Characteristics and Types of Database by Imran Zafar

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A database is an integrated collection of computer data, organized and stored in a manner that facilitates easy retrieval. Two primary goals of the database are to minimize data redundancy and to achieve data independence. Data redundancy is the duplication of data that is, the same data is stored in multiple files. Data independence is the ability to make changes in data structure without making changes to the programs that process the data. Data independence is accomplished by the placing of data specifications in tables and dictionaries that are physically separate from the programs.

Characteristics of Database:

It is a centralized and integrated shared data file which consists of all data used by a company.

It is organized and structured in a different manner than the conventional sequential file organization.

Its organization permits access to any or all data quantities by all applications with equal ease.

Its organization is such that duplication of data is minimized if not eliminated entirely.

It emphasizes the independence of programs and data. It involves the concept of separating data definition from the applications programs and including it as part of the database.

It provides for the definition of logical relationships which exist between various records in the database.

It is stored on a direct-access storage device.

Types of Databases:

Continuing developments in information technology and its business applications have resulted in the evolution of several major types of databases. There are six major conceptual categories of databases that may be found in computer using organizations.

Operational Databases: these databases store detailed data needed to support the operations of the entire organization. They are also called subject area databases (SASD), transaction databases, and production databases. Examples are a customer database, personnel database. inventory database, and other databases containing data generated by business operations.

Analytical Databases: these databases store data and information extracted from selected operational and external databases. They consist of summarized data and information most needed by an organization's managers and other end users. Analytical databases also called management databases, or information databases. They may also called multidimensional databases, since they frequently use a multidimensional database structure to organize data.

Database Warehouse: a data warehouse store data from current and previous years that has been extracted from the various operational databases of an organization. It is a central source of data that has been screened, edited, standardized, and integrated so it can be used for a variety of forms of business analysis, market research, and decision support. Data warehouse may be subdivided into data marts, which hold specific subsets of data from the warehouse. A major use of data

warehouse database is data mining. In data mining the data in a data warehouse are processed to identify key factors and trends in historical patterns of business activity. This can be used to help managers make decisions about strategic change in business operations to gain competitive advantages in the marketplace.

Distributed Databases: Many organizations duplicate and distribute copies or parts of databases to network servers at a variety of sites. These distributed databases can reside on network servers on the World Wide Web, on corporate intranets or extranets, or on other company networks. Distributed databases may be copies of operational or analytical databases, hypermedia or discussion databases, or any other type of database.

End User Database: these databases consist of a variety of data files developed by end users at their workstations. For example, users may have their own electronic copies of documents they download from the World Wide Web, generate with word processing packages, or receive by electronic mail. Or they may have their own data files generated from using spreadsheet and DBMS packages.

External Databases: access to a wealth of information from external databases is available for a fee from commercial online service, and with or without charge from many sources on the Internet, especially the World Wide Web. Web sites provide an endless variety of hyperlinked pages of multimedia documents in hypermedia databases for accessing. Data is available in the form of statistics on economic and demographic activity from statistical data banks. Or users can view or download abstracts or complete copies of hundreds of newspapers, magazines, newsletters, research papers, and other published material and other periodicals from bibliographic and full text databases.

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