What is Software?

Software is a set of instructions, data, or programs used to operate computers and perform specific tasks. Unlike hardware, which is the physical component, **software is intangible** and tells the hardware what to do.

Types of Software

1. **System Software**
2. **Application Software**

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1 System Software

✅ Definition:

System software is a type of software designed to run and manage computer hardware and provide a platform for other software (like applications) to run.

Types of System Software and Their Functions

Type	Function
Operating System (OS)	Manages hardware and software resources (Windows, Linux, macOS).
Device Drivers	Enables communication between OS and hardware devices (printers, keyboards).
Utility Programs	Helps manage, maintain, and control computer resources (antivirus, disk cleanup).
Firmware	Permanent software programmed into ROM (e.g., BIOS).
Language Translators	Converts high-level language into machine code (compilers, interpreters, assemblers).

Operating System (OS)

➤ Functions of Operating System

1. **Memory Management**:
    - Allocates and deallocates memory to processes.
    - Keeps track of each byte of memory.
    - Prevents memory leakage and provides virtual memory.
2. **Input/output (I/O) Management**:
    - Controls input/output devices (keyboard, mouse, printers).
    - Queues and prioritizes I/O requests.
3. **Processor Management (CPU Scheduling)**:
    - Allocates the CPU to different tasks (processes).
    - Uses algorithms like Round Robin or First-Come-First-Serve (FCFS).
4. **File Management**:
    - Organizes, stores, retrieves, and secures data files.
    - Manages file permissions and access controls.
5. **Error Detection and Handling**:
    - Monitors the system for potential errors.
    - Alerts users and takes necessary recovery actions.
6. **Device Management**:
    - Controls and manages hardware devices.
    - Assigns drivers and ensures smooth communication.
7. **Communication**:
    - Manages data sharing between processes or users.
    - Allows network communication (TCP/IP protocols).

Classification of Operating Systems

Category	Types
According to Users	**Single-user** (Windows 10) vs **Multi-user** (Unix)
According to Tasks	**Single-tasking** (MS-DOS) vs **Multitasking** (Windows, Linux)
According to Interface	**Command-line** (DOS), **Menu-driven** (BIOS), **Graphical User Interface - GUI** (Windows, macOS)

Factors to Consider When Purchasing an Operating System

- **Number of tasks supported**
- **User friendliness**
- **Security features**
- **Compatibility with software/hardware**
- **Cost**
- **Technical support availability**
- **License type (open source or proprietary)**

2Application Software

Definition:

Application software is designed for end-users to perform specific tasks like word processing, browsing, accounting, or gaming.

Examples and Their Functions

Software	Function
Microsoft Word	Word processing and document creation
Google Chrome	Web browsing
Excel	Spreadsheets and data analysis
QuickBooks	Accounting and bookkeeping
Photoshop	Image editing and graphic design
Zoom / Skype	Video conferencing
VLC Media Player	Playing audio and video files

Factors to Consider When Purchasing Application Software

- **Purpose and suitability**
- **User interface (easy to use)**
- **Cost and licensing**
- **Compatibility with OS and hardware**
- **Security and updates**
- **Customer support and documentation**
- **Scalability and integration with other tools**
- **User reviews and reputation**