

MORULE 8 INTENT





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Message-Based Communication

- Communication in Android is based on messages
 - Sending
 - Receiving
- Messages to express an action intended to do
 - Abstract description of operations to perform





- Message-passing mechanism
 - Notifies the application of occurrence of certain events
 - Represents the action to execute in response to the event
- Structure describing operations to perform
 - Action to perform
 - Data to operate on





- Used to communicate with
 - Activities
 - Services
 - Other applications





Services

- Perform long-running operations in the background
 - Even if the user switches to another application
- Do not provide a user interface
 - Services do not return a result to the caller
- Usually, a started service performs a single operation
 - When the operation is done, the service should stop itself
- E.g, to handle network transactions, to play music, to perform file I/O, ...





- Through android.content.Intent class
 - Containing all information needed to realise the intended action
 - E.g, to start an activity or service





Explicit or Implicit Intent

Explicit intent

- The target component is explicitely designated
 - Only limited to be used within an application
 - E.g, starting of an activity designated by its class name

Implicit intent

- The target component is not specified
 - Just declare the intent and leave the system to find the most suitable component
 - The component will be chosen by the system at the execution time, not at compilation
 - Usually to activate components of other applications
 - E.g, dialing a phone number, making a Web search





Launching an Activity

- Create a new child activity
 - Create new layout (View)
 - In res/layout
 - Create new activity class
 - Subclass of Activity class

```
• E.g,

public class ChildActivity extends AppCompatActivity ( Activity class

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_child);
}

Activity layout
```

- Declare the activity in the AndroidManifest.XML
 - If not defined in AndroidManifest, the activity cannot be launched through intent
 - E.g,

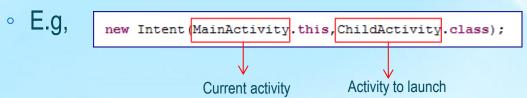
```
<activity android:name=".ChildActivity" android:label="@string/app_name"></activity>
```





Launching an Activity

- Using explicit intent in parent activity
- First, create an object of the Intent class
 - Parameters :
 - Current application context
 - Class name of the activity to launch



- ▶ Then, launch the activity using the intent
 - Without testing the result of the launched activity
 - Method : startActivity
 - Parameter : an intent
 - E.g, startActivity(new Intent(MainActivity.this,ChildActivity.class));

Eg



- To test the result of a launched activity
- In parent activity,
 - Give a code identifying the child activity to launch
 - Will be used to identify which activity has produced a returned value
 - Method : startActivityForResult
 - Parameters :
 - An intent
 - Code (Id) of the activity to launch (int)
 - E.g,

```
startActivityForResult(new Intent(MainActivity.this,ChildActivity.class),1);
```





- In child activity
 - To set result
 - Method : setResult
 - Parameter : result code (int)
 - To finish the activity
 - Method : finish

SAutomatically call of the onActivityResult method of the parent activity

E.g,

```
@Override
public void onClick(View arg0) {
    setResult(1);
    finish();
}});
```





- In parent activity
 - To test the result of the launched activity
 - Method : onActivityResult

Automatically called when finish() is called in child activity

- Parameters :
 - Id of the launched activity (int)
 - Result code returned by the child activity (int)
 - The intent (Intent)









Extra Data Associated to the Intent

- Additional data can be embeded into the intent
- In parent activity
 - To add data or message to the intent
 - Method : putExtra
 - Parameters :
 - Id of the message (String)
 - Value of the message
 - E.g,

```
Intent intent = new Intent(MainActivity.this,ChildActivity.class);
intent.putExtra "infoId", "Message sent by the parent");

Id Message value
```





Extra Data Associated to the Intent

- In child activity
 - To get data or message embeded into the intent
 - Get the data bundle of the intent
 - Through getExtras () method
 - Returns an object of the android.os.Bundle class
 - Use the right get method on the bundle according to the type of message
 - getString, getInt, getDouble, ...
 - E.g,

```
Bundle bundle = this.getIntent().getExtras();
String messageFromParent = bundle.getString("infoId");
Gettor for String message
```





Implicit Intent

- The target component is not specified
 - The component will be chosen by the system at the execution time
 - E.g, dialing a phone number or making a Web search
- Declare the permissions the application needs
 - Add uses-permission in the AndroidManifest.xml
 - E.g,

```
<uses-permission android:name="android.permission.CALL PHONE"/> To call a phone number
<uses-permission android:name="android.permission.INTERNET"/> To make web search
```





Implicit Intent

- Create implicit intent
 - E.g,

```
android.net.Uri uri = Uri.parse("tel:0497123654");
Intent intent = new Intent(Intent ACTION_DIAL, uri);
startActivity(intent);
To dial a phone number
```

```
android.net.Uri uri = Uri.parse("http://www.google.com/#q=henallux");
Intent intent = new Intent(Intent. ACTION_VIEW, uri);
startActivity(intent);
```

To visualize the element identified by the URI





Webography

- http://developer.android.com/guide/components/activities.html
- http://developer.android.com/guide/components/intents-filters.html

