Difference Between RDBMS And DBMS

DBMS or Database Management System and RDBMS or Relational Database Management system are based on the technology of storing data and using the database for data storage. A database in which both of them are tasked to manage is simply a collection of data. Data that gets stored in a database is of structured format.

This structuring layer to the data allows the database to prove useful in storing, managing, and retrieving the data when the need to do so arises. In the ancient times of computer technology, the information which was generated had to be stored and organized in a technology we rarely see these days, the technology of tapes. The one salient disadvantage of using the tape-based storage solution was the data's inability to be reread from the need to resolve this issue, a database as born

Database has since then proven to be an indispensable solution for all the data storage related needs. As the databases and the use of databases grew, the need for a robust way to manage databases also reared its head. Hence, the technology of both DBMS and RDBMS came into the picture.

DBMS

The DBMS or Database Management System is a software that was created with the sole purpose of storing and managing the data. Unveiled in the 1960's it offers an entire suite of data manipulation tools like deletion, insertion, and updating of data into a database. DBMS is also responsible for creating, refining, defining, and control the database. DBMS technology has allowed businesses and individuals to work closely with databases and get precisely the information they require

RDBMS

RDMBS adds the R of relational to the existing Database management technology. Created in the 1970s, RDBMS was designed to be a more sophisticated version of DBMS. RDBMS also adds a degree of finesse for the organization or the individuals accessing the data stored in the database.

One key feature of RDBMS is that it can only keep the tabular form of data. Data in RDBMS is stored and sorted in the form of rows, columns (also called tuples and attribute in the DBMS language). RDBMS definitely packs more power than the vanilla DMBS, which is why this has been accepted far and across the world.

DBMS vs. RDBMS

Now that we are aware the meaning of both RDBMS and DBMS, we can now discuss the difference between DBMS and RDBMS, so listed below are some differences which we see between DBMS vs. RDBMS right of the bat:

1. In DBMS, the data is stored as a file, while in RDBMS, the information is stored in tables.

2. DBMS can only be used by one single user, whereas multiple users can use RDMBS.

3. Client-server side interaction and architecture are only supported in RDBMS, whereas DBMS does not support client-server side interaction.

4. DBMS is actually lighter in its hardware and software requirements than RDMBS. To run RDMBS properly, you would need a more powerful machine.

5. In DBMS, there can be redundancy of data. Meaning data can be repeated when we are using DBMS. Whereas, in RDBMS, due to the indexing present, we cannot have redundant data.

These were some critical differences between DMBS and RDMS. In the table below, you will find a more comprehensive comparison of the two:

DBMS	RDBMS
The data storage in DBMS is done in the form of a file.	Tables are used to store data in RDBMS.
In DBMS, the data is stored in a navigational format or using a hierarchical arrangement.	The tables which are used by RDBMS stores the data in the form of rows and columns. With the help of the column name and the row index, any information can be easily extracted.
Only one user can use DBMS.	More than one user can use RDBMS.
Usually, the database may not use the ACID form of data storage, which could bring in some issues that can lead to more significant problems in the future.	Because Relational Databases use the ACID model, the construction of them becomes problematic. However, this difficulty is easily countered by the benefits of using an ACID model.
This program was developed to manage the data which is stored in the computer (usually in the hard disk of a computer).	This program is used to maintain the relationship of the various tables in a database.
There is not much need to have suitable hardware and software to run DMBS software properly.	A good set of both hardware and software is needed to run the program of RDBMS properly.
The support of integrity constants is just not present in DBMS.	RDBMS has the support for integrity constants.
The program of DMBS cannot be normalized.	The program of RDBMS supports normalization.
There is no support for distributed databases in DBMS.	RDBMS allows for distributed databases.
DBMS was not made to handle a huge amount of data.	Whereas RDBMS can actually handle a very high amount of data.
Getting the data which is stored in a DBMS is very.	Because of the relational model, the data stored in RDBMS is straightforward to access.

There is absolutely no relationship established in the data when using a DBMS model.	In Relational DBMS, the data is stored, and the relationship between the information is established with foreign keys' help.
There is a lack of security in the DBMS model of storing data,	There are several log files created, which automatically increases the security of the data stored in the RDBMS model.

Why DBMS?

Database management systems enhance performance, integration, security, and compliance throughout an organization. The system offers many benefits over the traditional file system, including the following:

- It helps maintain data uniformity
- Handles large set of data efficiently
- Versatile
- Faster way of managing data

Some of the earlier version examples of DBMS are FoxPro, Clipper, RDBMS, etc.

Why RDBMS?

An RDBMS offers businesses a systematic view of data, which can be used to enhance different aspects of decision-making. Relational databases offer a number of other advantages as well, including:

- Allow multiple user access
- Store large pack of data
- Minimum Data Redundancy
- Maintains Data Integration
- Better tools for structuring and Organizing Data
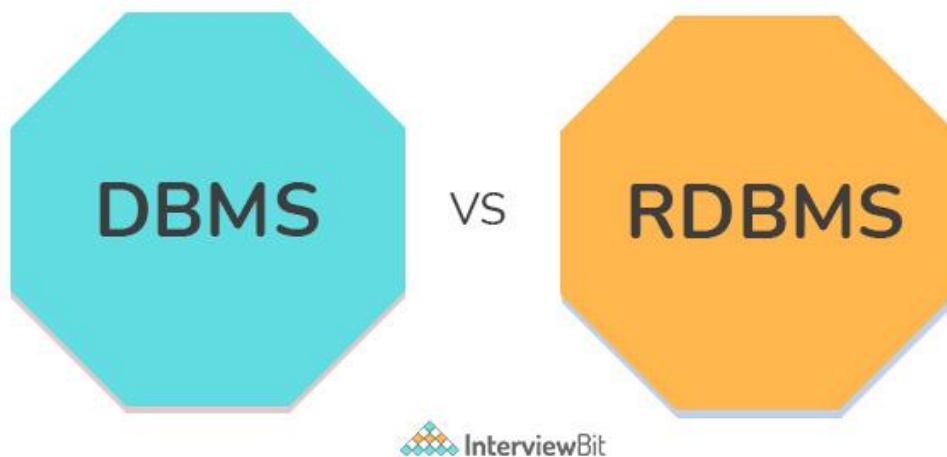
We are now aware that both database management system and relational database management system is a type of software that manipulates and manages large databases at one place.

The terms "DBMS" and "RDBMS" stand for Relational Database Management and database management systems, respectively. The main difference between DBMS and RDBMS is that RDBMS stores data as tables and DBMS stores data as a file. See the table below to understand the differences between DBMS and RDBMS.

Parameter	DBMS	RDBMS
Function	DBMS is system software for creating, storing, managing, updating and retrieving data from databases.	RDBMS is software that allows the creation and management of databases in a tabular format for efficient retrieval, updating, and storage of data.
Storage	In DBMS, the storage of data is in the files. It is arranged either in a hierarchical form or navigational form.	In RDBMS, the data is stored in tables. There is no hierarchy and instead, follow a relational model. Columns are the headers and rows contain the corresponding values.
Number of Users	Database Management System can only support a single user.	Relational Database Management System allows access to multiple users to the databases.
Normalization (organizing data in the database)	DBMS does not support normalization.	Normalization is enabled in RDBMS. In fact, it was introduced by Edgar F. Codd for his relational database model.
Data Type	DBMS cannot store large quantities of data.	RBMS allows users to store a large set of data.

	In the database management system, there are no relationships amongst the data stored.	In RDBMS, there are relationships formed amongst the data stored in tables.
Data Relationships	In the database management system, there are no relationships amongst the data stored.	In RDBMS, there are relationships formed amongst the data stored in tables.
Data Fetching	The process of data fetching in DBMS is slow.	The process of Data Fetching is faster, and efficient in RDBMS because of its relational model.
Distributed Databases	DBMS does not support the distribution of databases. A distributed database is a database that can be stored at different locations.	RDBMS supports distributed databases.
Data Redundancy	The version of DBMS increases data redundancy (repetition of data).	In RDBMS, data redundancy is eliminated that reduces wastage of time and resources.
Hardware and Software Requirement	DBMS needs minimum software and hardware requirements.	In RDBMS, hardware and software requirements are higher than the classic DBMS.
Data Integrity (the integrity constraints that allows to maintain the accuracy and consistency in the databases)	Database Management System does not support any data integration constraints or methods.	The Relational Database Management System supports data integrity constraints.
Data Access	In DBMS, you can access only a single file from a single database.	In RDBMS, you can access multiple data at a single time.
Data Security	DBMS is more prone to data theft, and access to unauthorized users because it does not allow any data security measures.	RDBMS supports security measures and is more secure than the traditional RDBMS.
ACID Properties (The ACID properties are necessary to ensure data consistency)	DBMS does not support any ACID properties.	RDBMS supports ACID properties and ensures no data inconsistencies.
Data Client-Server	DBMS does not support client-server architecture.	RDBMS supports client-server architecture
Examples	XML, File system, window registry, etc are some of the examples of database management systems.	Oracle, MYSQL, SQL Server, etc. are some of the examples of Relational Database Management Systems.

Conclusion

Database Management Systems and Relational Database Management Systems are both system software for creating, managing and storing databases. A relational database management system (RDBMS), however, is a more advanced version of the traditional database management system (DBMS) that is able to facilitate better tools and features than the traditional DBMS. DBMS stores data hierarchically and in a file

format without any relationship between the data, whereas RDBMS stores data in a tabular format.

RDBMS and DBMS differ greatly in terms of their structures. As DBMS was the first version of the software for maintaining databases, it does not include features for data security, data integrity, data access, multiple-user access, or faster data retrieval. The RDBMS is faster, more efficient, and ensures there are no data redundancies or inconsistencies. In a nutshell, there is no line set in stone that proves RDBMS is the best form of database management system out there. While there are different types of database management systems, RDBMS is by far the best, and faster than DBMS.