UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY

ASSIGNMENT 01.01

SUBJECT: OPERATING SYSTEM

Class: 21CLC03

Id: 21127050

Student: Trần Nguyên Huân

Instructors: Thái Hùng Văn, Đặng Trần Minh Hậu

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Contents

I. What is the difference between OS and other software

	Operating System	Other software
1. Purpose	The main purpose of an operating system is to manage and control the computer hardware and software resources. (1)	Other software is designed to perform specific task.
2. Role	The operating system acts as an intermediary between the computer hardware and other software. (2)	Relies on the operating system to access the hardware resources.
3. Functions	Provides basic functions such as memory management, process management, file management, and security. (2)	Other software is designed to perform specific tasks such as word processing, web browsing, media playback, and so on. (3)
4. Complexity	Operating systems are typically more complex than other software due to their role in managing and coordinating the computer's resources.	Programming of application software is comparatively easy.
5. User interface	Operating systems usually have a graphical user interface (GUI) that allows users to interact with the computer.	Other software may have a GUI or a command-line interface.
6. System-level	Operating systems are system-level software that run at a low level, closest to the computer hardware. (4)	Other software runs at a higher level and relies on the operating system to access the hardware resources.
7. Essential	An operating system is considered essential for the functioning of a computer.	Other software is optional and can be installed or removed based on user needs.
8. Interaction with hardware	The operating system directly interacts with the computer hardware.	Other software relies on the operating system to access the hardware.
9. Upgrades	Operating systems require upgrades to keep pace with the changing hardware and software technology. (5)	Other software may also require upgrades to add new features or improve performance.

10. Compatibility	Operating systems must be compatible with the computer's hardware.	Other software must be compatible with both the operating system and the hardware.
11. Resource usage	Operating systems use a significant amount of the computer's resources.	Other software may use varying amounts of resources depending on the specific application.
12. Boot process	Operating systems are loaded and run during the computer's boot process.	Other software is started after the operating system is up and running.
13. Installation process	Operating systems are typically installed as the primary software on a computer	Other software can be installed at any time by the user
14. Vendor support	Operating systems usually have vendor support for bug fixes, security patches, and upgrades. (6)	Vendor support for other software usually involves customer service and resolving technical issues with the specific application

II. How important is the OS in our lives

The operating system (OS) is a crucial component of our lives in today's digital world. It serves as the interface between the computer hardware and the software applications that run on it. An operating system performs a variety of functions including managing hardware resources, providing a user interface, running applications, providing security and ensuring stability.

Here are some ways in which the OS is important in our lives:

1. Computing device functionality: The OS determines the functionality and capabilities of our computing devices, such as laptops, smartphones, and tablets.

2. User interface: The OS provides a user interface that allows us to interact with our devices, such as a graphical user interface (GUI) or a command-line interface.

3. Application management: The OS is responsible for managing the applications that we use on our devices, such as web browsers, text editors, and media players. (1)

4. Data security: The OS provides various security features to protect our data and devices from malicious software and hacking attempts. (7)

5. System stability: The OS ensures that our devices run smoothly and reliably by managing system resources and handling errors.

In shorts, the OS plays a vital role in enabling us to use our computing devices effectively and securely, and its importance in our lives cannot be overstated.

III. List major applications you can do if you have OS knowledge

1. System Administration: You can manage, maintain and upgrade the operating system, as well as monitor system performance and troubleshoot issues.

(Source: https://www.fieldengineer.com/skills/what-is-a-system-administrator)

2. Network Management: You can set up, configure, and manage network connections, including both wired and wireless networks.

(Source: https://www.cisco.com/c/en/us/solutions/enterprise-networks/what-is-network-management.html)

3. Security Management: You can implement security measures such as firewalls, intrusion detection systems, and antivirus software to protect the system and network from potential threats.

(Source: https://www.e-spincorp.com/information-security-management-system-isms/)

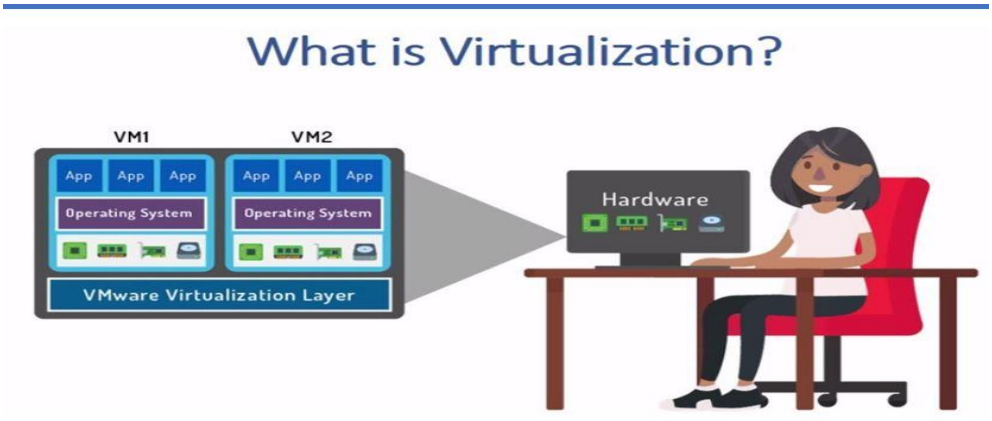
4. File Management: You can manage the file system, including creating, copying, moving, and deleting files and directories.

(Source: https://princeabhishek410.medium.com/understanding-file-management-system-in-operating-system-4c7fbfc306f2)

5. Resource Allocation: You can allocate resources such as memory, processor time, and disk space to different processes and applications.

(Source: https://riskwatch.com/2021/04/16/how-to-allocate-resources/)

6. Virtualization: You can use virtualization technologies such as VirtualBox, VMware, and Hyper-V to create virtual machines and run multiple operating systems on a single physical machine.



(Source: https://www.how2shout.com/linux/what-is-virtualization-technology-and-its-advantages/)

7. Backup and Recovery: You can create and manage backups of important data and files, as well as implement disaster recovery plans in case of system failures.

(Source: https://www.rackbank.com/blog/the-basic-differences-between-backup-and-disaster-recovery/)

8. Automation: You can use scripting languages such as shell scripts and Python to automate repetitive tasks and simplify administration.

(Source: https://datasemantics.co/automation-trends-to-expect-in-2021/)

9. Monitoring: You can monitor system and network performance, including system logs, resource usage, and network traffic, to identify potential issues and optimize performance.

(Source: https://www.eginnovations.com/blog/how-can-i-use-microsoft-scom-for-end-to-end-performance-monitoring/)

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