Week 3

Operating Systems

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Introduction

- An operating system is a program that acts as an intermediary between a user of a computer and the computer hardware.
- It manages the computer's memory, processes, and all of its software and hardware.
- It also allows you to communicate with the computer without knowing how to speak the computer's language.
- Without an operating system, a computer is useless.

Types of Operating Systems

PC Operating Systems

- **Microsoft Windows Mac OS**
- **Linux**

Mobile Operating Systems

- **Android**
- **iOS**

Windows

- Most popular operating system for personal computers.
- Made by Microsoft.
- It is a **closed source** operating system. (You can't see the source code)
- It has 2 main versions:
  - **Windows client**: A version of Windows that is used for personal computers, and it has two main versions:
    * **Windows 11**
    * **Windows 10**
  - **Windows Server**: A version of Windows that is used for servers, and it has two main versions:
    * **Windows Server 2022**
    * **Windows Server 2019**
- It is a **graphical user interface** operating system. (GUI)
- It has a **command line interface**. (cmd.exe)

Linux

- It is a **free and open source** operating system. (You can see the source code)
- It has many versions, called **distributions**.
- It is mainly operated using the command line interface.
- It was made by **Linus Torvalds** in 1991.

Linux Distributions

- **Ubuntu**: A version of Linux that is used for personal computers.
- **Kalilinux**: A version of Linux that is used for penetration testing.
- **Red Hat Enterprise Linux**: A version of Linux that is used for servers.

Mac OS

- It is a **closed source** operating system. (You can't see the source code)
- It is made by Apple.
- It is a **graphical user interface** operating system. (GUI)
- It has a **command line interface**. (Terminal)
- It is based on **Unix**.

Stand-Alone Operating Systems

- An operating system that is used on a single computer.

Network Operating Systems

- An operating system that is used on a network of computers.
- It allows multiple computers to communicate with each other.
- Enables the server to handle data, users, groups, security, applications, and other networking functions.

Advantages of Network Operating Systems

- Centralized servers are highly stable.
- Its security concerns are handled by the servers
- it is easily adaptable to new technologies.

Disadvantages of Network Operating Systems

- It is expensive to implement and maintain.
- It requires regular maintenance.