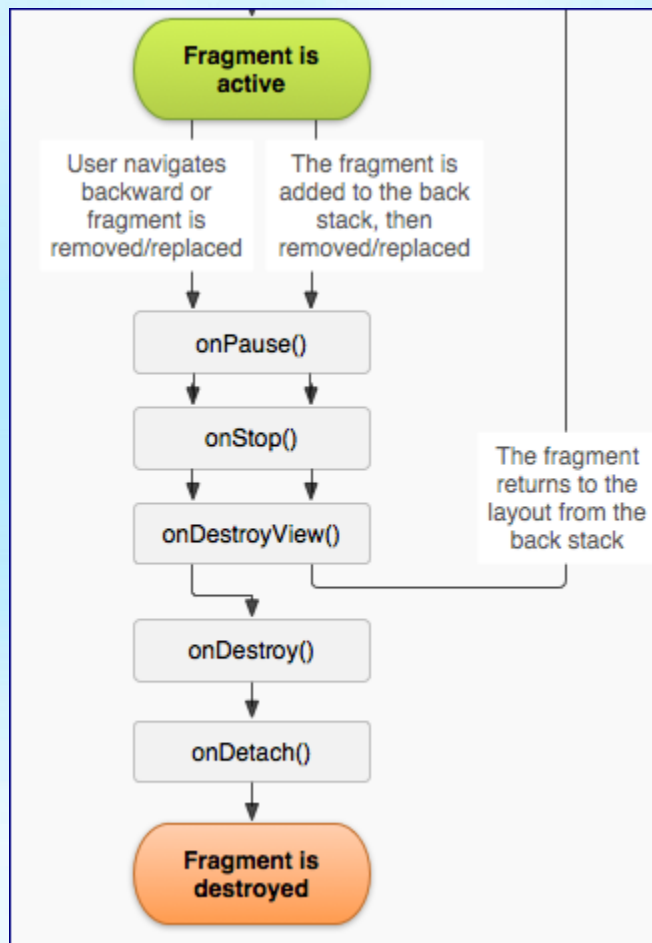
► First steps



Source: <http://developer.android.com/guide/components/fragments.html>

Fragment Lifecycle

► Continue



Source: <http://developer.android.com/guide/components/fragments.html>

Creating a Fragment

- ▶ Subclasses of Fragment class
- ▶ Existing Fragment Subclasses
 - DialogFragment
 - To create a dialog
 - ListFragment
 - To display a list of items managed by an adapter
 - Similar to ListActivity
 - PreferenceFragment
 - To display a hierarchy of Preference objects as a list
 - Similar to PreferenceActivity

Creating a Fragment

- ▶ Create subclass of Fragment class
- ▶ Normally implement at least
 - **onCreate()**
 - Called when creating the fragment
 - To initialize components of the fragment to retain when it is paused/stopped then resumed
 - **onCreateView()**
 - Called to draw the layout of the fragment
 - Must return a View that is the root of the fragment's layout
 - **onPause()**
 - Called when the user is leaving the fragment
 - To commit any changes that should be persisted beyond the current user session
 - Because the user might not come back

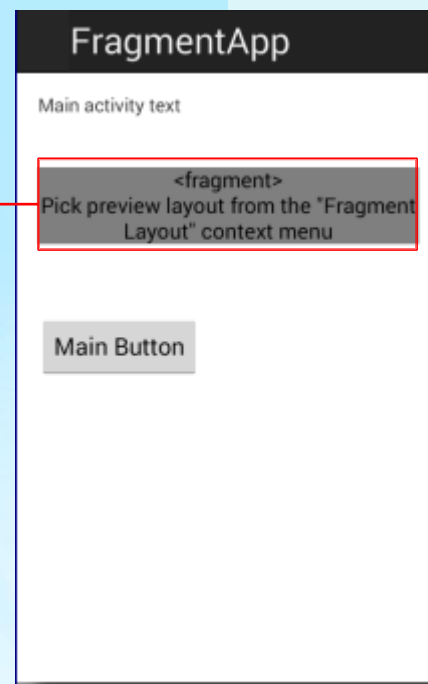
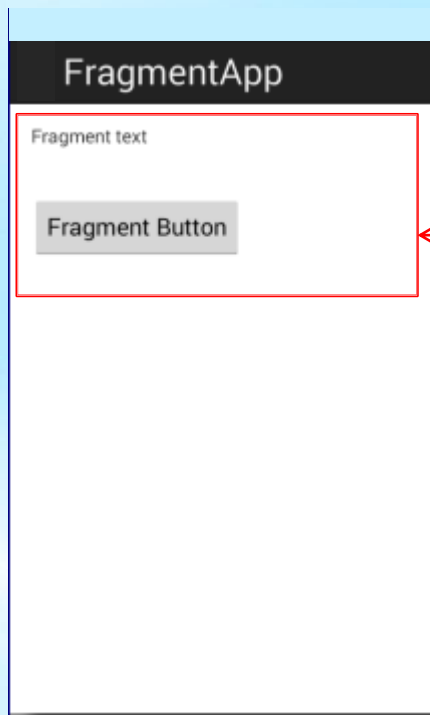
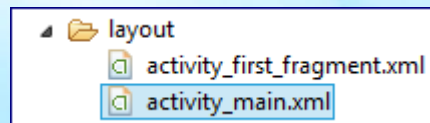
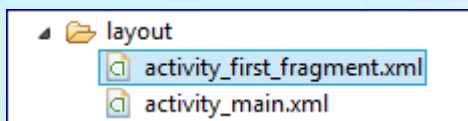
Creating a Fragment

► E.g,

Parent container for the fragment

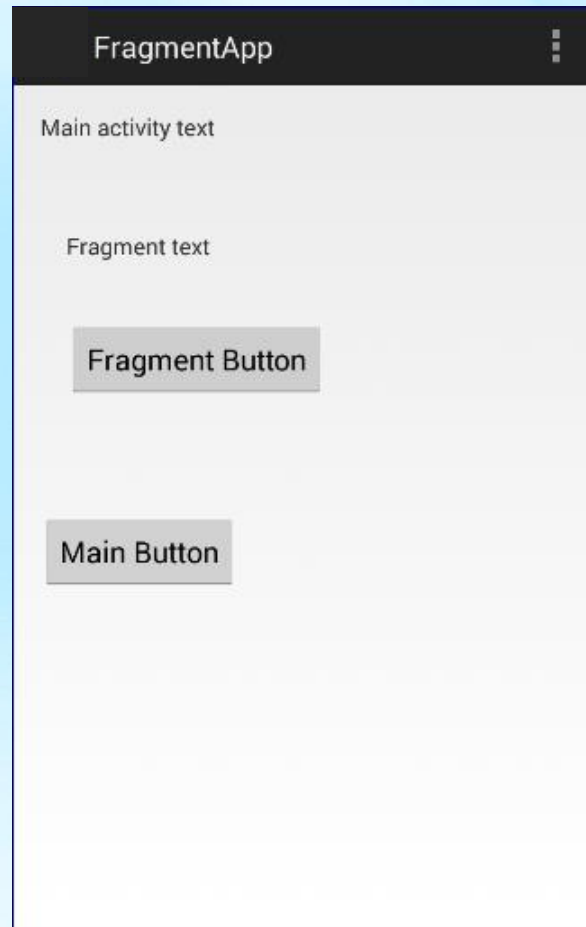
```
public class FirstFragment extends Fragment {  
  
    @Override  
    public View onCreateView(LayoutInflater inflater, ViewGroup container,  
        Bundle savedInstanceState) {  
        return inflater.inflate(R.layout.activity_first_fragment, container, false);  
    }  
}
```

Adding a Fragment to an Activity



Adding a Fragment to an Activity

► Final layout



Fragment Transactions

- ▶ Ability to add, remove, replace fragments in response to user interaction
- ▶ Each set of changes that is committed is called a transaction
 - Objects from `FragmentManager` class
- ▶ Possible saving of transaction to a back stack managed by the activity
 - Allowing the user to navigate backward through the fragment changes
 - Similar to navigating backward through activities

Fragment Transactions

- ▶ E.g, in activity_main.xml

Frame Layout containing the fragment

```
<RelativeLayout ... >
    <TextView ... />
    <FrameLayout
        android:id="@+id/mainFrameLayoutID"
        ... >
        <fragment
            android:id="@+id/fragment1"
            android:name="com.henallux.fragmentsproject.MainActivityFragment"
            ... />
    </FrameLayout>
    <Button ... />
</RelativeLayout>
```

Fragment Transactions

- ▶ E.g, in MainActivity

ID of the FrameLayout containing the fragment

```
FragmentManager fragmentManager = getFragmentManager();  
FragmentTransaction transaction = fragmentManager.beginTransaction();  
transaction.replace(R.id.mainFrameLayoutID, new SecondFragment());  
transaction.addToBackStack(null);  
transaction.commit();
```

Saving of transaction to the back stack

New fragment to display

Webography

- ▶ <http://developer.android.com/guide/components/fragments.html>
- ▶ <http://developer.android.com/training/basics/fragments/index.html>