What are Containers

* A standardize unit of Software
* A container image is a lightweight, stand-alone, executable package of a piece of software that includes everything needed to run it: code, runtime, system tools, system libraries, settings.
* Containers isolate software from its surroundings, for example differences between development and staging environments and help reduce conflicts between teams running different software on the same infrastructure.
* Source: [https://www.docker.com/what-container#/package\_software](https://www.docker.com/what-container%23/package_software)

What is Docker?

* Docker let us implement containers

What is Kubernetes?

* Kubernetes is an open source container orchestration platform, allowing large numbers of containers to work together in harmony, reducing operational burden. It helps with things like:
  + Running containers across many different machines
  + Scaling up or down by adding or removing containers when demand changes
  + Keeping storage consistent with multiple instances of an application
  + Distributing load between the containers
  + Launching new containers on different machines if something fails
  + Source: https://blog.containership.io/k8svsdocker

Some Docker Terms

* Docker Image
  + An **image** is an executable package that includes everything needed to run an application--the code, a runtime, libraries, environment variables, and configuration files.
  + **IMPORTANT:** A container is launched by running an image
  + Source: <https://docs.docker.com/get-started/>
* Docker Container
  + A **container** is a runtime instance of an image--what the image becomes in memory when executed
  + A **container** runs natively on Linux and shares the kernel of the host machine with other containers. It runs a discrete process, taking no more memory than any other executable, making it lightweight.
  + Source: <https://docs.docker.com/get-started/>
* Docker Hub
  + Docker also provides a cloud-based repository called [Docker Hub](https://hub.docker.com/). You can think of it like GitHub for Docker Images. You can use Docker Hub to store and distribute the container images you build.
  + Source: <https://blog.containership.io/k8svsdocker>