Chapter 5
Computer Software

Software:

Software is the set of instructions that tells the computer how to perform tasks.

Types of Software:

- System Software
- Application Software

System Software:

System software is a collection of one or more programs, which are designed to control the overall operation and performance of the computer system.

Functions of System Software:

- To read data from the input devices.
- To transmit the processed information to output devices.
- To check the working order of all the peripherals devices.
- Converting data and information into binary form, which can be easily understood by the computer.

Operating System:

- Operating system is the program or set of programs that manages the computer system.

Popular Operating System:

- Disk Operating System(DOS)
- Microsoft Windows
- Linux

Resource Management:

- Part of the operating system that manages the hardware and networking resources of a computer system.

  ➢ Keeping track of where data and programs are stored.

File Management:

- Part of the operating system that controls the creation, deletion, and access of files and programs.
  - ➢ Keeps track of physical location on storage devices.
  - ➢ Maintains directories of information about the location and characteristics of stored files.

Task Management:

- Part of the operating system that manages the accomplishment of end user computing tasks.
  - ➢ Controls which task gets access to the CPU, and for how long .
  - ➢ Can interrupt the CPU at any time to substitute a higher priority task.
  - ➢ Supports preemptive and cooperative multitasking and multi-processing.

Types of Operating System:

- Single user operating system:
  - ➢ It allows only one user to work at a time.
- Multi-user operating system:
  - ➢ It allows two or more users to use a powerful computer at the same time.

Utility Software:

- Those software that perform a single task that helps us with maintaining the computer system.

Examples of utility programs:

- Disk defragmenter
- Disk Cleanup
- Backup
- Data compression

Disk defragmenter:

- Identifies and eliminates unnecessary fragments.
- Rearranges files and unused disk space to optimize operations.
- Speeds up file access.

Disk Cleanup:

- Identifies and eliminates nonessential files.
- Frees up valuable space and improves system performance.

Backup:

- Utility program included with many Windows versions.
- Makes a copy of all files or selected files that have been saved on a disk.
- Helps prevent against disk failure.

Data Compression:

- Reduce file size.
- Eliminate redundancy.
- Files must be decompressed.
- The programs handle several formats.

Language Translators:

- Part of system software of the computer.
- It translates the instructions written in human convenient form to machine language codes understood by the computer.
- Computer program written in any language is called **source code**.
- Converted program (i.e. program in machine language) is called **object code/machine code**.

Types of translating programs(1):

- Assembler:
  - ➢ It is a software that converts assembly language source code to executable code.

Types of translating programs(2):

- Compiler:
  - ➢ It is a software that converts source code in a high-level language such as Basic into machine language.
  - ➢ It reports all errors it finds in the program along with their line numbers at the end of execution.

Types of translating programs(3):

- Interpreter:
    - ➢ It is a software that reads the source code line-by-line, converts it into machine language and executes it immediately.
    - ➢ It reports all errors it finds in the program in each step of the program.

Application Software:

- A program or group of programs designed for end users.
- Allows end users to accomplish one or more specific (non-computer related) tasks.

Types of Application Software:

- General purpose/ Packaged software:
  - ➢ Software designed to meet the needs of an individuals or organizations.
- Customized/Tailored Software:
  - ➢ Software designed according to user's requirements.

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Word processing Software:

- Helps to create professional looking documents quickly and efficiently and provides many features to manipulate the text in a desired way.
- Create, edit, revise, and print documents.
- Example: Microsoft Word, Lotus WordPro, Corel WordPerfect.

Electronic Spreadsheet Software:

- Used by virtually every business for analysis, planning, modeling, etc..
- Worksheet of rows and columns.
- Can be stored on local computer or on network.
- Most help you develop charts and graphic displays of spreadsheet results.
- Requires designing format and developing the relationships (formulas)

Presentation Software:

- Helps to create and display slides on a computer for business and educational purpose.
- Converts numeric data into graphics displays.
- Used to create multimedia presentations of graphics, photos, animation, and video clips.
- E.g., Microsoft PowerPoint, Lotus Freelance, Corel Presentations

Data Base Management System (DBMS):

- Helps to store and manage a large amount of information in as organized way.
- Create, add, find, update, sort and search the information in professionally designed reports.

Desktop Publishing Packages:

- Produce printed materials that look professionally published.
- It combines both text and graphic features to design professional documents like newsletters, printed forms, advertisements, brochures, posters, magazines, books, etc..

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