DATABASE

A database is conceived as a system whose base, whose key concept, is simply a particular way of handling data. In other words , a database is nothing more than a computer-based record keeping system. The overall objective of a database is to record and maintain information.

The Macmillan dictionary of information technology defines ` a database as a collection of interrelated data stored so that it may be accessed by authorized users with simpler user-friendly dialogues'.

Sharing of information through electronic mail, FTP, TELNET, GOPHER, online facilities or a terminal is possible if a database is present. A database is an organized, integrated and logically interrelated collection of data,records,files or information, where data is collection of facts, figures and statistics which can be processed to produce meaningful information.

Properties of Databases

A database is designed to avoid duplication of data as well as to permit retrieval of information to satisfy a wide variety of user information needs. Major properties of database can be summarized as follows: -

- It is integrated with provisions for different applications
- It eliminates or reduces data duplication
- It enhances data independence by permitting application programs to be insensitive to changes in the database
- It permits shared access
- It permits finer granularity, and
- It proves facilities for centralized control of accessing and security control functions.

Design and development of a database

Development of a database, irrespective of its size and complexity, requires many coordinated activities. System analysis is a standard procedure which involves: -

- Analysis of the data requirements
- Logical database definition
- Physical database definition
- Implementation
- Evaluation

Objectives of database development

The database will be developed to retrieve the documents or information required by the specific user community. It should make right information available to the right user. Thus a database system aims at collecting and organizing information in one or more subject areas in order to provide it to the user as soon as sked for. The objectives of database development may be put forth as :-

- To make the data available to wide variety of users
- Maintaining privacy, security, quality and integrity of databases
- Centralized control of database

TYPES OF DATABASES

Computer technology has made possible the creation of many new types of documents. Such new documents exist only inside a computer system in digital format. Documents of this sort are created using an appropriate authoring tool, stored in a computer's memory system and subsequently displayed using suitable audio and/or visual display technologies.

Electronic documents are acquired in format and published by releasing them to a central database. They can then be distributed through communication links like CDs. Such documents can be browsed quickly using a computer. Such documents can be text, static pictures, sound, animation , motion pictures and various tactile modes of communication.

Databases may be stored on a magnetic tape, disk and optical media such as CD-ROM. It can be accessed either locally or remotely. Some of the databases hold publiclyaccessing information such as abstracting and indexing databases full text of reports , encyclopedia and directories , whilst other databases will be databases that are shared within a group of institutions.

According to Jennifer Rowley- "Databases that might be available to information users in the public arena and which might be accessed either remotely via an online search service , or more locally on CD-ROM, can be categorized as either reference or source database

Reference Databases

Records of reference database refers actual location of document, which provides full content of document and can be accessed by the user to approach it. According to Jennifer Rowley ` Reference database refer or point the user to another source such as document, an

individual for additional information, or for the full text of the document' It can be categorized such as:

Bibliographic Databases

A bibliographic database can be a library catalogue or a database of dissertations and thesis, or a database of research papers published in technical journals or conferences etc. In bibliographic databases the data stores comprise inputs of bibliographic details of a document for identification storage and retrieval purposes, under bibliographic records. A bibliographic records comprises of fields like document number, title, author(s), ISBN, publisher, year, imprints, source reference, abstracts, full text ,indexing words or phrases , citation ,local information such as classification number, book number, location etc.

Bibliographic Databases can be divided in two categories according to cataloguing point of view:

- Cataloguing Bibliographic databases
  - Books
  - Serials
  - Articles in periodicals
  - Proceedings of conferences, subject reports etc.
  - Manuscripts, thesis etc.
  - Non book materials like maps, audio, video, microfilm, microficheetc.
- Non-Cataloguing Bibliographic databases:
  - Abstracting and indexing database
  - Citation index database
  - Experts database
  - Research Projects Database

Catalogue Databases

It shows the stock or library collection or holding details or library network. List of resources such as databases list like monographs, journal titles and other items, but do not give much information n the content of these documents. Catalogue databases have little difference from bibliographic databases, but it's also one of the bibliographic databases viz. special bibliographic database. According to the area and coverage of library network, it may be divided into following categories

a) Local Area Network Database

Network in a campus or an institution like single university campus network viz. University of Roorkee, single institution network such as IIT Bombay,IIT Kanpur etc. All these cover Local Area Network(LAN) . It covers single university / institute library databases holding details

b) Metropolitan Area Network Database

Same as a city network like DELNET, ADINET, or PUNENET etc. comes under Metropolitan Area Network(MAN). It might be contained library collection of a city. It could cover more than one library's holding details.

c) Regional Network Database

A proposed network like INELIBNET stands for North-East India Library network. It's region wise, called regional network. It comprises more than one cities or states library holdings.

d) National Database

A network support nation wide , called National networks, such as INFLIBNET(Information and Library Network) ,NICNET etc. It hosts union databases of all academic,R&D institute, national institute' libraries etc.

e) International Database

f) A network like OCLC(Online Computer Library Networks) and INTERNET that has outgrown its local,regional and national characters and is used all over the word.

Referral Databases

It offers references to information or data such as the names and addresses of organizations, and other directory-type data. All authority databases such as author, publisher,institution, series etc. comprise this category. They function as a switch to connect the users with sources which may provide correct information. Chemical Abstract Service Source Index, Research in Progress are examples of this type.

Source Databases

Source databases Source databases contain the original source data in the machine-readable form and therefore may be regarded as one type of electronic document. After successful consultation of a source database, the user should have the information that is required and should not need top seek information in an original source (as is the case with reference database). Data are available in machine readable form as well as printer form. It can be grouped according to their content.

- Numeric databases, which contains numerical,statistical or survey data
- Full text databases of books, journals,magazines,newspapers, technical specifications and software etc.
- Text-Numeric(Alpha numeric) databases, which contains a mixture of textual and numerical data (such as annual reports) , handbook data, telephone directory, railway timetable directory etc.
- Multimedia databases , which include information stored in a mixture of different types of media including for instance sound, video, pictures, text, hypertext and animation.

Other Databases

Databases can also be categorized by the organizations that produce them. Many of these databases are available in online and CD-ROM databases.

CD-ROM Databases

CD-ROM databases could have both reference and source databases. It could be whether online or as well as offline. It's just media of storage, but it's quite popular due to its storage capacity, ease to handle and transfer from place to place. As best, CD-ROM is a most effective for offline storage in addition to it is a mass storage for personal computers or scholar workstations for libraries.

DVD-ROM Databases

The CD-ROM can deliver decent multimedia right now and the DVD, with it's maximum capacity of 17GB, is currently the only credible true multi-media format. The advent of DVD and its gigabyte storage capacity has provided new potentials to expand the capacity of CD-ROM databases especially for multimedia applications. The DVD technology provides a storage capacity that is at least 6 to 7 times greater than an CD, in the same aerial space. The main feature of DVD is the compression technology and the storage data on multi-layer sides. There are various kinds of DVD's like DVD-ROM, DVD-Audio etc. Some ex. Of DVD-ROM databases are Webster's International DVD encyclopedia , Britannica DVD .

Online Databases

The silicon chip or the microprocessor unit has increases enormously the potentiality for data storage and processing as well as the same for memory capability in time to time. IN human-machine interaction the user can carry ion dialogue with a properly programmed

computer system by supplying data and key phrases. While the system responds with results on display or intermediate results or questions, the user can get his data with a multiple-choice format.

Online computer systems are usually `real time' systems. Such a real time computer interacts with process external to its system in real time, which means as they occur. The intake data are processed on arrival at the computer system and summarized instantaneously on the display service a output. There are many online system networks for access to many databases over the telecommunication network both for current information and retrospective databases.

One of the most widely used online information service is DIALOG. Other examples of such services include: OCLC, BLAISE etc. These services were the pioneers in the information environment. Some of the services of more recent origin include Pointcast, Individual Inc and desktop Data. One of the most crucial issues of online searching is the selection of appropriate databases.

A host's remote com0uter system can be accessed by directly dialing that computer's telephone number. Now a days many hosts can be accessed through their web address the user accesses the appropriate URL of the host service the internet.

Open Access

Open access means immediate, free and unrestricted online access to digital scholarly material. It is a broad international movement that seeks to grant free and open online access to academic information, such as publications and data. A publication is defined 'open access' when there are no financial, legal or technical barriers to accessing it - that is to say when anyone can read, download, copy, distribute, print, search for and search within the information, or use it in education or in any other way within the legal agreements.

Open access is a publishing model for scholarly communication that makes research information available to readers at no cost, as opposed to the traditional subscription model in which readers have access to scholarly information by paying a subscription (usually via libraries).

Open Access Databases: A selection of **databases** in all subject areas that are freely available on the Internet, including article indexes and abstracts, and occasional full texts. Multiple databases exist for open access articles, journals and datasets. These databases

overlap, however each has different inclusion criteria, which typically include extensive vetting for journal publication practices, editorial boards and ethics statements. Some examples of are:

- ✓ Academic Journals (http://www.academicjournals.org/journals.htm
- ✓ Bepress - http://www.bepress.com/
- ✓ Directory of Open Access Journals (DOAJ) - http://www.doaj.org/
- ✓ Biomed Central: the open Access Publisher - http://www.biomedcentral.com/
- ✓ CSIR Research Space - http://researchspace.csir.co.za/dspace/

Role of Databases in Dissemination of Information:

The retrieval of exact information has become a difficult task due to the exponential growth of information in all fields of human knowledge. Informationgeneration, collection, retrieval and dissemination through creation of databases and systematic information services are becoming essential to meet the increasing demand. The technological advances in computer and telecommunication simplify this job in a more sophisticated way. It has changed the way we perceive and disseminate information and help to access any remote information.

- Resource Sharing
- Bibliographic control
- ReferenceServices such as CAS/SDI etc.
- Easy retrieval
- Quick Service
- Remote accessible
- Onetime cost
- Multi accessing

Database has totally changed the scenario of resourcesharing, Current Awareness Service(CAS), Selective Dissemination of Information Service(SDI), Document Delivery Service(DDS) and inter library loan (IIL) etc. ibn other way sharing of sound , video etc. in digital form to libraries and its patrons have done a major role in dissemination of information . In addition databases are effecting the library services such as:-

- Online catalogue has major value to affect the document delivery.
- Another value of online catalogues to library of the future will be their availability as platforms for other online services.

FUTURE PROSPECTS OF DATABASES

One of the developments associated with World Wide Web is the availability of the abstracting and indexing and full text journal articles and other databases from their publishers direct to the tend user. Such services are already in place and being further developed within the academic community and they are likely to be mediated by the library. This adds a new chapter to their portfolio of their electronic services and additional challenges for statistical assessment. In the expanding resources of `virtual library' different measures are needed. Changes in the mode of technological availability have been rapid in the last decade , each innovation necessitating modification of approach.

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