**What is Docker?**

**Software platform** that simplifies development and deployment by providing a standardized and portable way to package and run applications

* **Open platform** for development, shipping, and running
* **Separation applications from infrastructure -**> deliver software quickly
* **Reduced development cycle:** Docker's methodologies for shipping, testing, and deploying code significantly speed up the process of getting your code from development to production.

**Images & Containers**

**Images:**

* **Docker images** ~ blueprints for containers
  + Runtime environment (e.g. node version)
  + Application code
  + Any dependencies
  + Extra configuration (e.g. env variables)
  + commands
* Have its own file system which is independent of the rest of the computer.
* Read only: cannot be changed when created. Want to change -> create a brand new one.

**Linux Namespaces**

* Linux namespaces provide a mechanism for isolating system resources
  + Processes within a namespace have their own view of the system, such as process IDs, network interfaces, and file systems.
* **Docker uses namespaces to create isolated containers**, each with its own set of resources.
* **Ensure application seperation & security**
* **Cgroup:** a Linux kernel feature that enable the management and partitioning of system resources by controlling the resources for a collection of processes.
  + Administrators can use cgroups to allocate resources, set limits, and prioritize processes.
  + Docker utilizes cgroups to control and limit the resources available to containers.