

# Exposing Data and Information Outside Your Android App

---

## CREATING A CONTENT PROVIDER



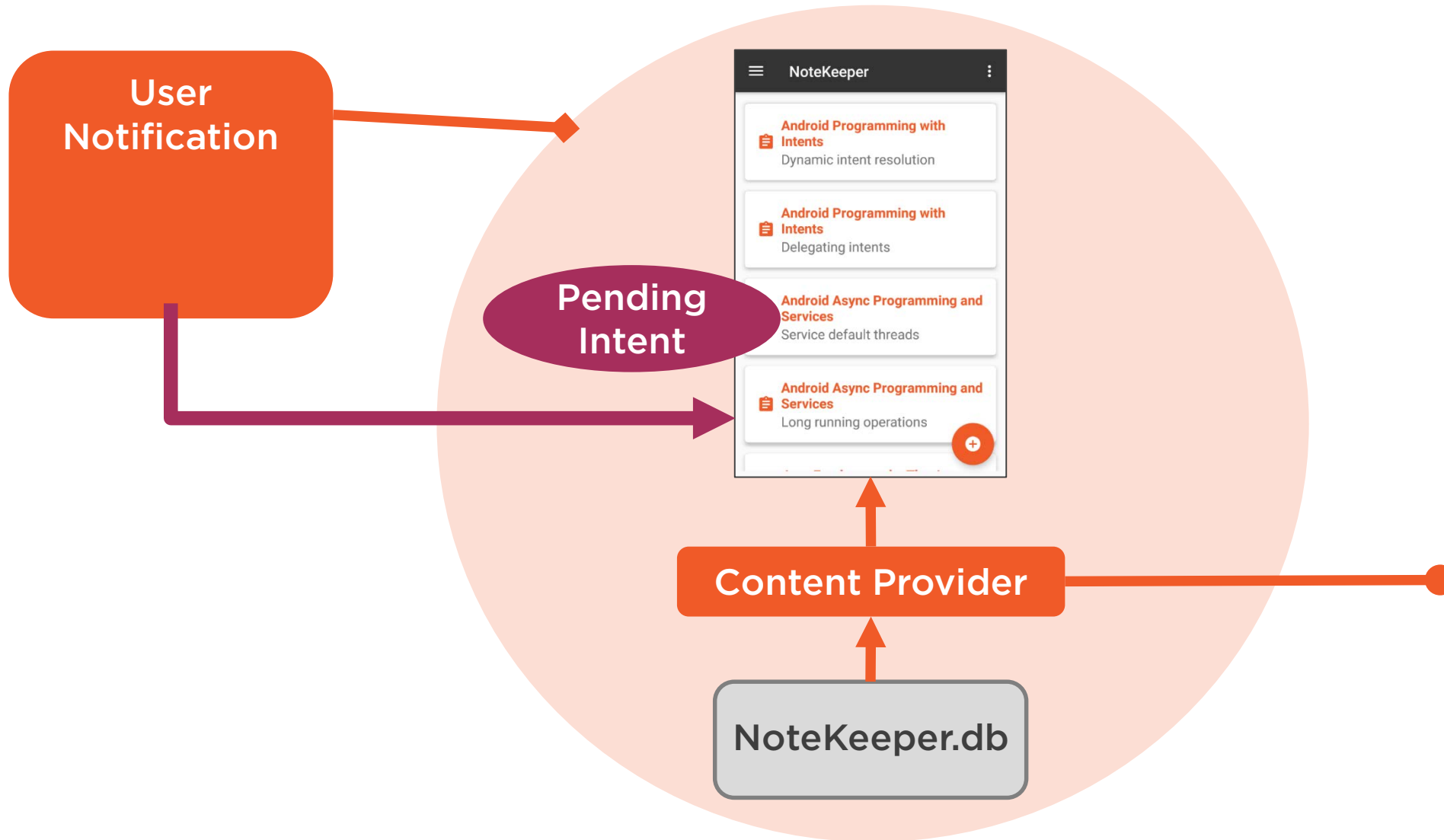
**Jim Wilson**

MOBILE SOLUTIONS DEVELOPER & ARCHITECT

@hedgehogjim [blog.jwhh.com](http://blog.jwhh.com)



# What to Expect from This Course



# What to Expect from This Module



**Content Provider Overview**

**Implementing a Content Provider**

**Requesting Data from a Content Provider**

**Sharing Data Between Apps**



# Content Provider

An Android component that encapsulates data, exposes that data through a standard interface, and optionally makes that data available to multiple programs.



# Content Provider

## Content provider

- A way to expose data
- Data exposed through a standard API

## Content provider visibility

- Can be limited to app that implements it
- Can be available to other apps



# Content Provider

## Concept is independent of data storage

- Local and/or remote data
- Static and/or dynamically-produced data
- Implementation encapsulates details



# SQLite vs. Content Provider

## SQLite

Data storage and management solution

Data accessed through SQLite library

Accessible by app that owns file

## Content Provider

Data access solution

Data accessed through standard API

Access can be available to other apps



# Content Provider Common Implementation

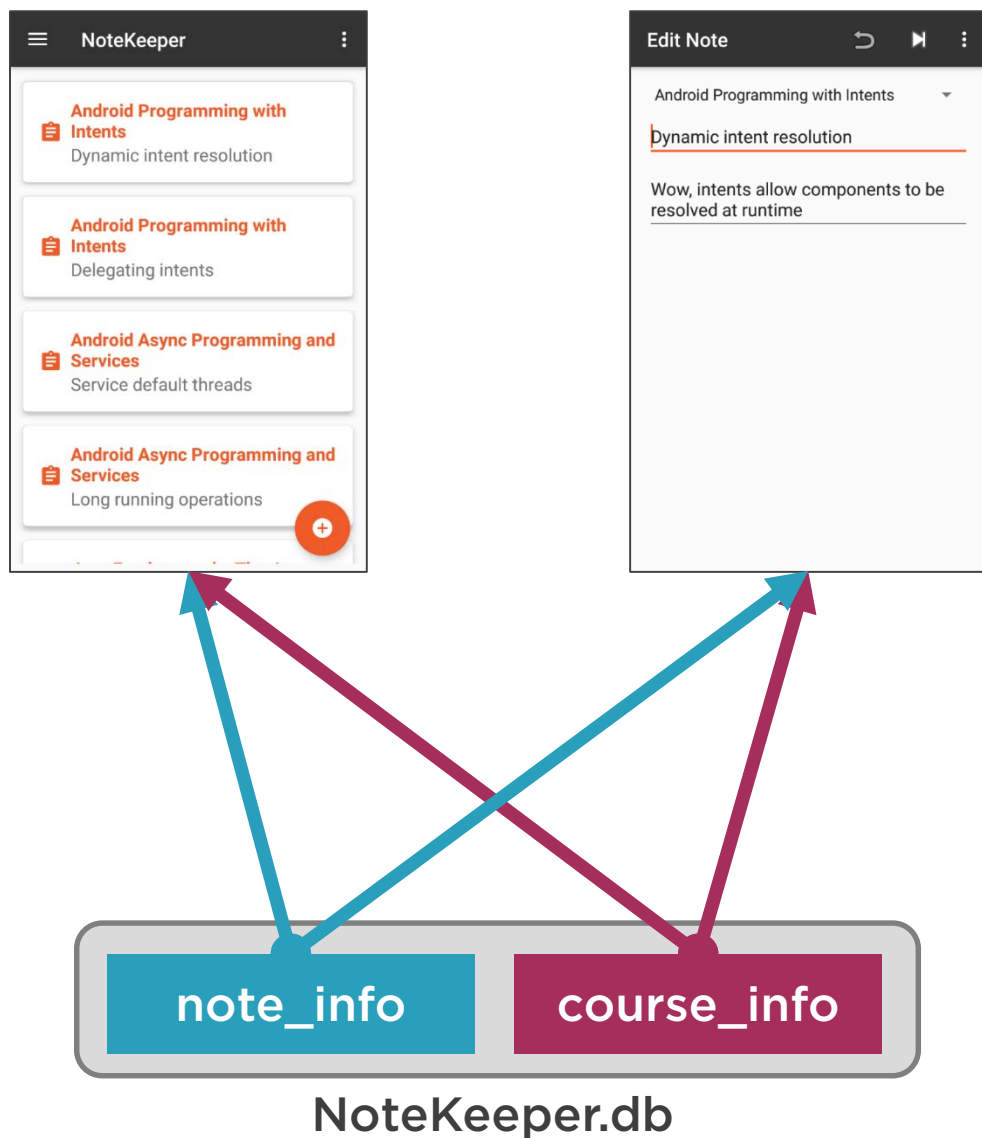
## **Commonly used in conjunction with SQLite**

- SQLite provides the backing store
- Content provider encapsulates details
- Content provider may make data available to other apps





# Accessing Data

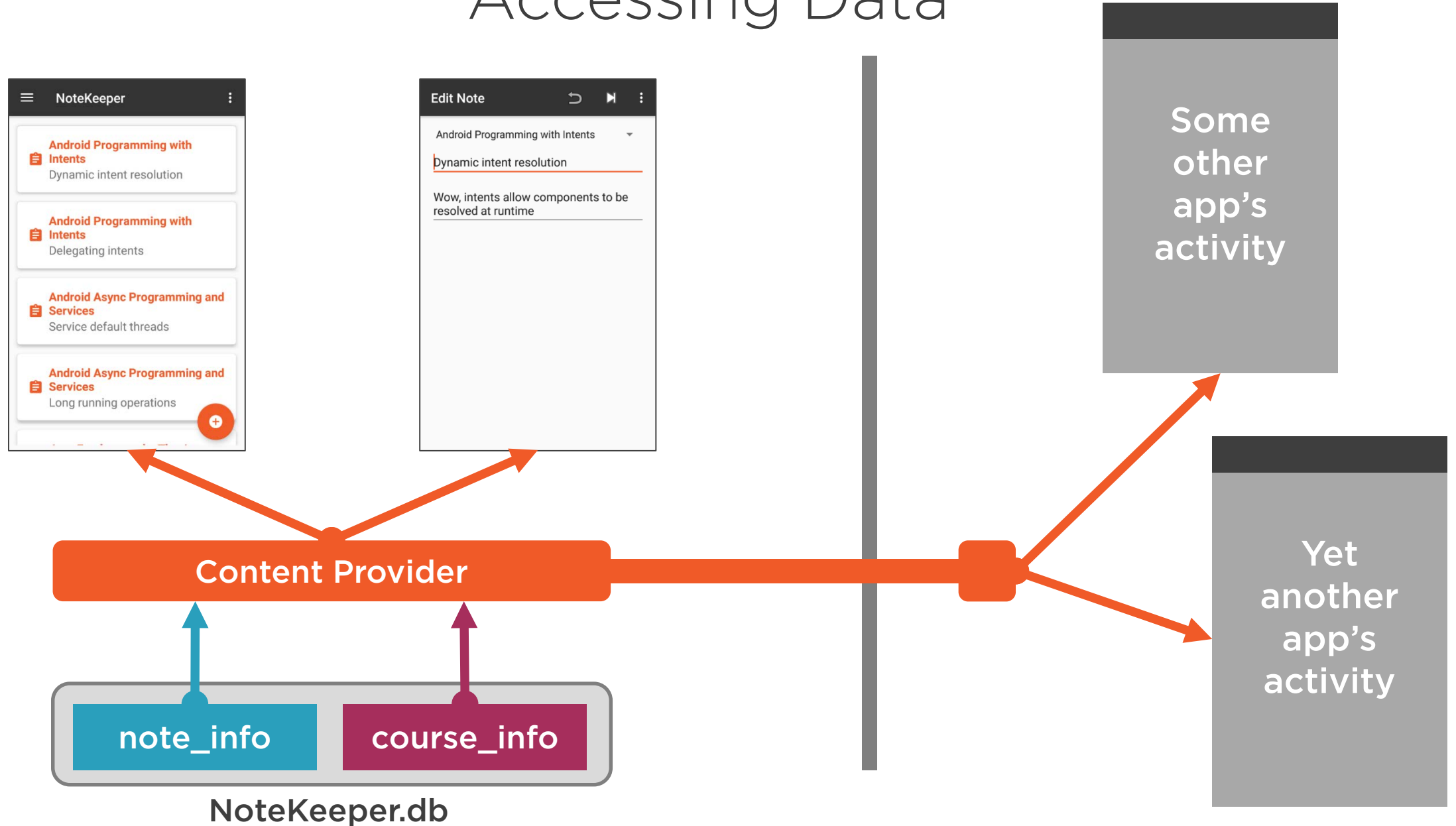


Some  
other  
app's  
activity

Yet  
another  
app's  
activity



# Accessing Data



# Creating a Content Provider

## **Extend ContentProvider class**

- Implement lifecycle methods
- Implement data lookup method
- Implement data modification methods



# Creating a Content Provider

## Content provider identification

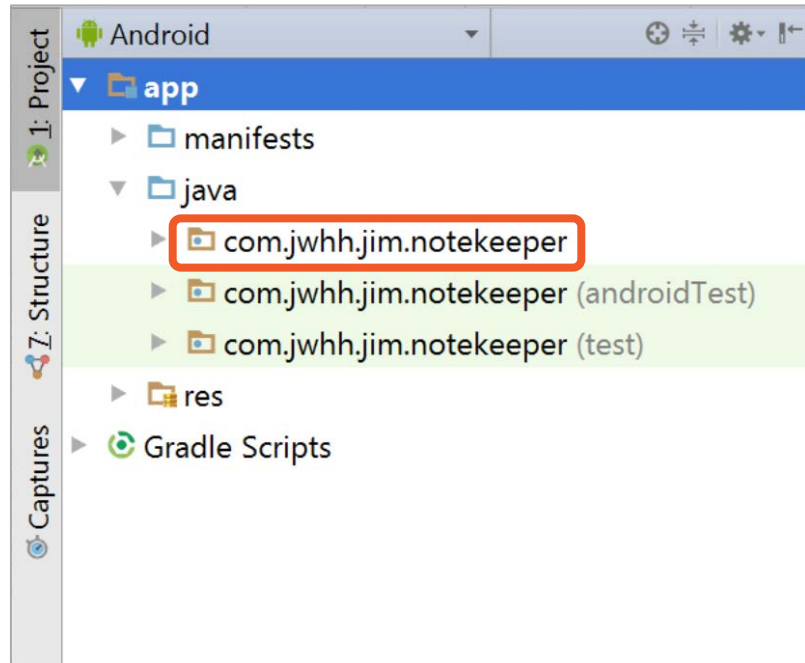
- May be visible throughout device
- Identification should be globally unique

## Associate an authority

- Uniquely identifies content provider
- Use reverse domain name format
- Normally use app package name followed by *.provider*



# Content Provider Authority



`com.jwhh.jim.notekeeper`



# Creating a Content Provider

## **Decide visibility to other apps**

- Be explicit in this decision
- Mark as exported to make available



# Implementing a Content Provider Over SQLite

## Encapsulates database related details

- Responsible to connect to database
- Performs all database interactions

## Exposes methods similar to SQLite API

- Data requests handled with query method
- Delegates work to SQLite



# Requesting Data from a Content Provider

## Similar to directly querying SQLite

- Avoid performing queries on main thread

## CursorLoader

- Runs query on background thread
- Cooperates with activity lifecycle

## LoaderManager

- Coordinates loader and activity





# Requesting Data from a Content Provider

## CursorLoader

- Understands querying content providers
- No need to overload loadInBackground
- Pass content provider identifier to CursorLoader constructor



# Requesting Data from a Content Provider

## Identifying content providers

- Use universal resource identifier (URI)
- Has a URI scheme of content
- Includes content provider authority

`content://com.jwhh.jim.notekeeper.provider`



# Summary



## **Content provider**

- A standardized way to expose data
- Can be available across apps

## **Content providers and storage**

- Concept is independent of storage
- Implementation encapsulates details

# Summary



## Creating a content provider

- Extends ContentProvider class
- Associate with an authority
- Decide on cross-app access

## Commonly used with SQLite

- Content provider makes data available
- SQLite provides the backing store
- Query details handled by SQLite



# Summary



## Requesting data

- Similar to directly querying SQLite
- Access coordinated by loader manager
- Queries issued through CursorLoader

## Using CursorLoader

- Instantiate with provider URI
- Specify columns, selection and order

