

# Recording in Progress

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# The ContentProvider Class

# Today's Topics

ContentProvider

ContentResolver

CursorLoader

Implementing ContentProviders

# ContentProvider

Represents a repository of structured data

Encapsulates data sets

Enforces data access permissions

# ContentProvider

Intended for inter-application data sharing

Clients access ContentProviders through a  
ContentResolver

# ContentResolver

Presents a database-style interface for reading & writing data

query, insert, update, delete, etc.

Provides additional services such as change notification

# ContentResolver

Get reference to ContentResolver by calling  
`Context.getContentResolver()`

# ContentProvider & ContentResolver

Together these classes let code running in one process access data managed by another process



# Android ContentProviders

Browser – bookmarks, history

Call log- telephone usage

Contacts – contact data

Media – media database

UserDictionary – database for predictive spelling

Many more

# ContentProvider Data Model

Data logically represented as database tables

_ID	artist
13	Lady Gaga
44	Frank Sinatra
45	Elvis Presley
53	Barbara Streisand

# URI

ContentProviders referenced by URIs

The format of the URI identifies specific data sets managed by specific ContentProviders

# Format

*content://authority/path/id*

content – scheme indicating data that is managed by a content provider

authority – id for the content provider

path – 0 or more segments indicating the type of data to be accessed

id – a specific record being requested

## Example: Contacts URI

```
ContactsContract.Contacts.CONTENT_URI =  
    "content://com.android.contacts/contacts/"
```

# ContentResolver.query()

Returns a Cursor for iterating over a results set

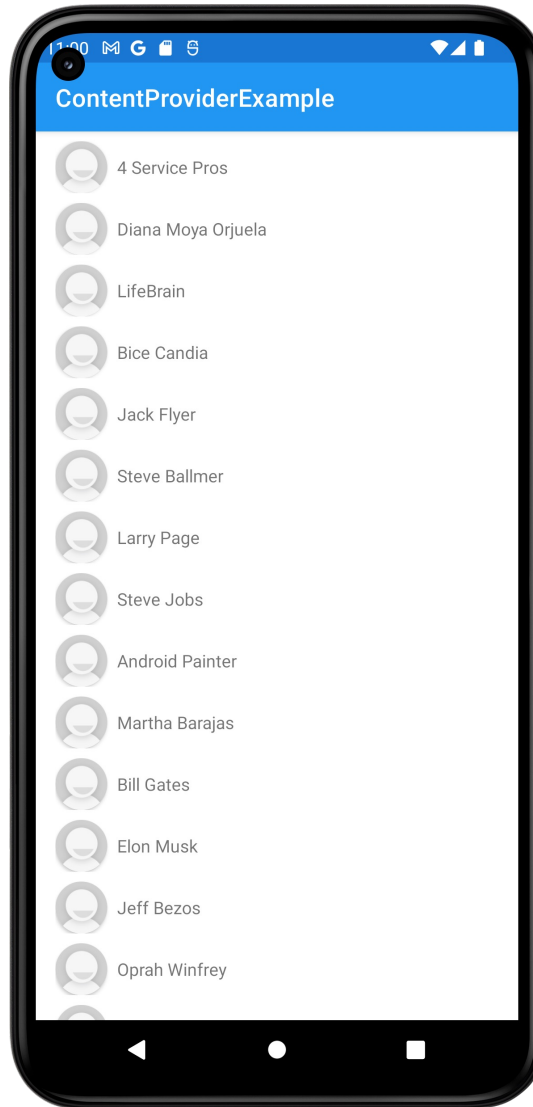
```
Cursor query (  
    Uri uri,                // ContentProvider Uri  
    String[] projection     // Columns to retrieve  
    String selection       // SQL selection pattern  
  
    String[] selectionArgs  // SQL pattern args  
    String sortOrder       // Sort order  
)
```

# ContentProviderExample

Extracts Contact information from the Android  
Contacts ContentProvider

Displays each contact's name

# ContentProvider Example

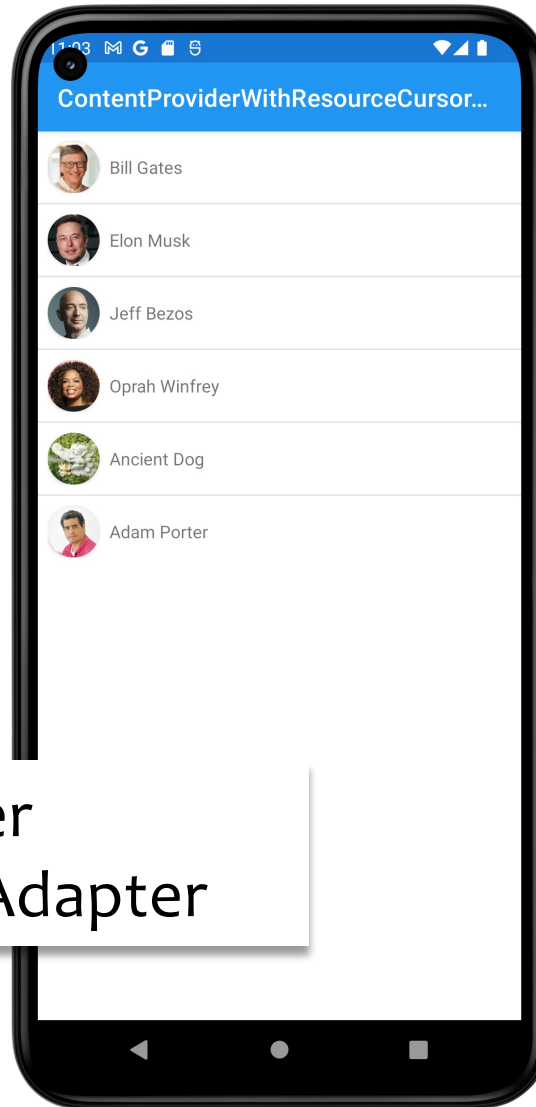




# ContentProviderWithResourceCursorAdapter

Extracts specific contact information from the  
Android Contacts ContentProvider

Displays each contact's name and photo, if available



ContentProvider  
WithResourceCursorAdapter

# More ContentResolver Operations

Delete

Insert

Update

# ContentResolver.delete()

Returns the number of rows deleted

```
int delete (  
    Uri url,                // content Uri  
    String where,          // SQL sel. pattern  
    String[] selectArgs    // SQL pattern args  
)
```

# ContentResolver.insert()

Returns the Uri of the inserted row

```
Uri insert (  
    Uri url,                // content Uri  
    ContentValues values    // values  
)
```

# ContentResolver.update()

Returns the number of rows updated

```
int update(  
    Uri url,                // content Uri  
    ContentValues values    // new field values  
    String where,          // SQL sel. pattern  
    String[] selectionArgs // SQL pattern args  
)
```

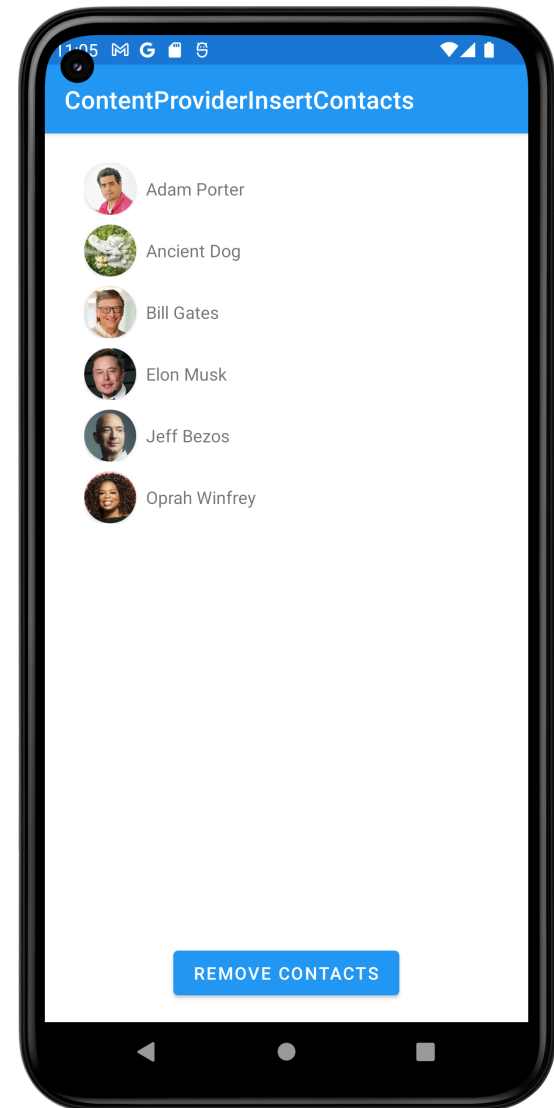
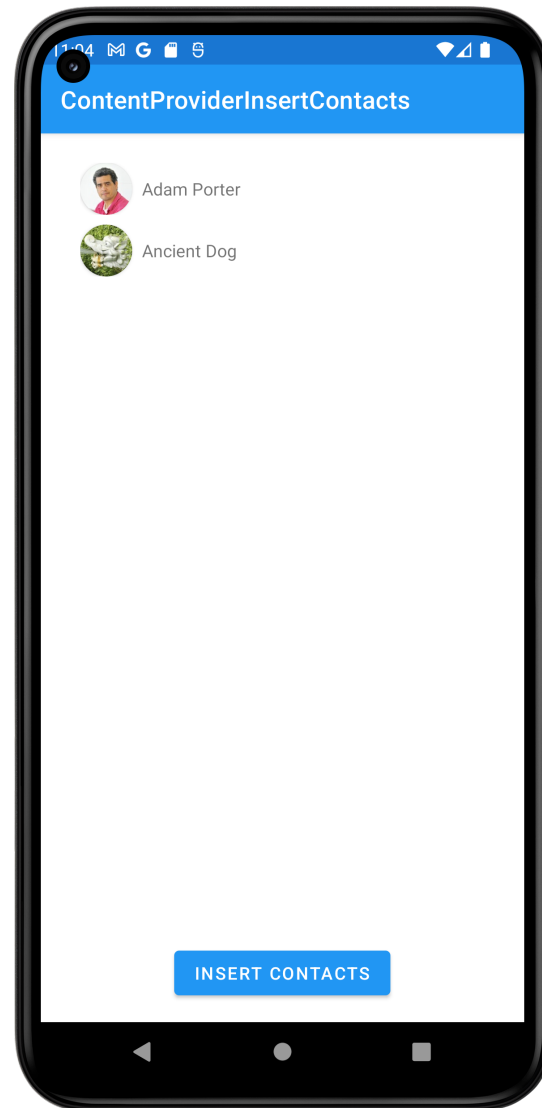
# ContentProviderInsertContacts

Application reads contact information from the  
Android Contacts ContentProvider

Inserts several new contacts into Contacts  
ContentProvider

Displays old and new contacts

# ContentProvider InsertContacts





# Recipe for Creating a ContentProvider

Define a Contract Class to support users of your ContentProvider

Implement a storage system for the data

Implement a ContentProvider subclass

Declare and configure ContentProvider in AndroidManifest.xml

# ContentProviderCustomProvider

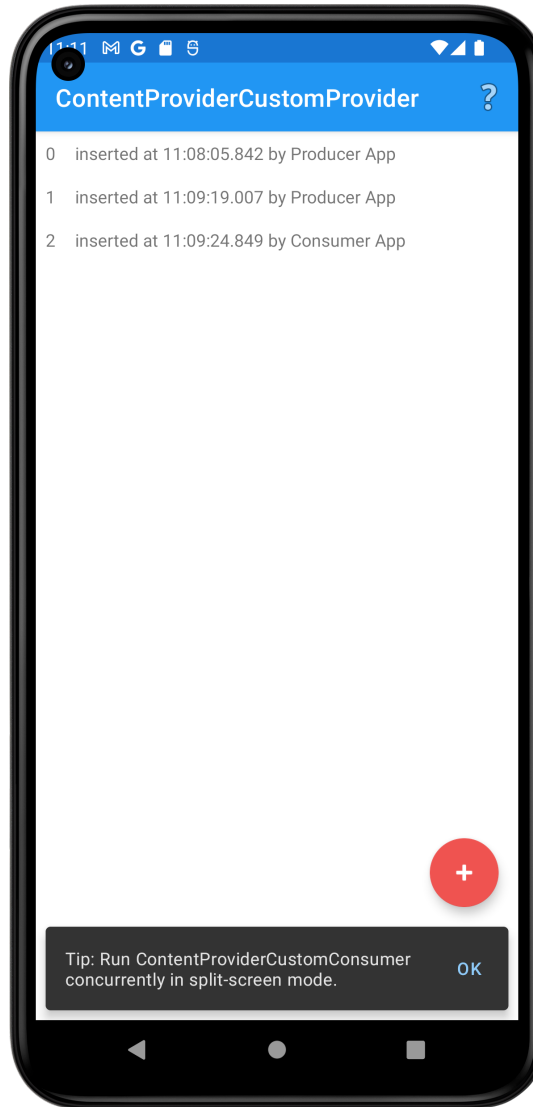
Application defines a ContentProvider for  
ID/string pairs

# ContentProviderCustomConsumer

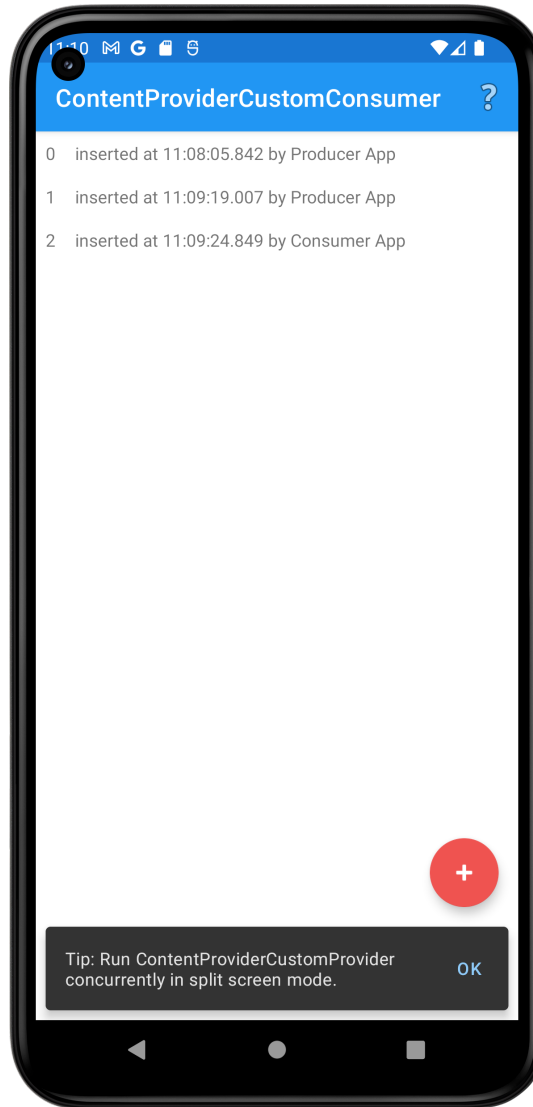
Reads ID/String pairs from the ContentProvider

Inserts and deletes ID/String pairs

# ContentProvider CustomProvider



# ContentProvider CustomConsumer



# Example Applications

ContentProviderExample

ContentProviderWithResourceCursorAdapter

ContentProviderInsertContacts

ContentProviderCustomProvider

ContentProviderCustomConsumer