Database design

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**Database Design**

Databases are systems of files (tables) in which “raw facts” (data) Coronel, Morris, Rob (2013) are safely stored and converted into useful information for later use where database administrators grant access to authorized end-users.

Decision makers base their decisions on information stored in databases, the more information available the better. “(DBMS)” Coronel, Morris, Rob (2013) or Data Base Management Systems is useful software in charge of connecting users with the database information in a friendly way. People can use databases for inventory purposes, personnel management, research, and countless of uses. The information in databases needs to have specific criteria when stored. For instance if it is an integer number it has to have a minimum of digits and a maximum depending on the field; if it is a real number, how many trailing decimals. In case of a date it has to keep the same format, ANSI (yyymmdd), British (mm/dd/yyyy), French (dd/mm/yyyy), and so on. Also the number of digits for year would be (two or four format).

There are different types of databases, depending on how many users they support: single user database (for that running on an isolated computer), and multi user database (for that supporting multiple users at any given time). Also there are workgroup databases when they have less than 50 users, and enterprise databases when they have more than 50 users. Depending on the location of the information: centralized and distributed databases. Centralized are those where the information is in one place and distributed are those where the information is in several locations. According to the type of data saved they can be general-purpose or discipline-specific databases. General-purpose databases are used for schools, clubs, and other common uses. Discipline-specific databases focus on topics like Alzheimer research, weather forecast, or Autism research. There are also operational/production/transactional databases for everyday business transactions, and analytical databases for storing historical information. The last classification refers to how the data is structured: unstructured, structured, and semi-structured. (XML) or Extensible Markup Language databases use unstructured and semi-structured data (Coronel, Morris, Rob, 2013).

According to Wikipedia.org, “Database architecture is a schema of the actual database technology that will support the designed data architecture”. The most common databases are: MS MySQL™, MS Access™, IBM DB2™, MS SQL Server™, and Oracle RDBMS™ (Coronel, Morris, Rob, 2013). All these DBMS have the same features but MS Access that it does not have and enterprise, distributed, analytical, or XML version (Coronel, Morris, Rob, 2013). The rest listed above have both single and multi-user, workgroup and enterprise, centralized and distributed, operational and analytical, and XML versions (Coronel, Morris, Rob, 2013). “Database architecture focuses on the design, development, implementation and maintenance of computer programs that store and organize information for businesses, agencies and institutions.” (<http://degreedirectory.org/articles/What_is_Database_Architecture.html>).

For instance to create an IBM DB2 database the following steps need to be done: create a database storage group, create a database inside the database storage group, the SYSADM will assign rights for the DBA to use the database, the DBA will create the table space and tables in the table space and assign access rights to the table spaces and tables (Coronel, Morris, Rob, 2013). IBM DB2 has new improvements like better analytics, performance, administration, streamline advancement, and cheaper management.

At work they use Oracle and they do a great deal of web base applications with ASP.NET, so they must use XML databases. Because it is an international company with branches all over the world, they should have centralized and distributed databases.

**References**

[Coronel, C., Morris, S., & Rob, P. (2013).](javascript:MAUI.WebCMS.materials.materialLinks('46',%20'/secure/resource/vendors/eBook/eBook.asp?assetdataid=ab7bb5f3-baf3-434d-8acd-42312eca957b&assetmetaid=55f90143-2424-4787-98b6-1c4d198aea2d',%20'IC-Materials',%20'DBM380R9',%20'ST',%20'False');" \t "_self)*[Database systems: Design, implementation, and management](javascript:MAUI.WebCMS.materials.materialLinks('46',%20'/secure/resource/vendors/eBook/eBook.asp?assetdataid=ab7bb5f3-baf3-434d-8acd-42312eca957b&assetmetaid=55f90143-2424-4787-98b6-1c4d198aea2d',%20'IC-Materials',%20'DBM380R9',%20'ST',%20'False');" \t "_self)*[(10th ed.). Boston, MA: Course Technology.](javascript:MAUI.WebCMS.materials.materialLinks('46',%20'/secure/resource/vendors/eBook/eBook.asp?assetdataid=ab7bb5f3-baf3-434d-8acd-42312eca957b&assetmetaid=55f90143-2424-4787-98b6-1c4d198aea2d',%20'IC-Materials',%20'DBM380R9',%20'ST',%20'False');" \t "_self)

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