SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Re-accredited by NAAC with A+ grade, Accredited by NBA(CSE, IT, ECE, EEE & Mechanical)
Approvedy by AICTE, New Delhi, Recognized by UGC, Affiliated to Anna University, Chennai

Content Provider: Data Sharing across App

Course: Mobile Application Development

Unit : III – Building Blocks of Mobile Apps - II
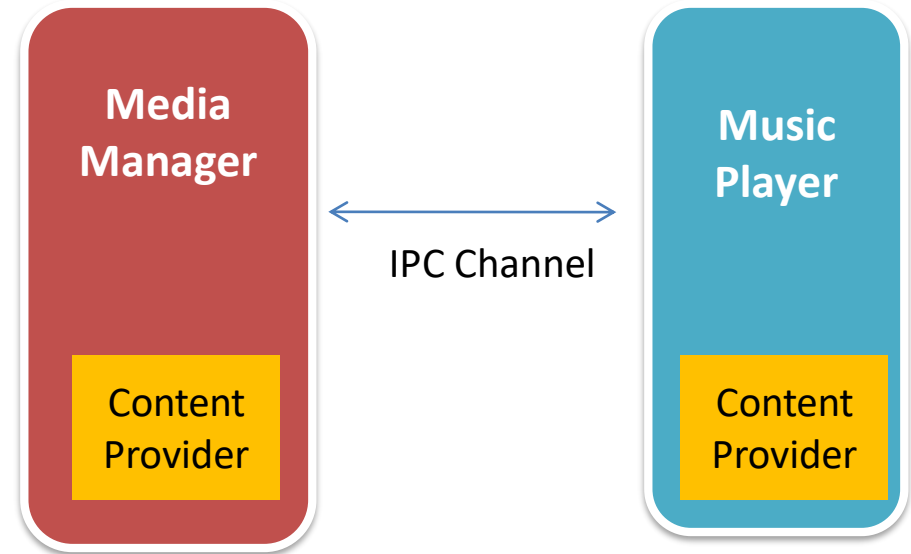
Class / Semester: II MCA / III Semester

Association of one gated community decided to introduce system for visitor's recording to the Apartment houses

- Security at the front gate is the end user

- Mobile notification sent to Resident/Host for approval

- Resident may accept/reject the visitor

- Security falls for manual checking if no response is received

- Pre-authorized guest provision may be given (Expected visitor)

It acts like a central repository in which data of the applications are stored, and it facilitates other applications to securely access and modifies that data
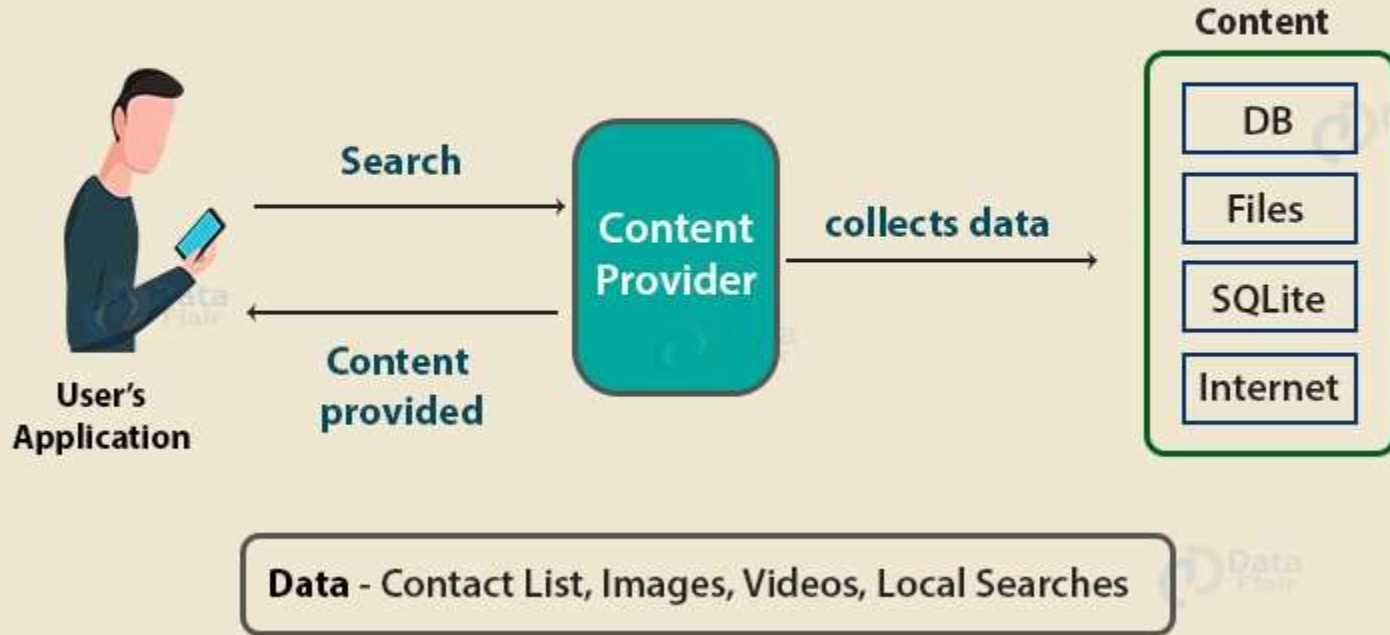
android.provider package

Media Manager

Content Provider

IPC Channel

Music Player

Content Provider

❑ Users can manage to store the application data like images, audio, videos, and personal contact information by storing them in **SQLite Database,** in files, or even on a network

❑ With some restrictions, these providers are accessible by applications

❑ It hides the implementation details of the data from other apps to provide an abstract and secure way of sharing data across apps

❑ We can carry out CRUD operations on data of other apps as a black box

❑ Data of in-built apps are made accessible using in-built content provider

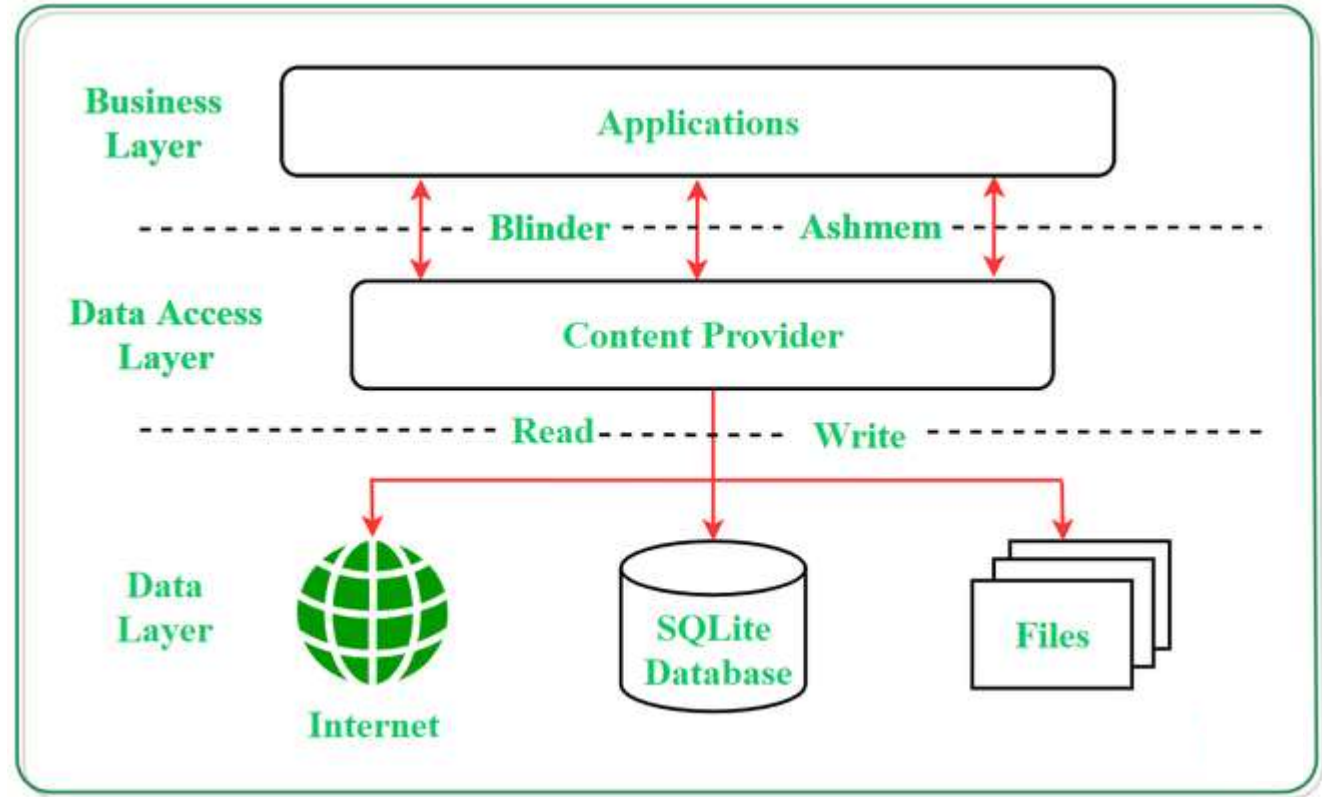❑ other apps can access our app's data using customer-built content provider
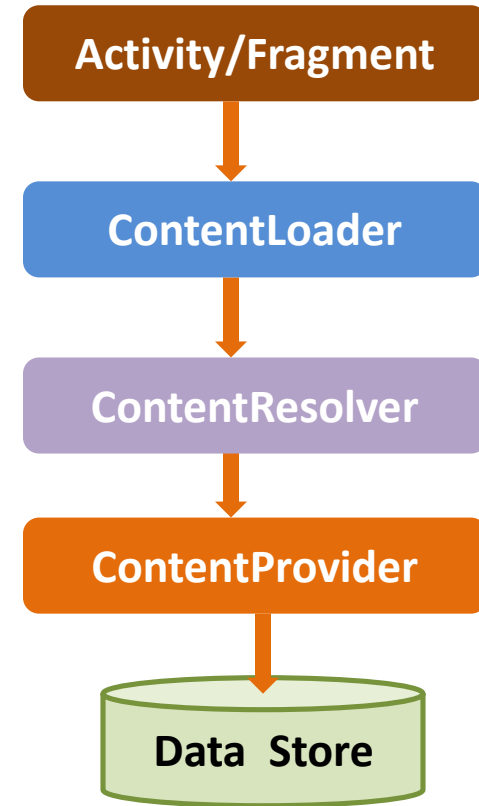
Courtesy:

❑ UI components of android applications like <u>Activity</u> and <u>Fragments</u> use an object **CursorLoader** to send query requests to **ContentResolver**

❑ The **ContentResolver** object sends requests (like create, read, update, and delete) to the **ContentProvider** as a client

❑ After receiving a request, ContentProvider process it and returns the desired result

❑ To access a provider, give some specific permission in manifest file

Activity/Fragment

↓

ContentLoader

↓

ContentResolver

↓

ContentProvider

↓

Data Store

❑ Content provider is a part of application and provides own UI for working with data

❑ Intended to use by other applications using provider client object

❑ Both providers and provider client offer consistent, standard interface to access data, also handles Inter-process communication

❑ It provides data to external apps as one or more table similar to database

❑ Row represents instance of data and columns are attributes

Operations
Create: Operation to create data
Read: Used to fetch data
Update: To modify existing data
Delete: To remove data from the storage

Abstract Method	Description
query()	A method that accepts arguments and fetches the data from the desired table. Data is retired as a cursor object.
insert()	To insert a new row in the database of the content provider. It returns the content URI of the inserted row.
update()	This method is used to update the fields of an existing row. It returns the number of rows updated.
delete()	This method is used to delete the existing rows. It returns the number of rows deleted.
getType()	This method returns the Multipurpose Internet Mail Extension(MIME) type of data to the given Content URI.
onCreate()	As the content provider is created, the android system calls this method immediately to initialise the provider.

❑ Content URI is the key concept used to access the data from a content provider, URI is used as a query string

❑ **Structure of a Content URI:** *content://authority/optionalPath/optionalID*

- ▪ **content:// –** Mandatory part, represents that the given URI is a Content URI.
- ▪ **authority –** Signifies the name of the content provider like contacts, browser, etc. This part must be unique for every content provider.
- ▪ **optionalPath –** Specifies the type of data provided by the content provider. Content providers to support different types of data
- ▪ **optionalID –** It is a numeric value that is used when there is a need to access a particular record

❑ If an ID is mentioned in a URI then it is an id-based URI otherwise a directory-based URI

Provider	Remarks
Browser	Read/modify bookmarks, history or web searches
Calllog	View/update call history
Contacts	Store, retrieve or modify personal contact data
Medistore	Access media files
Settings	View/retrieve ring tone, blue tooth and other device settings

❑ First of all you need to create a Content Provider class that extends the *ContentProvider baseclass.*

❑ Second, you need to define your content provider URI address which will be used to access the content.

❑ Next you will need to create your own database to keep the content. Usually, Android uses SQLite database and framework needs to override *onCreate()* method which will use SQLite Open Helper method to create or open the provider's database. When your application is launched, the *onCreate()* handler of each of its Content Providers is called on the main application thread.

❑ Next you will have to implement Content Provider queries to perform different database specific operations.

❑ Finally register your Content Provider in your activity file using <provider> tag

Content Provider In Android Studio (Simple Steps) (c-sharpcorner.com)

❑ Anubhav Pradhan, Anil V Deshpande, "Composing Mobile Apps using Android", Wiley Edition, 2014

❑ https://www.tutorialspoint.com/android/android_application_components.htm

❑ https://www.javatpoint.com/android-core-building-blocks

http://yuliana.lecturer.pens.ac.id/Android/Download/ppt/