

Working with Activities



Jim Wilson

MOBILE SOLUTIONS DEVELOPER & ARCHITECT

@hedgehogjim blog.jwhh.com



What to Expect from This Module



Activity Interaction

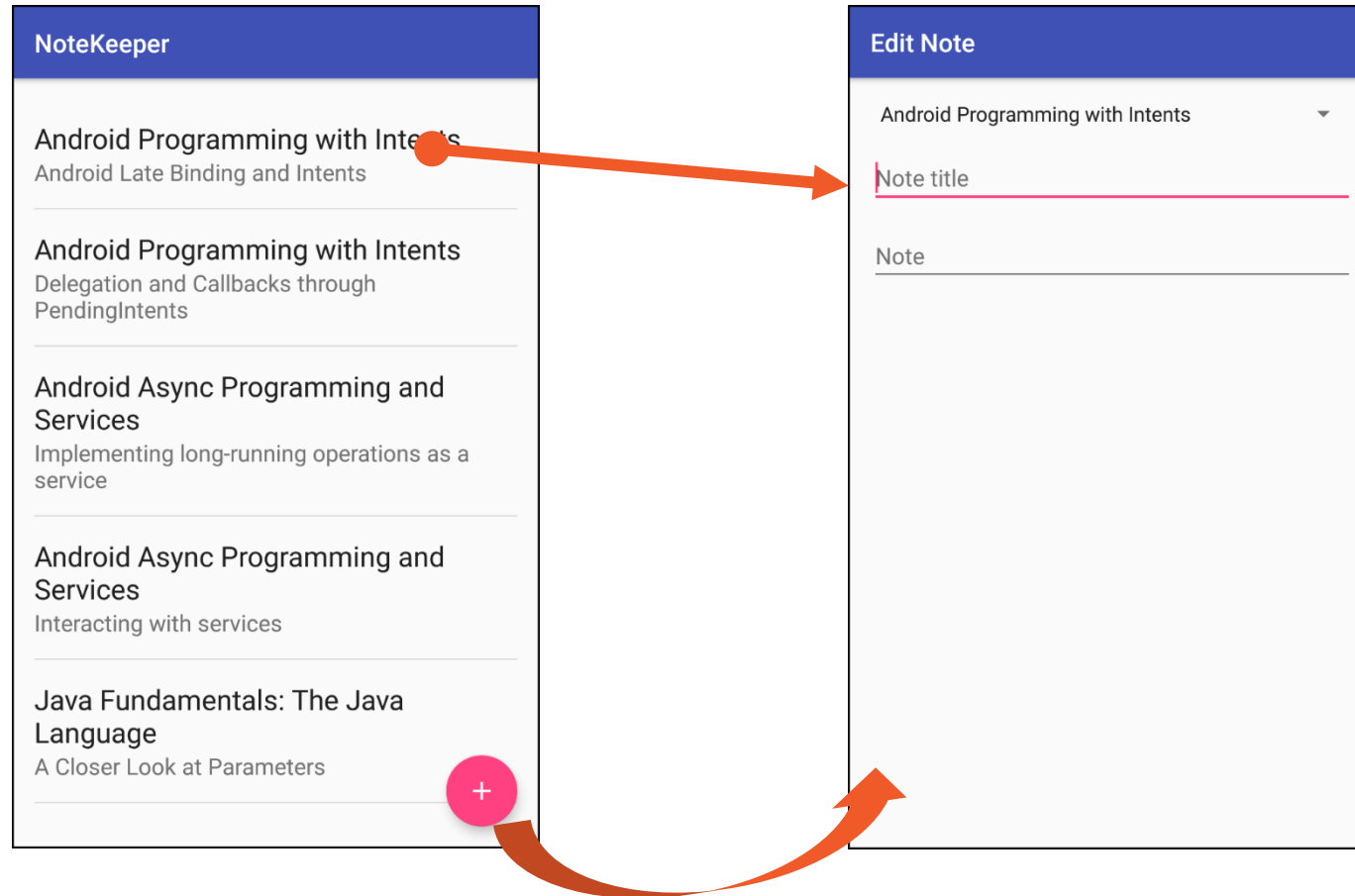
Describing Operations with Intents

Reference Types as Intent Extras

Implementing Parcelable



A Quick Reminder of Our App



Activity Interaction

Android is a component-oriented platform

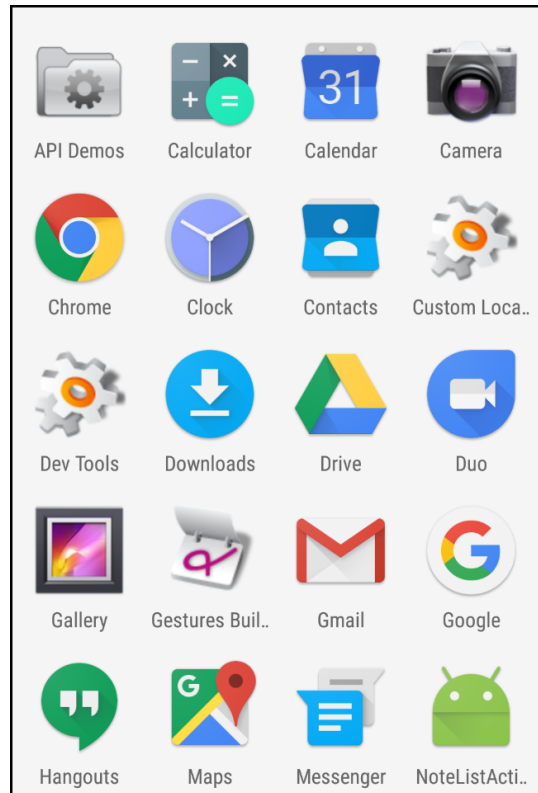
- A number of different types
- Activities are the most familiar

Activities are distinct from one another

- One cannot directly create another
- Rely on intents to interact



Activity Interaction



Process



Starting an Activity Within Your App

Create an intent

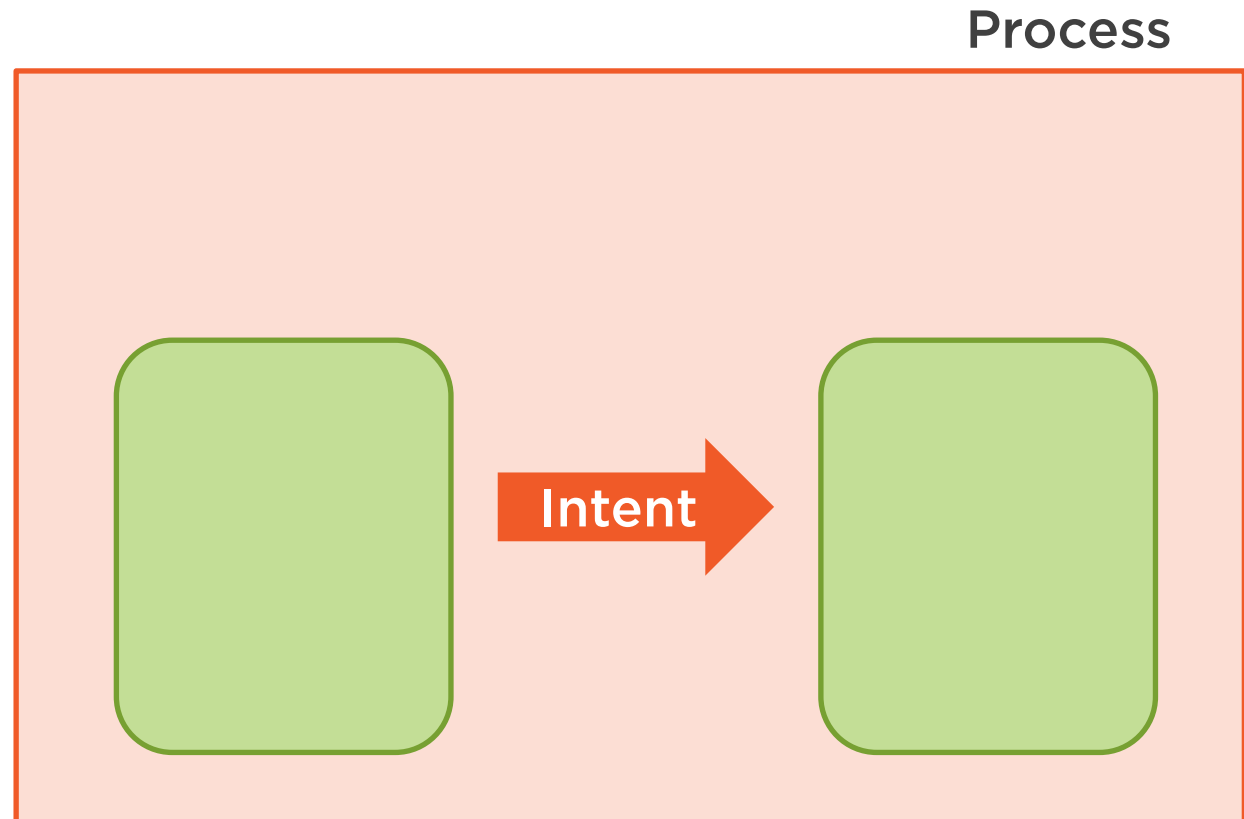
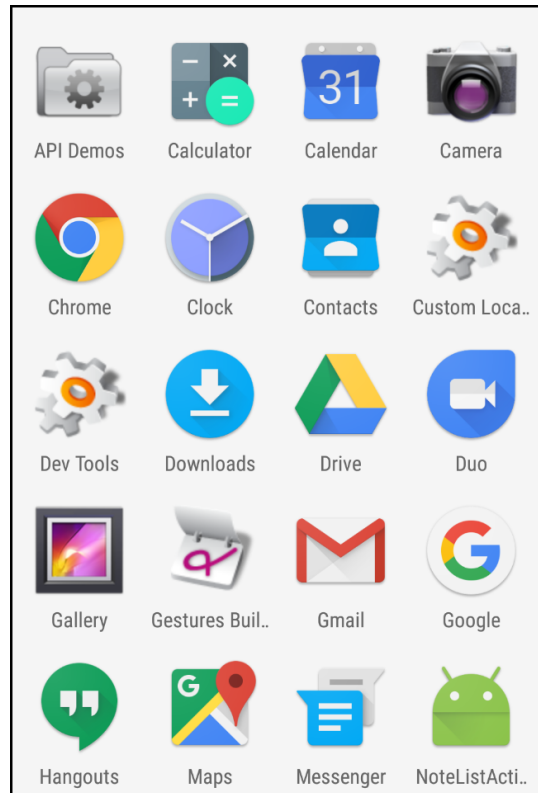
- Identifies the desired Activity
- Often can just be Activity class info

Call `startActivity`

- Pass the intent
- Launches Activity matching the intent



Activity Interaction



Describing Operations with Intents

Intents describe a desired operation

- Often need more than just a target
- May need to provide additional info

Intent extras provide additional info

- Name value pairs
- Names & values are operation-defined
- Added to intent with putExtra overloads



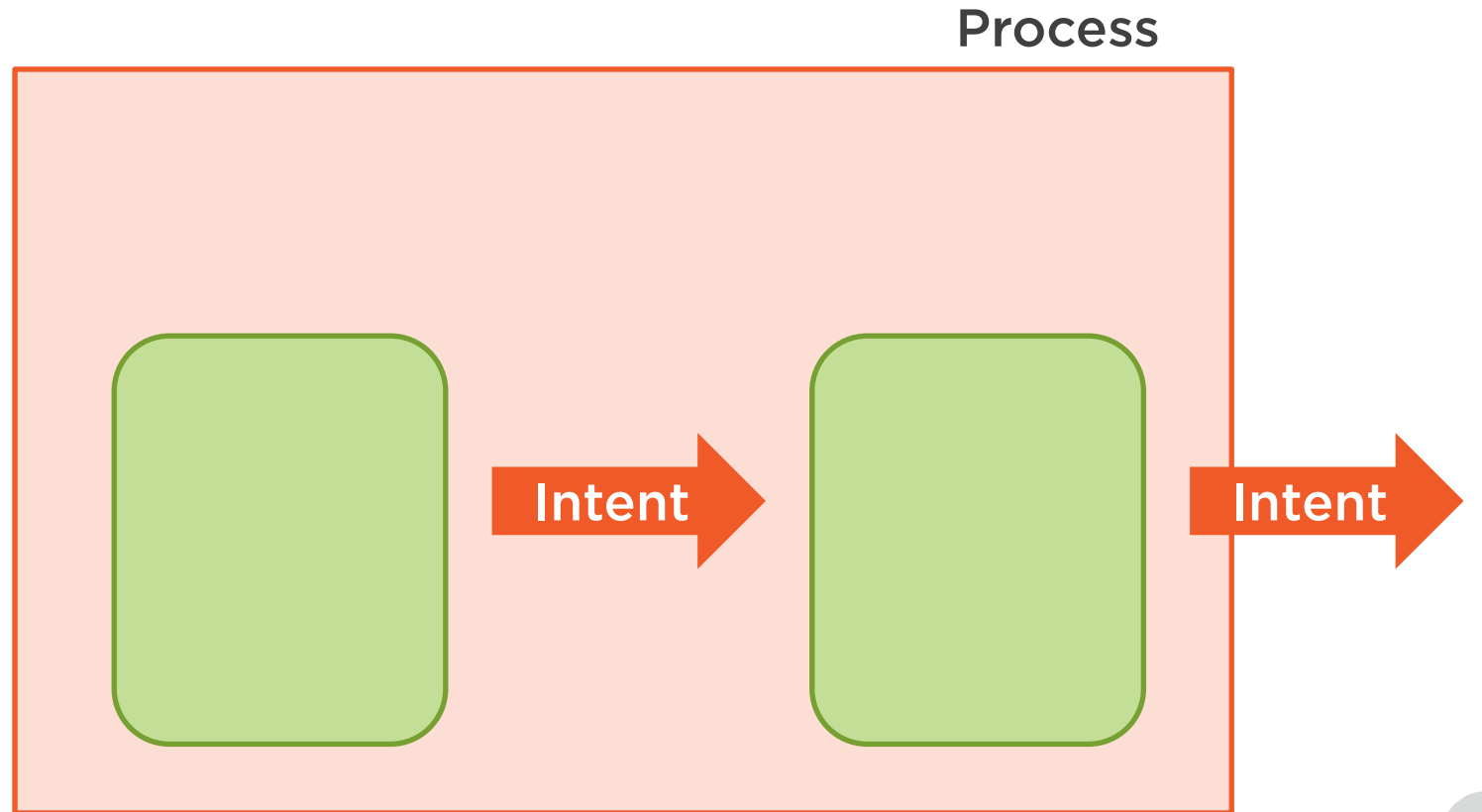
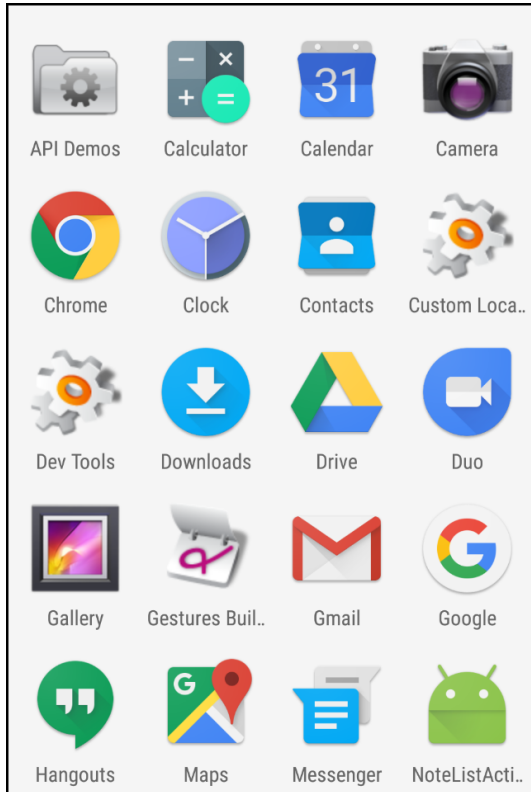
Describing Operations with Intents

Accessing intent info

- Activity can access intent that started it
- Use getIntent
- Use Intent.getXXExtra to retrieve extras
 - Method names include return type



Describing Operations with Intents



Describing Operations with Intents

Intents must be cross-process friendly

- Limits allowable extras

Supported extra types

- Primitive types and String
- Arrays of supported types
- Some ArrayLists
- A few other special types

Most reference types not directly supported

- Require special handling



Reference Types as Intent Extras

Reference types need to be “flattened”

- Converted to a bunch of bytes

One option is Java serialization

- Supported but not preferred
- Serialization is very runtime expensive

Use Parcelable API

- Much more efficient than serialization
- Must be explicitly implemented



Reference Types as Intent Extras

Implement Parcelable interface

- describeContents
 - Indicates special behaviors
 - Generally can return 0
- writeToParcel
 - Receives a Parcel instance
 - Use Parcel.writeXX to store content



Reference Types as Intent Extras

Provide public static final CREATOR field

- Is a Parcelable.Creator implementation

Parcelable.Creator interface

- createFromParcel
 - Responsible to create new type instance
 - Receives a Parcel instance
 - Use Parcel.readXX to access content
- newArray
 - Receives a size
 - Responsible to create array of type



Summary



Android is component-oriented

- Activities are the most familiar
- Components cannot directly interact

Components interact through intents

- Describe operation target
- Additional info passed as extras

Activities

- Started with `startActivity`
- Activity can access intent that started itself with `getIntent`



Summary



Intents can be sent cross-process

- Extras must be cross-process friendly
- Presents challenge for reference types

Parcelable types

- Must implement Parcelable interface
 - Saves instance state to Parcel
- Must have CREATOR field
 - Creates new instance from Parcel

