

Database Management



education
Department: Education
GAUTENG PROVINCE

What is a Database?

- * A Database is a collection of information that has been organised into meaningful data.
- * Example of this is the information that the school collected on all the learners enrolled in the school.
- * All the information obtained in the enrolment form was captured in a database software management package.
- * The information is now meaningful data and can assist in the day to day operation of the school.

Examples of data that could be obtained.

- * You can get a list of all the grade 11 CAT learners in seconds.
- * You can get a list of all the teachers who are involved in teaching a certain learner.

Database Management Software

- * IT is very important for you to understand database management software (DBMS)
- * When you ensure that you understand the software it will assist you in understanding the role of a database manager.

What is DBMS

- * This is software that will allow you to work with an electronic database
- * In stead of using paper and a filing cabinet to keep record of the data, you can make use of DBMS to capture the information and produce useful data

Different tasks that can be performed

- * DBMS is designed in such a manner that it enables the user to:
 - * Design a database
 - * Add records to the database
 - * Edit any part of the record
 - * Delete records
 - * Edit the structure of the database
 - * Extract data by using queries and reports

Different types of DBMS

- * Microsoft SQL Server
- * Oracle
- * Microsoft Access
- * Blackfish
- * Open source databases, e.g. PostgreSQL, MySQL

Microsoft SQL Server

- * Is a relational database management system which was developed by the Microsoft group. It's main function is to store and retrieve data as requested by other software applications, for example programming languages.
- * There is different types of Microsoft SQL server available.

Different Microsoft SQL Server

- * SQL Server is offered in several editions with different feature set and pricing options to meet a variety of user needs, including the following:
 - * Enterprise: Designed for large enterprises with complex data requirements, data warehousing and Web-enabled databases. Has all the features of SQL Server, and its license pricing is the most expensive.
 - * Standard: Targeted toward small and medium organizations. Also supports e-commerce and data warehousing.
 - * Workgroup: For small organizations. No size or user limits and may be used as the backend database for small Web servers or branch offices.
 - * Express: Free for distribution. Has the fewest number of features and limits database size and users. May be used as a replacement for an Access database.

<http://www.techopedia.com/definition/1243/sql-server>

Oracle

- * Oracle database (Oracle DB) is a relational database management system (RDBMS) from the Oracle Corporation.
- * Originally developed in 1977 by Lawrence Ellison and other developers, Oracle DB is one of the most trusted and widely-used relational database engines.
- * The system is built around a relational database framework in which data objects may be directly accessed by users (or an application front end) through structured query language (SQL).

<http://www.techopedia.com/definition/8711/oracle-database>

Microsoft Access

- * Microsoft Access is a pseudo-relational database engine from Microsoft. It is part of the Microsoft Office suite of applications.
- * Access uses the Jet Database Engine for data storage. (We will discuss this further when doing SQL).
- * Access is used for both small and large database deployments. This is partly due to its easy-to-use graphical interface, as well as its interoperability with other applications and platforms such as Microsoft's own SQL Server database engine and Visual Basic for Applications (VBA).

<http://www.techopedia.com/definition/1218/microsoft-access>

Blackfish

- * Blackfish SQL is a high-performance, small-footprint, SQL-92 compliant transactional database.
- * Blackfish SQL runs on both the .NET framework and on the Java platform.
- * Database files are compatible between the two platforms.

<http://cch4sql.blogspot.com/2009/04/what-is-blackfish-sql.html>

Open source databases, e.g. PostgreSQL, MySQL

- * An Open Source database is a base for data that includes Free and Open Source Software FOSS / FLOSS licensed code.
- * Open source software is software that makes the source code available to anyone. The user is allowed to implement, share and further develop the database software to suit various needs

http://it.toolbox.com/wiki/index.php/Open_source_database

PostgreSQL

- * This is a relational database management software with a university research project history.
- * It is the probably the most sophisticated open-source database available but is not SQL-92 entry-level-compliant (although it is close and is developing very quickly). It currently supports almost all SQL
- * It is the fastest open-source database when supporting a high number of concurrent users and transaction logging.

http://www.wmo.int/pages/prog/wcp/wcdmp/wcdmp_series/documents/WCDMP46_Annex7.pdf

MySQL

- * IT was originally developed as an SQL server that could handle very large databases, much faster than any other database.
- * It has been successfully used operationally with databases containing 10,000 tables, of which more than 500 tables have more than 7 million rows - about 100 gigabytes of data.
- * It supports C, C++, Eiffel, Java, and Perl, APIs (among
- * others).

http://www.wmo.int/pages/prog/wcp/wcdmp/wcdmp_series/documents/WCDMP46_Annex7.pdf