Day 1 of becoming a **Cloud Engineer**.

Today's learning.

what is an operating system?

An operating system is software that **manages hardware and software resources** and provides common services for computer programs.

Types of operating systems?

1. Desktop operating system:

A desktop operating system is a type of operating system that is designed to run on a personal computer designed for regular use by an individual.
e.g. Microsoft Windows, macOS & Linux such as Ubuntu.

2. Server operating system:

A specialized OS that manages and controls a server, providing reliable and secure services, resources, and data to other computers over a network.
e.g. Windows server, Linux distributions like Centos, RedHat Enterprise Linux.

3.Moblie operating system:

A lightweight OS designed for mobile devices such as smartphones, tablets, and wearables, managing hardware and software resources, and providing a platform for running mobile apps.
e.g. android, IOS, windows Mobile.

4. Embedded Operating System:
used in devices like routers, smart TVs, automobiles, and home applications.

5. Real-Time Operating system:
used in critical systems like medical equipment, car ECUs, space, defense, Network firewalls, home security Systems, etc.

what is Linux?

- Linux, in simple terms, is a **free and open-source** operating system.
- It is similar to **Windows and macOS** but differs in several ways.
- Linux is very popular for its **stability**, **security**, **and flexibility**. it can be modified and distributed by anyone which has led to many different versions known as "distributions" and each distribution is tailored for different users.
- its open-source nature means that a community of development.

why learn Linux or its importance?

- widely used in servers and cloud computing.
- **free software** philosophy.
- strong command line interface.
- **faster processing**.
- enhance Security.
- customization because of its open-source nature.
- **community support**.
- understanding of other operating systems.

History of Linux

Before Linux :

- Unix: Developed in 1970 at AT&T's Bell Labs by **Ken Thompson** & **Dennis Ritchie**.
- GNU Project: In 1983, **Richard Stallman** launched the GNU(GNU's Not Unix) Project.

Birth of Linux :

- 1991: A 21-year-old Finland student named **Linus Torvalds**.
- on August 25, 1991, Linux announced his project on the Mimix newsgroup. " I am doing a free operating system (**just a Hobby**, won't be big and professional like GNU").
- version 0.01 was released in **September 1991**.
- version 0.02 Released in later in **1991**.

Growth and Evolution :

- Early 1990: Linux rapidly evolved through collaboration over the internet.
- 1994: Linux 1.0 was released with 176k lines of code.
- late 1990s: commercial interest in Linux grew Like Red Hat and open SUSE.
- In the 2000s: Linux saw significant adoption in the server market.

Unix VS Linux

- Unix was first developed for multi-user and multi-tasking in mid-1970 in Bell labs by ATT, GE, and Massachusetts Institute of technology.
- then born Linux in 1991 by Linus Torvalds.
- Linux is mostly free.
- Linux is open source.
- Unix is mostly used by Sun as Solaris, HP-UX, AIX, etc.
- Linux is used by many developers' communities or companies (Red Hat, centos, Debian), etc.
- Unix comparatively supports very few file systems.
- Linux can be installed on a wide variety of computer hardware, ranging from mobile phones, tablets, and video game consoles to mainframes and supercomputers.

linux flavors:

- ubuntu
- fedora
- Debian
- RedHat Enterprise Linux
- Centos etc.

Linux Users:

Linux is used by a wide range of users and organization due to its versatility, stability and security and open-source nature.

- Developers
- Educational Institution.
- Government agencies
- Enterprise and Businesses etc.

Linux VS Windows

	Linux	Windows
Price	Free	Paid.
Ease	Not user- friendly.	user friendly.
software	mostly enterprise level software.	Much larger selection of software's. e.g. office, games, utilities etc.
Reliability	Very reliable often runs for months or years.	often requires reboot.
multi-tasking	best for multitasking	multitasking available but with very high CPU or memory resources.
security	very secure	same what secure.
open source	open to public	No an open source Os.