Database for Mobile Application

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ABSTRACT

As we know that database is a collection of interrelated data i.e. it is composed of collection of files that are linked in such a way that information from one of files may be combined with information from other files so that the user may receive the exact information as he/she needed. E.g. Consider the names, telephone numbers and addresses of people you may know is a collection of related data and hence database.

Mobile development has become a part of the software industry and it is being present everywhere. In order to develop a mobile we require a database for it and that database is called mobile database.

More and more mobile applications need data to work, and databases are the most common way of storing and managing data. So, a mobile application uses a database that is hosted in the cloud, and connects remotely to it in order to access its data.

The aim of this paper is to know about the databases that are required for the mobile applications.

Keywords: NOSQL, SQL, XML documents, JSON documents

I. INTRODUCTION

Mobile database is a stationary database used for mobiles that can be connected to mobile computing device over a mobile network, or we can also say that mobile database is a database that is actually stored by a mobile device. A mobile application also referred to as an app, is an application software that is designed to run on a mobile device, such as a smartphone or tablet computer. Apps are generally small, individual software units with limited function. A mobile application may also be known as an app, web app, online app, iPhone app or smartphone app. Every mobile that we use today has some inbuilt applications and we can also download other applications too. With mobile databases, user have access to corporate data on their laptop, PDA, or other internet access device that is required for applications at remote sites. The various components of mobile database environment includes:

➤ The corporate database server and the DBMS that deals with and stores the corporate data and provides the corporate applications.
➤ A mobile database platform that includes PDA, laptop or other internet access devices.
➤ The two-way communication links between the corporate and the mobile DBMS.

II. ISSUES IN MOBILE DATABASES

The two main issues associated with mobile databases are the management of mobile database and the communication between mobile and the corporate databases. In the below section we identify the requirements of mobile DBMSs.

The functionality required for the mobile DBMSs includes the capability to:

➤ Communicate with the centralized database server or primary database server.
➤ Coordinate the data on centralized database server and mobile device.
➤ Capture the data from a range of sources such as internet.
➤ Create personalized and customized mobile applications.

III.   POPULAR DATABASES FOR MOBILE :

Databases for mobiles need to be:
- ➢ No server requirement.
- ➢ Fast and secure.
- ➢ Lightweight, because storage is limited on mobile devices.
- ➢ Low memory and power consumption.

There are lots of mobile databases but some of the most popular databases for mobile apps are:

SQLite

SQLite is a relational database, and it is a lighter version of SQL that is designed for mobile. SQLite is an embedded SQL database engine that is without any separate server process, unlike any other SQL database. SQLite supports all relational databases features and is an open source also which is by default present in two main mobile operating systems i.e. Android and iOS, and supported by blackberry and windows phone. SQLite is very fast and need very less memory to operate.

Berkeley Database

Berkeley database is a high performance embedded database and is an open source also that allows us to handle data in different ways. It can be in relational way like SQLite, or it can be in key/value pair data and it can also support multiple data items for a single key. Berkeley database supports java objects as data or it can also be XML documents. Berkeley database can work both as a relational database as well as NOSQL database depends on which library we are using.

Couchbase Lite

Couchbase Lite database is powerful NOSQL embedded JSON database. In Couchbase Lite, the data is stored as JSON documents. Each document in Couchbase Lite can have one or more attachments which is stored and loaded separately. We can also say that Couchbase Lite is a document-oriented database.

Realm Database

Realm Database is also a relational database in which data can be queried, filtered and interconnected but also have objects which are live and fully reactive. Realm database is developed by Realm which is designed to run on mobile devices. It is server less and cross-platform like SQLite.

IV.   CHARACTERISTICS OF MOBILE DATABASE

The various characteristics of mobile databases are:
- ➢ Mobile database have limited resources.
- ➢ It should have limited power supply.
- ➢ Restricted bandwidth of wireless networks.
- ➢ Mobility.
- ➢ Disconnections.

V.   ADVANTAGES AND DISADVANTAGES OF MOBILE DATABASE

- • Centralized portability number database not needed.
- • Involves donor network during call setup

VI.   CONCLUSION

Mobile application development is one of the most dynamic area in IT industry. Database is very important while we are building any application. Without database we cannot built any application. Database plays a very important role in mobile application. In order to run a mobile app, we require a database for it to run the app and the database that will run on the mobile app is called as mobile database. In this paper, we learnt about various mobile databases that we are using today.

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