## DATABASE SYSTEM

A database system is a computer based record keeping System whose overall purpose is to record and maintain information that is relevant to the organization necessary for making decisions.

With the growth of the database, these systems are used in various applications of real world such as

• Banking System and ATM's machines.

• Stock Trading Systems.

• Flight Reservation Systems.

• Computerized Library Systems.

• Super Market Product Inventory System.

• Credit Card/Credit Limit Check System.

Database can range from those of a single user with a desktop computer to those on mainframe computers with thousands of users.

## COMPONENTS OF DATABASE SYSTEM

A database system is composed of four components;

**• Data**

**• Hardware**

**• Software**

**• Users**

Which coordinate with each other to form an effective database system.

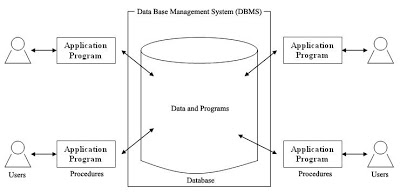


Fig. 1.1 Data Base System

**1. Data** - It is a very important component of the database system. Most of the organizations generate, store and process 1arge amount of data. The data acts a bridge between the machine parts i.e. hardware and software and the users which directly access it or access it through some application programs.

Data may be of different types.

• User Data **-** It consists of a table(s) of data called Relation(s) where Column(s) are called fields of attributes and rows are called Records for tables. A Relation must be structured properly.

• Metadata - A description of the structure of the database is known as Metadata. It basically means "data about data". System Tables store the Metadata which includes.

- Number of Tables and Table Names

- Number of fields and field Names

- Primary Key Fields

**•** Application Metadata - It stores the structure and format of Queries, reports and other applications components.

**2. Hardware** - The hardware consists of the secondary storage devices such as magnetic disks (hard disk, zip disk, floppy disks), optical disks (CD-ROM), magnetic tapes etc. on which data is stored together with the Input/output devices (mouse, keyboard, printers), processors, main memory etc. which are used for storing and retrieving the data in a fast and efficient manner. Since database can range from those of a single user with a desktop computer to those on mainframe computers with thousands of users, therefore proper care should be taken for choosing appropriate hardware devices for a required database.

**3. Software** - The Software part consists of DBMS which acts as a bridge between the user and the database or in other words, software that interacts with the users, application programs, and database and files system of a particular storage media (hard disk, magnetic tapes etc.) to insert, update, delete and retrieve data. For performing these operations such as insertion, deletion and updation we can either use the Query Languages like SQL, QUEL, Gupta SQL or application software such as Visual Basic, Developer etc.

**4. Users -** Users are those persons who need the information from the database to carry out their primary business responsibilities i.e. Personnel, Staff, Clerical, Managers, Executives, etc. On the basis of the job and requirements made by them they are provided access to the database totally or partially.

**The various types of users which can access the database are:**

• Database Administrators (DBA)

• Database Designers

• End Users

• Software Developers