Homework Week Two Day 4

Research

1. **Come up with some use cases in which a content provider would be helpful.**

A content provider coordinates access to the data storage layer in your application for a number of different APIs and components. The following are some of the use cases that content providers would be helpful:

* Sharing access to your application data with other applications
* Sending data to a widget
* When you want to implement custom search suggestions in your applications
* When you want to copy and paste complex data or files from your application to another.

1. **How does file streams work in JAVA?**

Streams are the sequence of bits/data. Two type of streams are input and output streams. Java provides strong but flexible support for I/O related to files and network. There are byte streams, character streams, and standard streams. FileOutputStream is used to create a file and write data into it, whereas FileInputStream is used to read data from a file. In FileOutputStream, the stream would create a file, if it doesn’t already exist before opening it for output. First, you will have to create an output stream object to write the file, then you need to create a file object using the File() method. Once you have OutputStream object in hand, then there is a list of helper methods, which can be used to write to stream or to do other operations on the stream.

1. **Explain the process of implementing a content provider, and to get the info from a content provider.**

A content provider manages access to a central repository of data. A provider is part of an Android application, which often provides its own UI for working with the data. However, content providers are primarily intended to be used by other applications, which access the provider using a provider client object. Together, providers and provider clients offer a consistent, standard interface to data that also handles inter-process communication and secure data access. You have two option in working with content providers, by implementing a code to access an existing content provider in another application and the other option is if you want to create a new content provider in your application to share data with other applications.

1. **What is a vector drawable and how do we implement and use them in android?**

Vector drawable is a vector graphic defined in an XML file as a combination of points, curves, and lines along with its associated color information. We used vector drawable for its image scalability for the reason to be able to scale image without the loss of display quality. In other words, the same file gets resized for different screen densities without loss of image quality. VectorDrawable can be represented as a tree hierarchy. Geometry is defined in the Path tag which are all the leaves of this tree. All the path descript and joint attributes are inside this tag. All path will be joined in the single order as it appears in the XML file. VectorDrawable supports SVG’s path spec, allowing you to specify one or many shapes to drawn. The <vector> element contains one or many <path> elements. They can be named (for later reference e.g. animation) but crucially must specify a pathData element which describes the shape.

5. **Define the following**:

1. Content Resolver

Content Resolver is an instance in an application to get data from a content provider. Content Resolver instance can be obtained by Activity’s getContentResolver() method. You can then invoke the ContentResolver’s method to insert, delete, update and query data that another content provider shared, just like a SQLite database operation.

1. Primary Key (Sql)

A primary key in Sql is a field in a table which uniquely identifies each record/field in a database field. A primary key column cannot have NULL values. A table can have 1 primary key, which consists of single or multiple fields.

1. Foreign Key (Sql)

Foreign key in Sql is a column that references a primary key or column of another table. The purpose of a foreign key is to make sure the reference integrity of the data. Below is an example:

Table ***CUSTOMER***

|  |  |
| --- | --- |
| Column Name | Characteristic |
| ID | Primary Key |
| Last\_Name |  |
| First\_Name |  |

Table ***ORDERS***

|  |  |
| --- | --- |
| Column Name | Characteristic |
| Order\_ID | Primary Key |
| Order\_Date |  |
| Customer\_ID | Foreign Key |
| Amount |  |

1. Relational Database

Relational database is a collection of data with predefined relationships between one another. These data items are organized as a set of tables with columns and rows. The purpose of a table is to hold information about the objects to be represented in the database. Each column holds data and a field stores the actual value of an attribute. Each row represents a collection of related values of one entity. Each row could be marked with a primary key and rows among multiple tables can be made related using foreign keys.

1. Dangerous Permissions

Dangerous permissions are permissions that could affect the user’s privacy or device’s operation. The user must agree to grant those permissions. Some operations would be granting the access to the camera, contacts, location, microphone, SMS, storage and sensors.

6.**What is a ORM**?

ORM is an Object Relational Mapper. ORM allows users to write queries using the object oriented paradigm of your preferred programming language. In other words, ORM will let users to interact with the database using the user’s language of choice instead of limited to SQL.

Some pros of using ORM:

* User gets to write in his/her chosen language.
* It abstracts itself away from the database system.
* ORM supports are mostly available, such as transactions, connection pooling, migrations, and streams.
* Many of the queries you write will perform better.

Some cons of using ORM:

* You do better to write queries yourself if you’re really good with SQL.
* There is an overhead involved in learning ORM.
* The initial configuration in ORM is difficult.
* It doesn’t make you understand databases better by using ORM.

7. **Explain how you would upgrade a Table in your database with a new column while preserving the data already in said table**.

You would need to upgrade a Table in the database with a new column by changing the version of your database to a higher number. First, you will need to backup the data of the said table. Then, you will then need to execSQL drop query to drop the first table. Then, create a new table with the newly added column. You will then need to insert all the values from the backup data to the new table.