

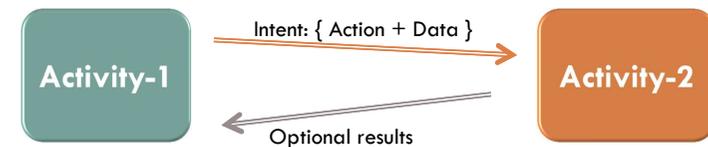
ANDROID APPS DEVELOPMENT FOR MOBILE AND TABLET DEVICE (LEVEL I)

Lecture 5: Intent and Fragment

Peter Lo

Intents

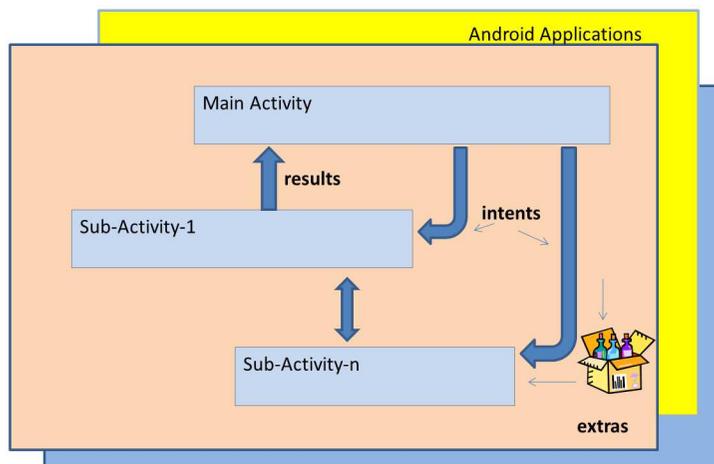
- Intents are asynchronous messages which allow application components to request functionality from other Android components.
- Intents allow you to interact with components from the own and other applications.
 - For example an activity can start an external activity for taking a picture.



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Android Applications & Activities Overview



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Creating Simple Intent

- Typically an intent is called with Action/Data pair:

The built-in action to be performed, such as ACTION_VIEW, ACTION_EDIT, ACTION_CALL, or user-created-activity

```
Intent myIntent = new Intent(Intent.ACTION_VIEW,  
Uri.parse("www.polyu.edu.hk"));  
startActivity(myIntent);
```

The `startActivity()` method is used to start a new activity, which will be placed at the top of the activity stack.

The primary data to operate on, such as a phone number to be called (expressed as a Uri such as tel://, http://, sendto://)

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Common Intent Action/Data Pairs

Examples of **action/data** pairs are:

ACTION_DIAL	tel:27665111 Display the phone dialer with the given number filled in.
ACTION_SENDTO	smsto:27665111 Display the SMS editor with the given number filled in.
ACTION_VIEW	http://www.polyu.edu.hk Show specified web page in a browser view.
ACTION_VIEW	content://contacts/people/ Display a list of people, which the user can browse through. Selecting a particular person to view would result in a new intent
ACTION_EDIT	content://contacts/people/2 Edit information about the contact person whose identifier is "2".

Secondary Attributes

- In addition to the primary action/data attributes, there are secondary attributes that you can also include with an intent, such as: Category, Components, Type, and Extras.

<p>Type</p> <p>Set an explicit MIME data type</p> <p>contacts/people images/pictures images/video audio/mp3</p> <p><small>MIME - Multipurpose Internet Mail Extensions</small></p> <p>Extras</p> <p>This is a Bundle of any additional information. Typical methods include: bundle.putInt(key, value) bundle.getInt(key)</p>	<p>Category</p> <p>additional information about the action to execute</p> <ul style="list-style-type: none"> ☑ CATEGORY_ALTERNATIVE: String - Intent ☑ CATEGORY_APP_BROWSER: String - Intent ☑ CATEGORY_APP_CALCULATOR: String - Intent ☑ CATEGORY_APP_CALENDAR: String - Intent ☑ CATEGORY_APP_CONTACTS: String - Intent ☑ CATEGORY_APP_EMAIL: String - Intent ☑ CATEGORY_APP_GALLERY: String - Intent ☑ CATEGORY_APP_MAPS: String - Intent ☑ CATEGORY_APP_MARKET: String - Intent ☑ CATEGORY_APP_MESSAGING: String - Intent ☑ CATEGORY_APP_MUSIC: String - Intent <p>Component</p> <p>Explicit name of a component class to use for the intent (eg. "MyMethod1")</p>
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Creating Intent with Secondary Attribute

- We can pass the secondary attribute with the **putExtra()** method:

```
Intent myIntent = new Intent( Intent.ACTION_WEB_SEARCH );
myIntent.putExtra( SearchManager.QUERY, "PolyU" );
startActivity(myIntent);
```

The built-in action to be performed, such as ACTION_VIEW, ACTION_EDIT, ACTION_CALL, or user-created-activity

The secondary data to operate on, such as passing a string as an Extra argument for a Google Search. The string is a 'human' query with keywords.

The **startActivity()** method is used to start a new activity, which will be placed at the top of the activity stack.

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Starting Activities and Getting Results

- In order to get results back from the called activity we use the method

startActivityForResult (Intent, requestCodeID) →

- Where requestCodeID is an arbitrary value you choose to identify the call (similar to a 'nickname').
- The result sent by the sub-activity could be picked up through the listener-like asynchronous method

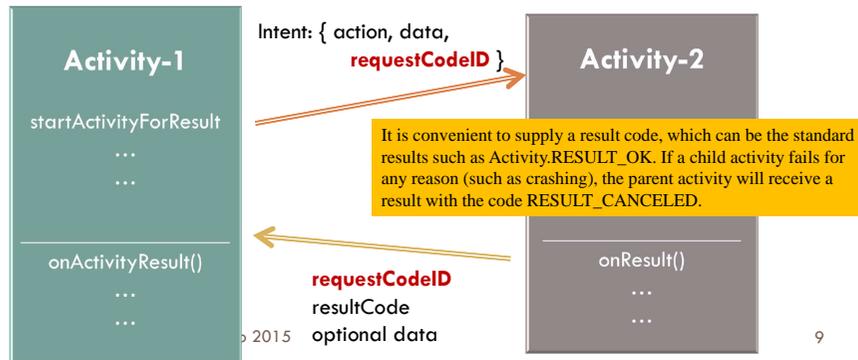
onActivityResult (requestCodeID, resultCode, Intent) ←

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Starting Activities and Getting Results

- Before an invoked activity exits, it can call `setResult()` to return a termination signal back to its parent.
- All of this information can be capture back on the parent's `onActivityResult()`.



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Android Bundles

- Android applications may include multiple inter-active activities.
- The Android Bundle container is a simple mechanism used to pass data between co-operating activities.
- A Bundle is a type-safe MAP collection of <name, value> pairs.
- There is a set of `put` and `get` methods to store and retrieve (single and array) values of primitive data types from/to the bundles.

```
Bundle myBundle = new Bundle();
myBundle.putDouble ("var1", 3.1415);
...
Double v1 = myBundle.getDouble("var1");
```

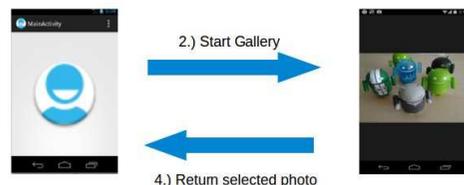
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Fragments

- Android introduced fragments in Android 3.0, primarily to support more dynamic and flexible UI designs on large screens, such as tablets.
- By dividing the layout of an activity into fragments, you become able to modify the activity's appearance at runtime and preserve those changes in a back stack that's managed by the activity.

You can think of a fragment as a modular section of an activity, which has its own lifecycle, receives its own input events, and which you can add or remove while the activity is running



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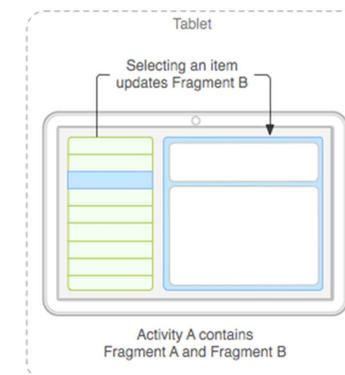
1.) User triggers "Pick photo" via button

3.) User selects photo

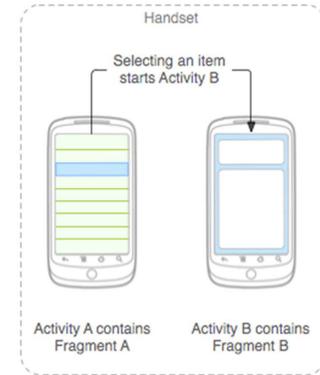
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Approach for Creating Fragment

Use One Activities



Use Separate Activities

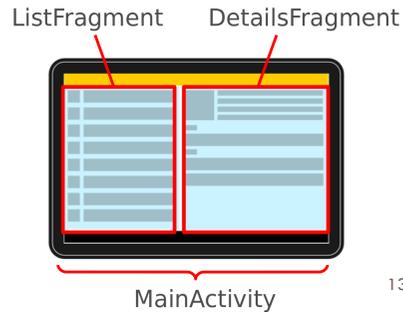


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Create Fragment by One Activities

- Use one activity, which displays two fragments for tablets and on handset devices.
- You would switch the fragments in the activity whenever necessary. This requires that the fragment is not declared in the layout file as such fragments cannot be removed during runtime.

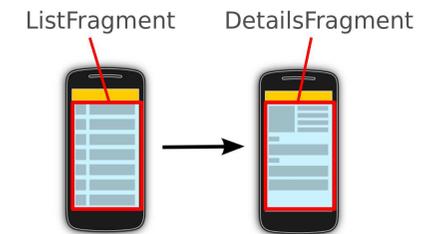


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Create Fragment by Separate Activities

- Use separate activities to host each fragment on a handset.
- When the tablet UI uses two fragments in an activity, use the same activity for handsets, but supply an alternative layout that includes just one fragment.
- When you need to switch fragments, start another activity that hosts the other fragment.



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Create a Fragment Class

- To create a fragment, extend the Fragment class, then override key lifecycle methods to insert your app logic, similar to the way you would with an Activity class.
- You must use the `onCreateView()` callback to define the layout. In fact, this is the only callback you need in order to get a fragment running.

```
import android.os.Bundle;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.ViewGroup;

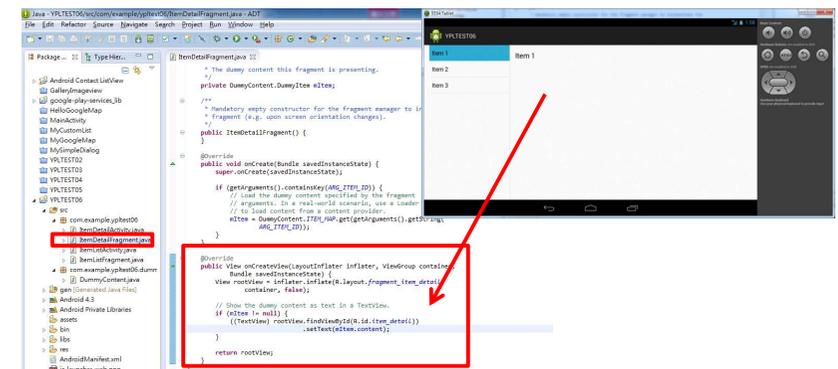
public class ArticleFragment extends Fragment {
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
        Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.article_view, container, false);
    }
}
```

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Master/Detail Fragment Template

- If using the default template, you can customize the code in "ItemDetailFragment.java"



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