Data Base concepts and structure

Information Systems Resources and Components People resources

1. **People resources,** include**:**

   a. **End Users:** are people who use an information system or the information it products. (Accountants, Vendors, Engineers, Customers, Managers).

   b. **Information Systems Specialists:** are people who develop and operate information systems. (System analysts, programmers, and system operators).

2. **Hardware resources** include**:**

   a. **Machines** (computers, video monitors, printers, optical scanners, magnetic disk drives).

   b. **Media** (flash disk, optical disk). Media is all tangible objects on which data is recorded from sheets of paper to magnetic disks.

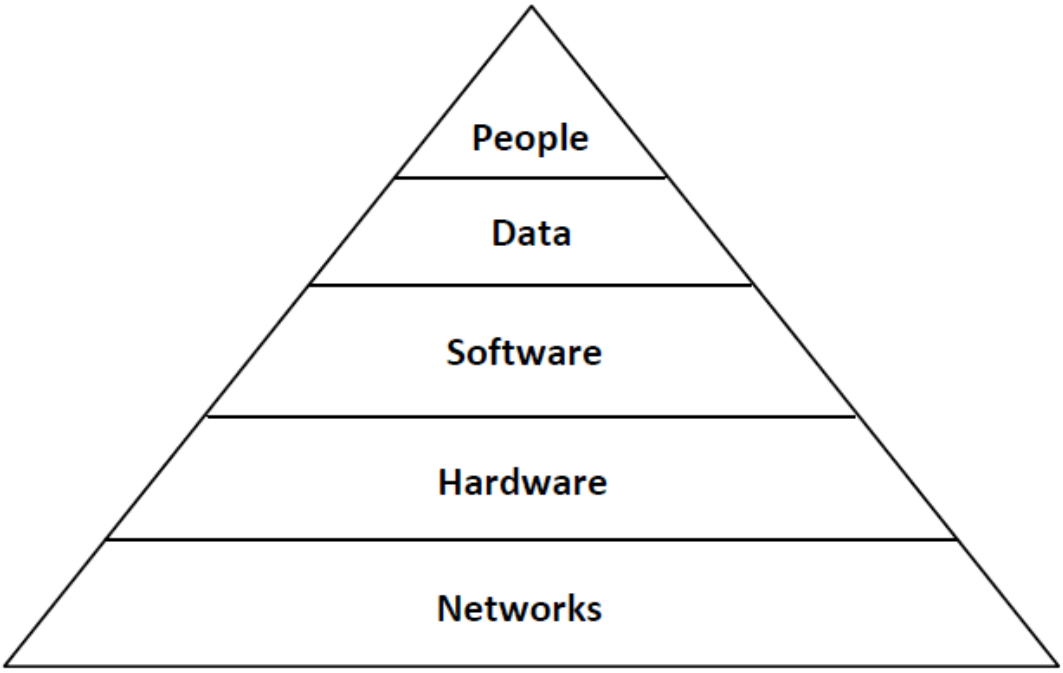
3. **Software resources** include**:**

   a. **Programs:** operating system programs, word processing programs.

   b. **Procedures:** which are operating instructions for the people who will use an information system. Examples are instructions for filling out a paper form.

4. **Data resources** include**:** (Customer records, employee files, inventory database).

5. **Network resources** include**:** (Communications media, network support, modems).



Information Systems Resources and Components

Computer Software

Software is needed to accomplish the input, processing, output, storage, and control activities of information systems.

Computer software is typically classified into two major types of programs:

1. Application software: Programs that direct the performance of a particular use, or application of computers that meet the information processing needs of end users. Application software can be classified as:

a. General purpose application programs: are programs that perform common information processing jobs for end users. For example, word processing programs, spreadsheet programs, database management programs, and graphics programs.

c. Application specific programs: Thousands of application software package are available to support specific applications of

end users. For example, accounting programs, marketing-sales analysis, scientific application programs, education programs, and video game programs.

2. System software: Programs that manage and support the resources and operations of a computer system as it performs various information processing tasks. These programs can be classified as:

a. **System management programs:** programs that manage the hardware, software, and data resources of the computer system during its execution of the various information processing jobs of users. The most important system management programs are operating systems.

b. **System support programs:** programs that support the operation and management of a computer system by providing a variety of support services. Major support programs are system utilities.

c. **System development programs:** programs that help users develop information system programs and procedures and prepare user programs for computer processing. Major development programs are language translators, programming tools, and CASE (Computer- Aided Software Engineering).

Database Analysis Life Cycle

When a database designer is approaching the problem of constructing a database system, the logical steps followed is that of the database analysis life cycle:

Database study - here the designer creates a written specification in words for the database system to be built. This involves:

- Analyzing the company situation.
- Define problems and constraints.
- Define objectives.
- Define scope and boundaries.

Database Design - conceptual, logical, and physical design steps in taking specifications to physical implementable designs. This is looked at more closely in a moment.

Implementation and loading - it is quite possible that the database is to run on a machine which as yet does not have a database management system running on it at the moment. If this is the case one must be installed on that machine. Finally, not all databases start completely empty, and thus must be loaded with the initial data set (such as the current inventory, current staff names, current customer details, etc).

Testing and evaluation - the database, once implemented, must be tested against the specification supplied by the client. It is also useful to test the database with the client using mock data, as clients do not always have a full understanding of what they thing they have specified and how it differs from what they have actually

asked for. In addition, this step in the life cycle offers the chance to the designer to fine-tune the system for best performance. Finally, it is a good idea to evaluate the database in-situ, along with any linked applications.

Operation - this step is where the system is actually in real usage by the company.

Maintenance and evolution - designers rarely get everything perfect first time, and it may be the case that the company requests changes to fix problems with the system or to recommend enhancements or new requirements.