Computer Basics: Software

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- Slides: Software

What is Software

- Software is the set of programs(instructions) that tell a computer what to do.

Software Silent Features:

- A computer works according to the given instructions in the software.
- Software is logical part of a computer and cannot be touched.
- The hardware cannot perform any task without software.
- It is copied from the disk into the main memory of the computer as and when required.

Command, Programs,Software

Types of Software

1. System Software

- System software is an program that controls the computer's hardware or that can be used to maintain the computer in some way so that it runs more efficiently.
- System software is a generic term referring to any computer software whose purpose is to help run the computer system
- Most of it is responsible directly for controlling, integrating, and managing the individual hardware components of a computer system.

Some examples of system software are:

Operating system:

- The operating system is a software that controls and coordinates the computer hardware devices and runs other software and applications on a computer - It serves as the interface between hardware, application software, and the user.

Examples: Windows (98,2000, XP, Vista, 7, 8, 10,11),Linux (Ubuntu), Macintosh

Device Drivers:

- The communication between the operating system and hardware components is facilitated by device drivers. (Sound Card, Monitor, VGA, Modem, CR-Rom Drive Etc)
- **Utility program** (File Compressor, Disk Scanner, Antivirus, Backup Utility, Disk Cleanup)

Utility Program:

- A utility is a program that makes the computer system easier to use or performs highly specialized functions.
- Utilities are used to manage disks, troubleshoot hardware problems, and perform other tasks that the operating system itself may not be able to do.

2. Application Software

- The software, which has been developed to perform specific task is called application software.

Example:

- Microsoft 365: Used for documentation, prepare spread sheets and presentation etc.
- Corel Draw: Corel Draw is an commercial software that used for picture drawing, editing and also used for publication. Corel Draw.
- Google Chrome: Used for web page browsing
- Microsoft Team: Used for Video, Audio and Text based chat. Other popular chatting software's are Microsoft Team, Google Meet, WhatsApp, Zoom etc
    - Microsoft Team Demo
- Adobe Reader: Used to view adobe PDF files.
- GIMP: This free and open-source image manipulation software is a powerful alternative to Photoshop, making it a popular choice for hobbyists and professionals alike.
- CapCut: Free all-in-one video editor for everyone to create anything anywhere
- VLC Media Player: This free and open-source media player can play virtually any audio or video format, making it a popular choice for users worldwide.

Open Source Software vs Proprietary Software

Open Source Software (OSS)

Open Code: The source code is publicly available for anyone to see, modify, and redistribute. **Collaborative Development:** Anyone can contribute to the software's development by fixing bugs, adding features, and improving functionality. **Cost-Effective:** Often free or significantly cheaper than proprietary software, reducing costs for individuals and organizations. **Transparency:** Openness of code builds trust and allows users to verify what the software does. **Security:** Large community involvement can lead to faster bug fixes and improved security. **Examples:** Linux operating system, Firefox web browser, LibreOffice productivity suite, WordPress content management system.

Proprietary Software

Closed Code: The source code is kept secret, only accessible to the software's developer or owner. **Controlled Development:** Development is limited to the software company's employees or contracted developers. **Costly:** Usually licenses require purchase or subscription fees, potentially leading to higher overall costs. **Black Box:** Users trust the software to work as advertised without knowing how it does so. **Security:** May be slower to fix bugs as updates rely solely on the developer. **Examples:** Microsoft Windows operating system, Adobe Photoshop editing software, Microsoft Office productivity suite, QuickBooks accounting software.

True/False (Mark T for True and F for False)

- Software is the physical part of a computer that you can touch. **True or False**
- There are two main types of software: system software and application software. **True or False**
- Hardware can function without software. **True or False**
- Software is copied from the disk into the main memory of the computer when needed. **True or False**
- System software controls the computer's hardware and maintains the computer's efficiency. **True or False**
- A web browser is an example of system software. **True or False**
- The operating system is the most important piece of system software. **True or False**
- Device drivers are used to scan for viruses and malware. **True or False**
- Utility programs can help manage disks, troubleshoot problems, and perform tasks the operating system cannot. **True or False**
- Application software is designed to perform specific tasks. **True or False**
- Microsoft Word is an example of system software. **True or False**
- Open-source application software is always free to use. **True or False**
- Cloud-based software is stored and accessed online. **True or False**

Multiple Choice (Select the best answer)

> Which of the following is NOT an example of application software?

1. ☐ Web browser
2. ☐ Operating system
3. ☐ Video editing software
4. ☐ Spreadsheet software

> What are the advantages of using open-source application software?

1. ☐ Often free to use and modify, large community for support and development
2. ☐ Typically more secure and reliable than commercial software
3. ☐ Usually have more advanced features and functionality
4. ☐ None of the above

> What is the main difference between system software and application software?

1. ☐ System software is used for specific tasks, while application software is more general-purpose
2. ☐ System software interacts directly with hardware, while application software interacts with the user.
3. ☐ System software is free to use, while application software often requires a purchase
4. ☐ System software is always visible to the user, while application software can run in the background.

> Which of the following is NOT an example of system software?

1. ☐ Operating system
2. ☐ Word processing software
3. ☐ Device drivers
4. ☐ Antivirus software

> What is the primary function of an operating system?

1. ☐ To manage data files and folders
2. ☐ To provide a user interface for interacting with the computer

3. [ ] To control and allocate computer resources
4. [ ] To connect to the internet and browse websites

> What do device drivers do?

1. [ ] Translate instructions between the operating system and hardware components
2. [ ] Optimize system performance for specific applications
3. [ ] Detect and troubleshoot hardware problems
4. [ ] Secure the computer from unauthorized access

Exercises

- Experiment with different types of free and open-source application software. Try a photo editing program, a video editing tool, or a music creation software. Share your experience with the class.

Review Questions

- Explain the difference between hardware and software.
- What are the two main types of software? Briefly describe each one.
- Why is software essential for a computer to function?
- List three examples of system software and explain their roles.
- What is the primary function of system software?
- What are some benefits of using utility programs?
- What is the difference between system software and application software?
- Give examples of application software commonly used in different fields (e.g., education, business, entertainment).
- Discuss the advantages and disadvantages of using open-source application software.

References and Bibliography

- Computer hardware and software - opentextbc.ca
- Open Source Guides: https://opensource.guide/
- Open Source Initiative: https://opensource.org/
- Free Software Foundation: https://www.fsf.org/