**Docker**

**Definition of Docker?**

Docker is a containerization engine. It helps in containerizing your applications, along with the environments.

Docker allows you to package an application with all of its dependencies into a standardized unit of software development.

Docker is an open platform for developing, shipping and running applications.

**(First we need to know about Monolithic and Micro services.)**

**Simple Understanding of Docker.**

**Imagine a box.** Inside this box, you put everything you need to run a program: the program itself, all the files it needs, and the settings it needs to work correctly.

**Docker** is like a factory that makes these boxes. You can tell it what program you want to put in the box, and it will create a box that is ready to go.

These boxes are called **containers**. You can move these containers from one place to another, and they will work exactly the same way, no matter where they are. This makes it easy to share programs and run them on different computers.

CLB (Classic Load Balancer) 🡪Monolithic

Application load balancer 🡪Micro services

**Notes: Starting stage we are using a Monolithic Now we are using a Micro services concept.**

**Monolithic**

EC2(Server)🡪Web/App🡪Code

**Micro services**

Micro services mean we can use multiple container in websites. We can see the example for below.

**UNIX/LINUX:**

1.UNIX🡪CLI(Command line interface)

2.LINUX🡪 CLI(Command line interface and GUI (Graphical user interface)

Notes: Linux is open source O/S. And Linux is a flavor based O/S that means Ubuntu, Red hat, Suse, Cent o/s.

And every O/S we have kernel

**Simple Understanding of kernel:**

A **kernel** is a core part of an operating system (OS), and it acts as a **bridge** between the software (like applications) and the hardware (like the CPU, memory, etc.).

**Virtualization:**

**Hypervisor:**

1. A hypervisor allows us to install multiple operating systems and because of this we can also install multiple web applications.
2. A **hypervisor** allows you to run multiple virtual machines (VMs) on a single physical machine. Each virtual machine can have its own operating system (O/S). This means that, for example, you could have one VM running Windows and another running Linux, all on the same physical hardware.

**What is Docker Containers**?

**Docker container**: You can run different containers on the same EC2 instance using Docker. Each container can run a different application and can mimic different environments, but they will share the same underlying OS of the host instance.