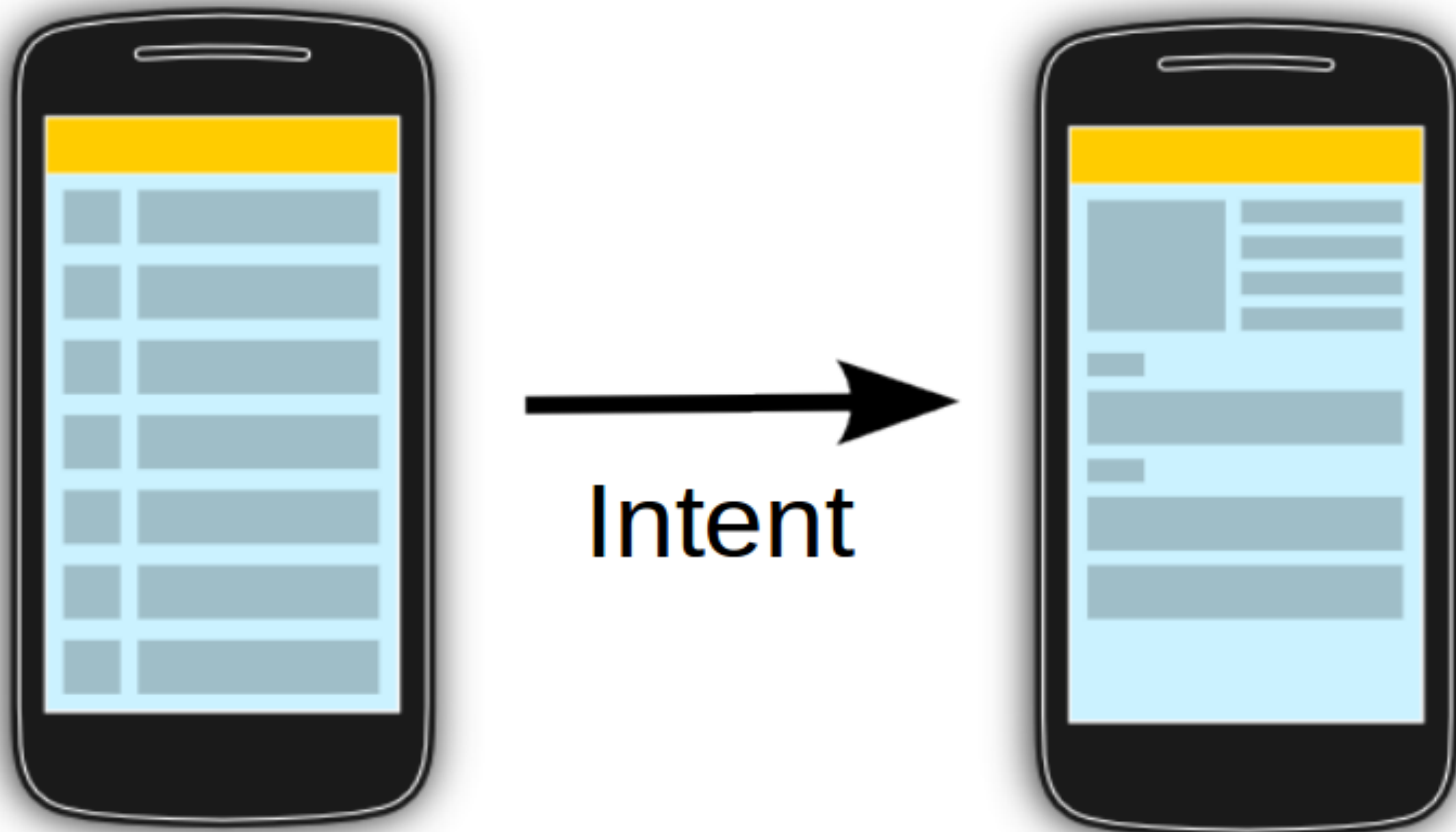


Intents and Intent Bus

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Main Idea



What is the goal of Intents?



Two kind of components in Android

- Activities: GUI for the user
 - ▶ **Game, mails, etc.**
- Services: background tasks
 - ▶ **music player, sync., etc.**



Goals of the Intents

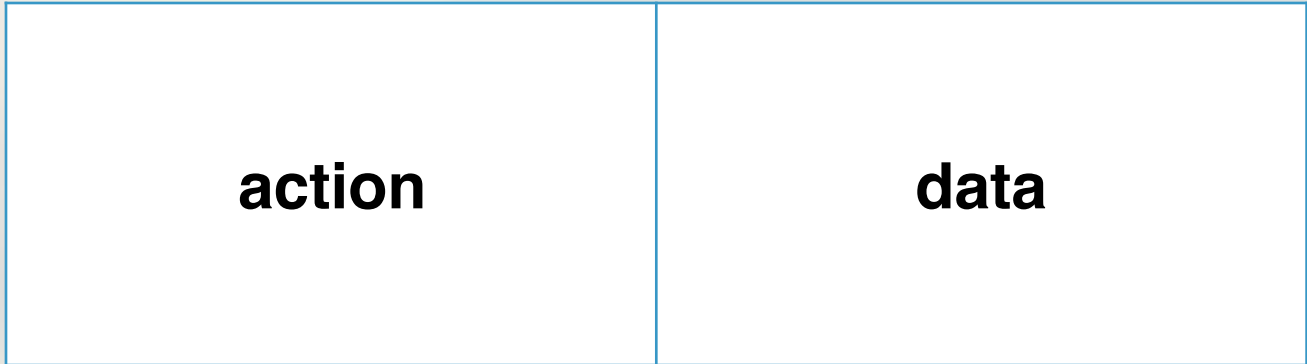
- Ease the communication between these components
- Provide functionalities for the other apps



How intents are managed by the system?

- Asynchronous communication bus
- Intent filters

Structure of an Intent



Action examples

action	data	description
ACTION_VIEW	<u>content://contact/people/1</u>	Information about people with UID 1
ACTION_VIEW	tel:123	Display keyboard with pre-composed 123 numero
ACTION_DIAL	<u>content://contact/people/1</u>	Display keyboard already filled with the phone number of people with UID1

Extra parameters for Intents

<u>action</u>	<u>data</u>	category	type	component	extra
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category: extra informations for the actions

 ACTION_MAIN+CATEGORY_HOME: launch home screen



type: the MIME type in data

 may be deduced sometime by the system



component: the name of the component targeted by the intent



extra: a bundle of informations (e.g. subject for a mail)

Target of an Intent



Explicit target:

- The name is specified in the Intent
- The specified target will be triggered

```
Intent intent = new Intent(getApplicationContext(),  
                             MyClass.class);  
startActivity(intent);
```



Implicit target

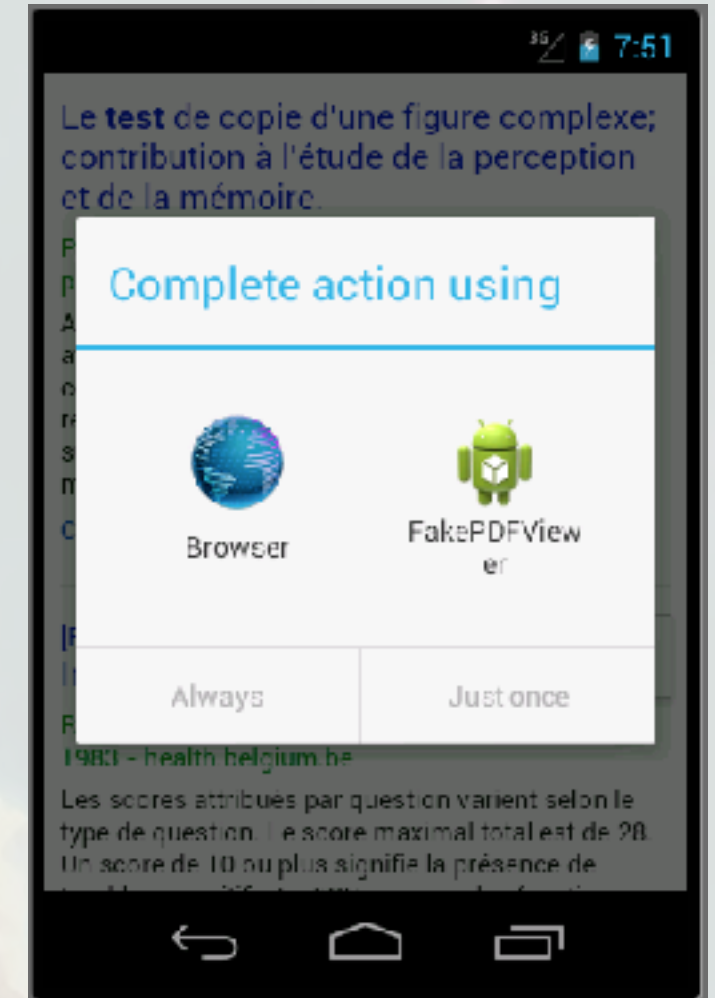
- The system have a lookup to find the best component to trigger
- This lookup is called Intent Resolution

```
Intent intent = new Intent(Intent.ACTION_DIAL);  
intent.setData(Uri.parse("tel:"+phone));  
startActivity(intent);
```

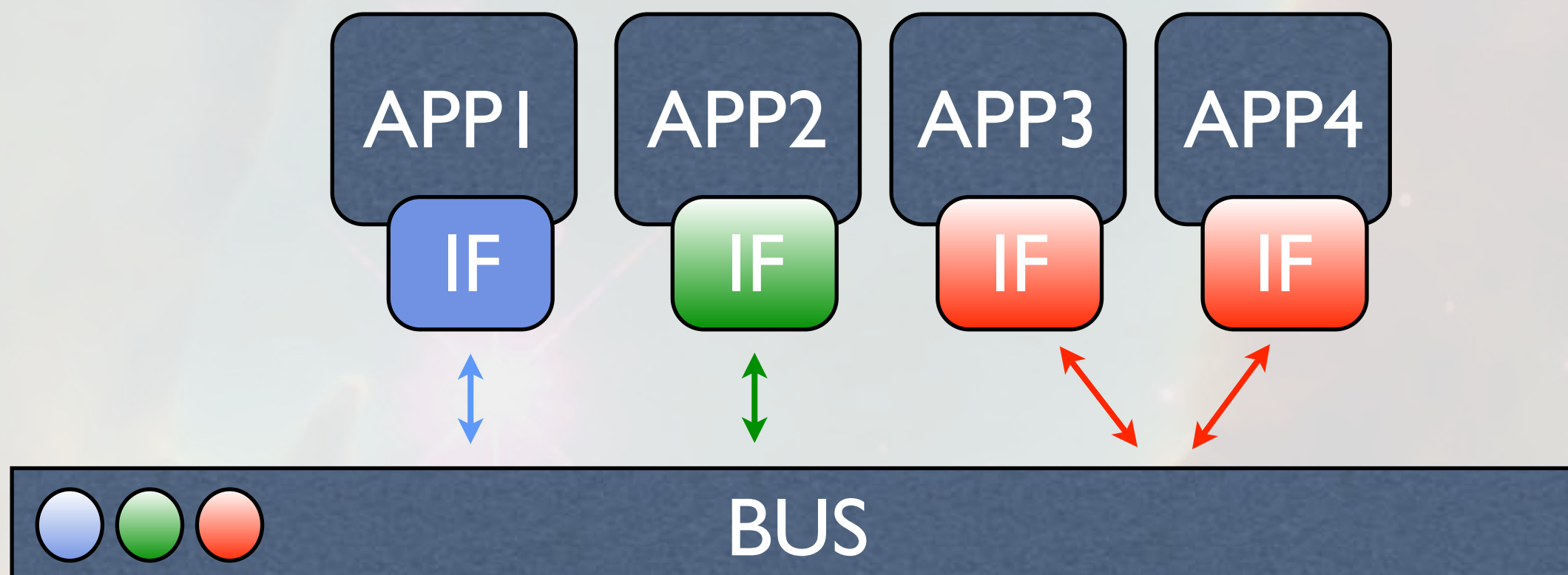
Intent Resolution

Intents Filters

- Each class define its realizable actions
- In the AndroidManifest.xml



The lookup explores all Intent Filters



Declare an Intent Filter

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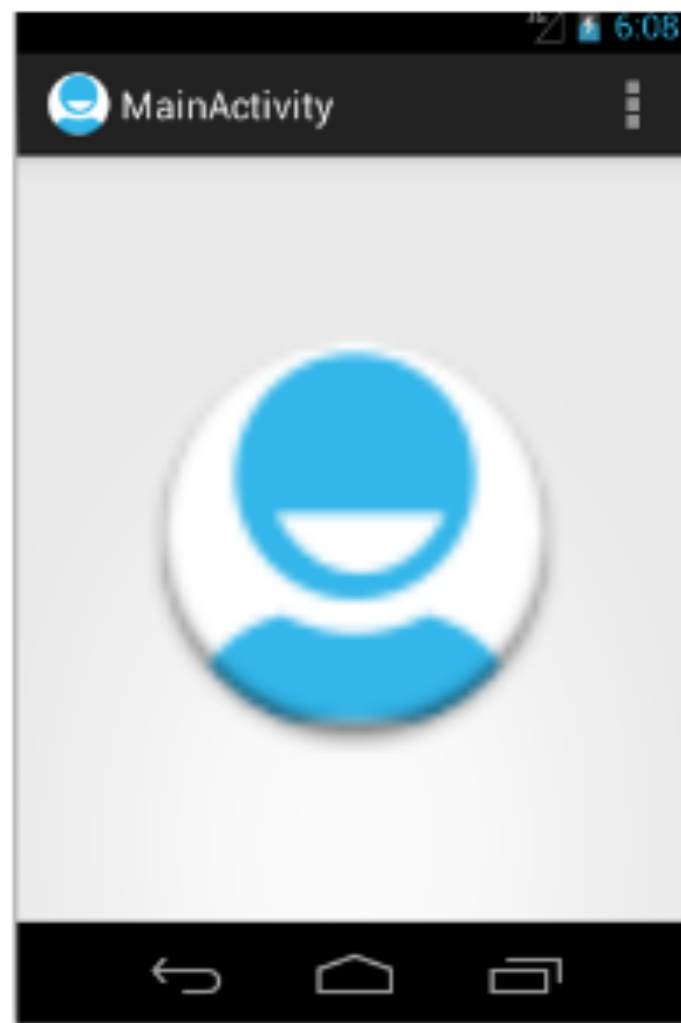


For instance, build an application that may read PDF

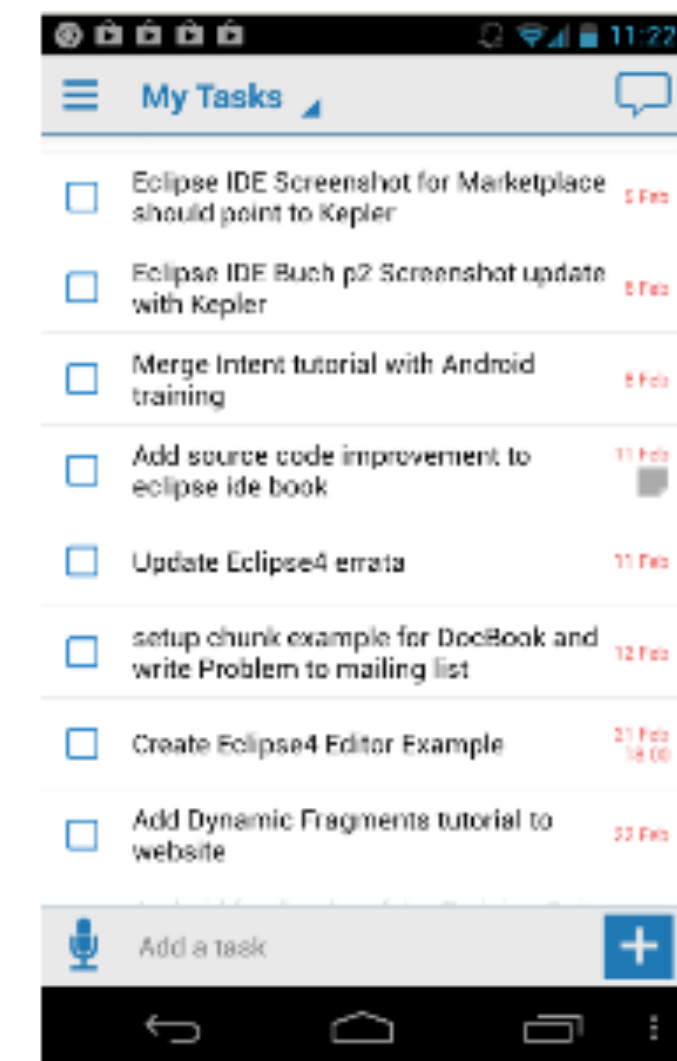
Modify the AndroidManifest.xml

```
<intent-filter>
  <action
    android:name="android.intent.action.VIEW" />
  <category
    android:name="android.intent.category.DEFAULT" />
  <category
    android:name="android.intent.category.BROWSABLE" />
  <data
    android:mimeType="application/pdf" />
</intent-filter>
```


Result from an Intent



Intent + resultCode
provided by called
activity



`onActivityResult(requestCode, resultCode, intent)`

requestCode
provided by Android to
identify which activity
type was started

startActivityForResult:

- Identify a call
- Result is provided in onActivityResult

Summary



Intent Bus

- Helps the communication between components
- Circulation of asynchronous messages



The target of an Intent can be

- Explicit: if the name of the component is specified
- Implicit: the system tries to find the best application
 - ▶ **A component can have multiple Intent Filters**
 - ▶ **If multiple component can answer, the user choose!**



We can obtain results after the return of a a component triggered by an Intent



