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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

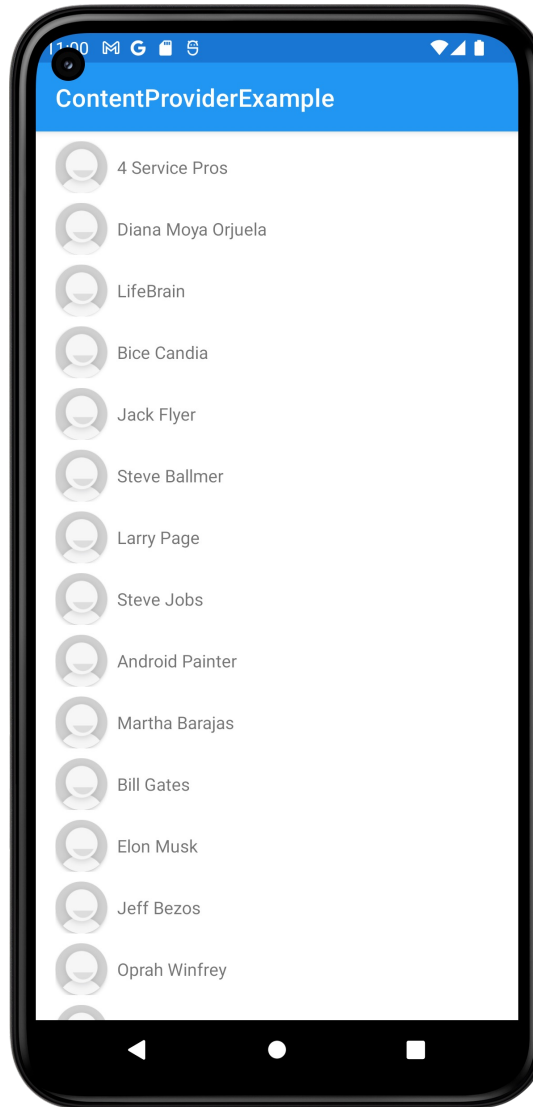
```
Cursor query (  
    Uri uri,                // ContentProvider Uri  
    String[] projection     // Columns to retrieve  
    String selection       // SQL selection pattern  
  
    String[] selectionArgs // SQL pattern args  
    String sortOrder       // Sort order  
)
```

ContentProviderExample

Extracts Contact information from the Android
Contacts ContentProvider

Displays each contact's name

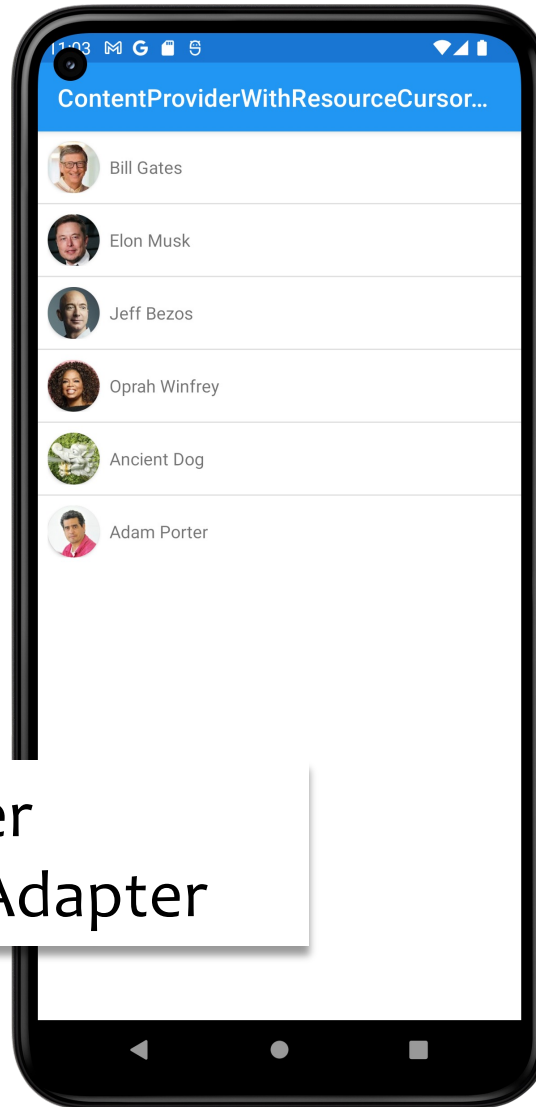
ContentProvider Example



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  
)
```

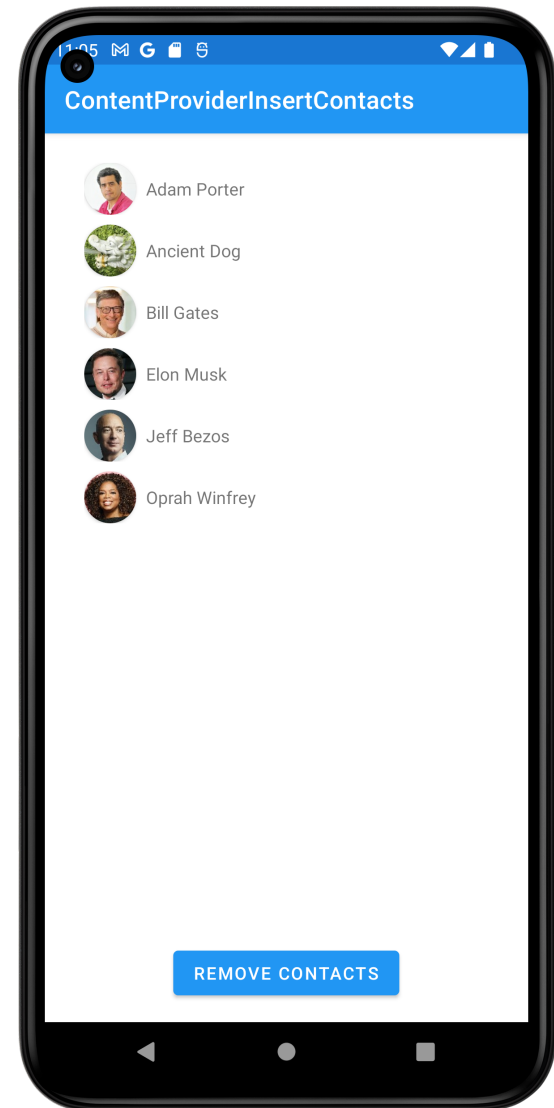
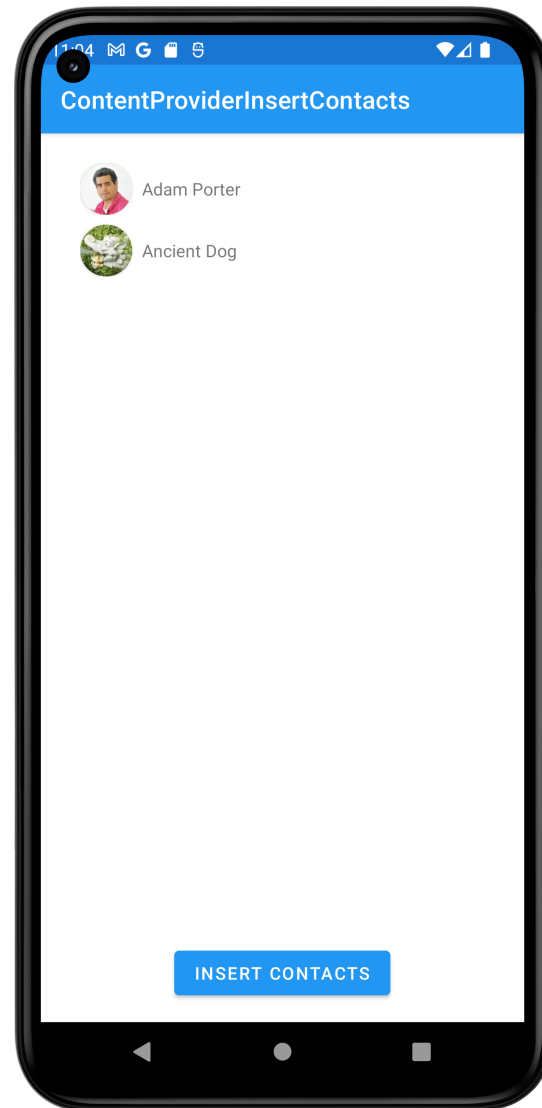
ContentProviderInsertContacts

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

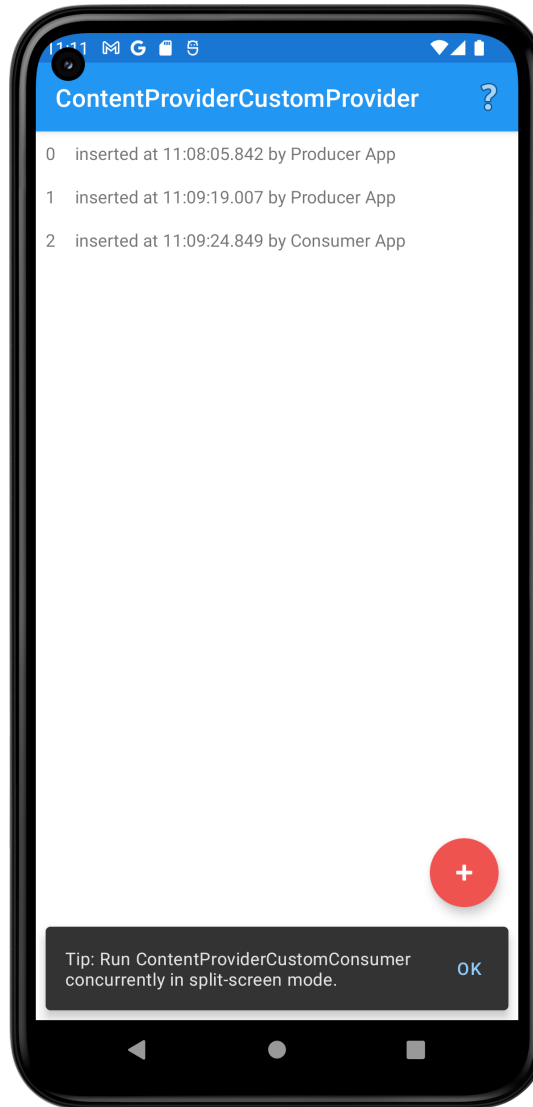
Application defines a ContentProvider for
ID/string pairs

ContentProviderCustomConsumer

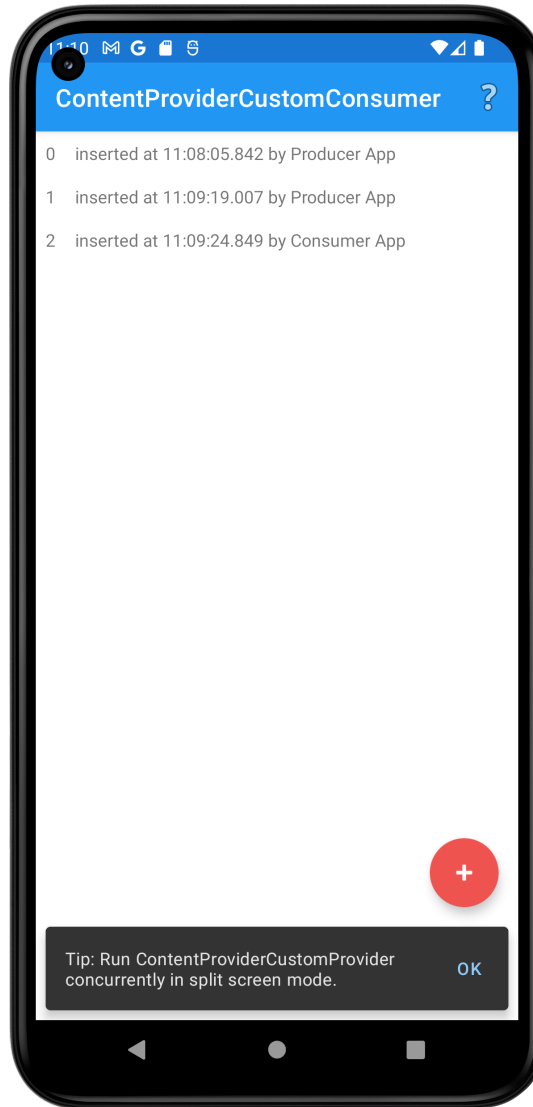
Reads ID/String pairs from the ContentProvider

Inserts and deletes ID/String pairs

ContentProvider CustomProvider



ContentProvider CustomConsumer



Example Applications

ContentProviderExample

ContentProviderWithResourceCursorAdapter

ContentProviderInsertContacts

ContentProviderCustomProvider

ContentProviderCustomConsumer