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Open-Ended Questions.

1- System software and its 4 types.

- System software is a program designed to run a computer hardware and manage its resources such as memory, processors and devices.

4 types of system programs:

- **Operating systems (OS)** - manage computer resources, schedule tasks, and provide user interfaces.
- **Utility Programs** - Help maintain and optimize system performance like antivirus.
- **Device drivers** - Facilitate communication between the OS and hardware components.
- **Firmware** - Embedded software that controls hardware functions.

2. Operating Systems (OS) is a collection of programs that handle technical tasks such as memory management, process coordination, and system performance monitoring.

3 main categories of OS are

- **Embedded OS** - Designed for specialized devices like smartphones and smartwatches
- **Stand-alone OS** - used on personal computers, including windows, mac OS, linux
- **Network OS** - manages linked computers and servers, such as windows server and UNIX.

3. Mobile OS is an embedded system optimized for portable devices with touch interfaces and wireless connectivity.
Examples:

- **Android** - open-source OS with extensive customization options.
- **iOS** - Apple's specific OS known for security and ecosystem integration.
- **Harmony OS** - Huawei's alternative designed for cross devices connectivity.

4. Desktop OS is designed for personal computers and laptops. comparison of major OS:

- windows - most widely used.
- mac OS - user friendly and optimized.
- Linux - open source and customizable.
- Chrome OS - cloud based and lightweight.

5. Utilities are specialized programs that optimize computing. Essential utilities include:

- Troubleshooting programs - Diagnose and fix system issues.
- Antivirus software - protects against malware and security threats.
- Backup programs - Ensure data recovery in case of system failure.
- File compression programs - Reduces file size for efficient storage.