INTENTS

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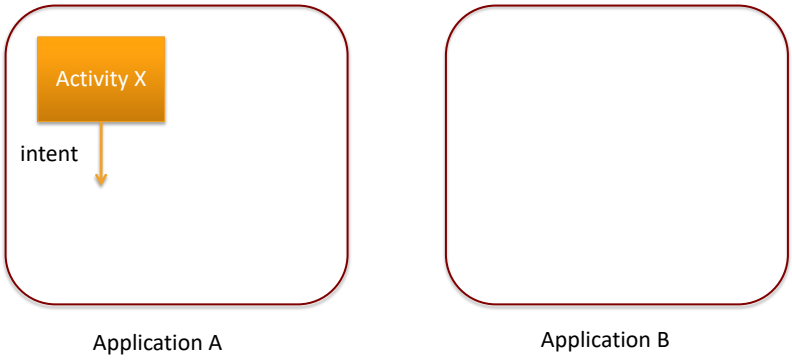
Intents

- Intents: Asynchronous messages to launch new activities / services, or send broadcasts



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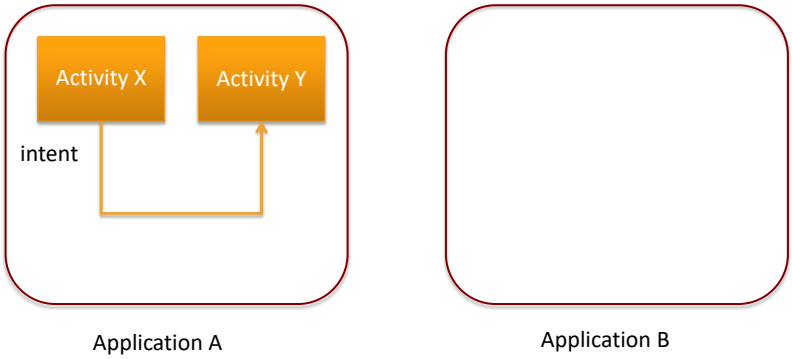

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Intents

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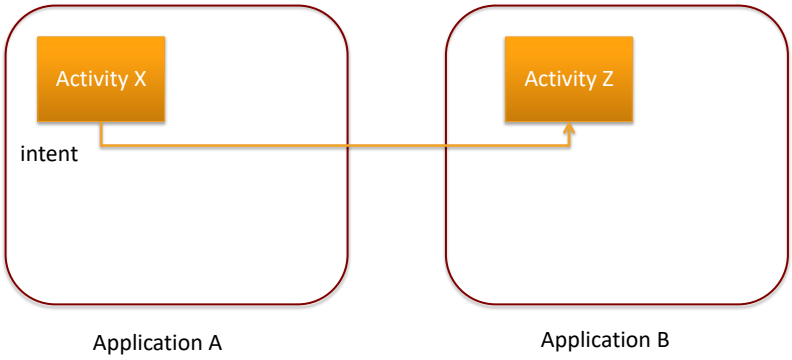

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Intents

- Explicit intents: specify the activity to be started

```
Intent intent = new Intent(MyActivity.this,
                           MyOtherActivity.class);
startActivity(intent);
```

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Intents

- Explicit intents: specify the activity to be started

```
Intent intent = new Intent(MyActivity.this,
                           MyOtherActivity.class);
startActivity(intent);
```

- Implicit intents: specify data and action, and system resolves the activity

```
Intent intent = new Intent(Intent.ACTION_DIAL,
                      Uri.parse("tel:555-2368"));
startActivity(intent);
```

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Information in Intents (1)

- Component name: for handler of intent
  - For explicit intents
- Action
  - String naming action to be performed
  - E.g. ACTION_CALL, ACTION_EDIT, ACTION_SYNC
  - Akin to a method name
- Data
  - URI, and opt MIME type, of data to be acted on
  - E.g. ACTION_CALL with tel: URI
  - E.g. ACTION_EDIT with URI of document
  - E.g. ACTION_VIEW with content://contacts/people/17

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Information in Intents (2)

- Category:
  - The kind of component that should handle the intent
  - E.g. CATEGORY_BROWSABLE
  - E.g. CATEGORY_DEFAULT
  - E.g. CATEGORY_HOME
  - E.g. CATEGORY_LAUNCHER
- Extras
  - Key-value pairs
- Flags

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Intent Filters (1)

- Intent filters register activities, services and broadcast receivers
  - `<intent-filter>` element in component's manifest node
  - Child elements for action, data, category

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Intent Filters (2)

- Intent filters register activities, services and broadcast receivers
  - `<intent-filter>` element in component's manifest node
  - Child elements for action, data, category

```
<intent-filter . . . >
   <action
    android:name="com.example.project.SHOW_CURRENT" />
   <action
    android:name="com.example.project.SHOW_RECENT" />
   <action
    android:name="com.example.project.SHOW_PENDING" />
      . . .
</intent-filter>
```

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Intent Filters (3)

- Intent filters register activities, services and broadcast receivers
  - `<intent-filter>` element in component's manifest node
  - Child elements for action, data, category

```
<intent-filter ... >
  <data android:mimeType="audio/mpeg" ... />

  <data android:mimeType="video/mpeg"
   android:scheme="http"
   host="www.example.com"
   port="200" path="/folder/subfolder" ... />
   ...
</intent-filter>
```

`http://www.example.com:200/folder/subfolder`

Intent Filters (3)

- Intent filters register activities, services and broadcast receivers
  - `<intent-filter>` element in component's manifest node
  - Child elements for action, data, category

```
<intent-filter ...>
  <category
   android:name="android.intent.category.DEFAULT" />
  <category
   android:name="android.intent.category.BROWSABLE" />
  ...
</intent-filter>
```

Every category in the intent object must match a category in the filter

Intent Resolution

- Android lists available intent filters
- Matching intent filters:
  - Intent filters must match action and category
    - Match all categories
  - Match intent data URI to intent filter data tag
    - Match scheme, host/authority, path or mime type, where specified

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Resolving action and data

- Activity started because it matched intent
- Must learn action and data

```
public void onCreate(Bundle icicle) {
  super.onCreate(icicle);
  setContentView (R.layout.main);

  Intent intent = getIntent();
  String action = intent.getAction();
  Uri data = intent.getData();
}
```

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Subactivities with Results

- Parent Activity: Launching a subactivity:

```
Uri data = …;
Intent intent = new Intent(Intent.ACTION_PICK, data);
// Result returned in onActivityResult
startActivityForResult(intent, PICK_SUBACTIVITY);
```

Request code

Start a subactivity for a dialog (there are lighter weight alternatives)…

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Subactivities with Results

- Child Activity: Returning Results (`onCreate` method):

```
Button okButton = (Button) findViewById(R.id.ok_button);

ButtonListener okListener = new View.OnClickListener() {
   public void onClick(View view) {
      Uri data = …;
      Intent result = new Intent(null, data);
      result.putExtra(IS_INPUT_CORRECT, inputCorrect);
      setResult(RESULT_OK, result);
      finish();
   }
}

okButton.setOnClickListener(okListener);
```

Subactivity registers listener for clicking OK…

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Subactivities with Results

- Child Activity: Returning Results (`onCreate` method):

```
Button cancelButton =
   (Button) findViewById(R.id.cancel_button);

ButtonListener cancelListener = new
  View.OnClickListener() {
      public void onClick(View view) {
         setResult(RESULT_CANCELED, null);
         finish();
      }
   }

cancelButton.setOnClickListener(cancelListener);
```

…and registers listener for clicking CANCEL…

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Subactivities with Results

- Parent Activity: Handling Results:

```
public void onActivityResult(int requestCode,
                             int resultCode,
                             Intent data) {
   super.onActivityResult(requestCode, resultCode, data);

   switch(requestCode) {
      case (PICK_SUBACTIVITY) :
         if (resultCode == Activity.RESULT_OK) {
            // TODO Handle user clicked OK.
         }
         break;
   }
}
```

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```
Uri data = …;
Intent intent = new Intent(Intent.ACTION_PICK, data);
// Result returned in onActivityResult
startActivityForResult(intent, PICK_SUBACTIVITY);
```

- Handling Results:

```
public void onActivityResult(int requestCode,
                             int resultCode,
                             Intent data) {
   super.onActivityResult(requestCode, resultCode, data);

   switch(requestCode) {
      case (PICK_SUBACTIVITY) :
         if (resultCode == Activity.RESULT_OK) {
            // TODO Handle user clicked OK.
         }
         break;
   }
}
```

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