Lab 2

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1. Run full-stack Ethereum using Docker containers. You are basically using Docker Compose to run the application.

➔ Video link: https://youtu.be/z7mhTvJKSsw

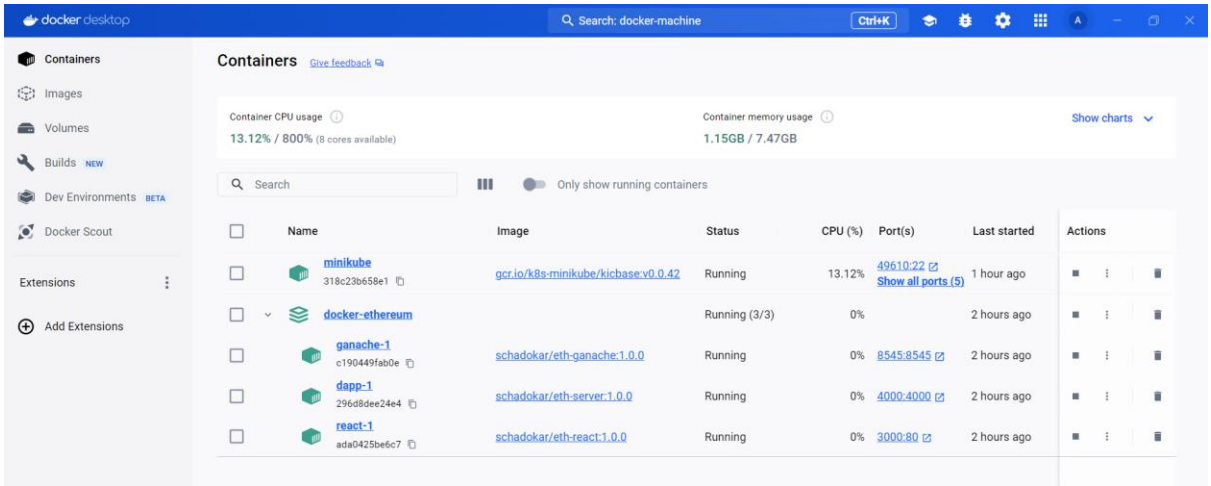
2.

```
C:\Users\Mahammad Anis>kubectl version
Client Version: v1.28.2
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
Server Version: v1.28.3
```

```
C:\Users\Mahammad Anis>kubectl cluster-info
Kubernetes control plane is running at https://127.0.0.1:49609
CoreDNS is running at https://127.0.0.1:49609/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
```

```
PS C:\WINDOWS\system32> minikube start
W0114 19:04:31.127222   29372 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\met
a\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
* minikube v1.32.0 on Microsoft Windows 11 Home Single Language 10.0.22621.3007 Build 22621.3007
* Automatically selected the docker driver. Other choices: hyperv, ssh
* Using Docker Desktop driver with root privileges
* Starting control plane node minikube in cluster minikube
* Pulling base image ...
* Downloading Kubernetes v1.28.3 preload ...
    > preloaded-images-k8s-v18-v1 ...:  403.35 MiB / 403.35 MiB  100.00% 21.09 M
    > gcr.io/k8s-minikube/kicbase...:  453.90 MiB / 453.90 MiB  100.00% 16.80 M
* Creating docker container (CPUs=2, Memory=4000MB) ...
* Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  - Generating certificates and keys ...
  - Booting up control plane ...
  - Configuring RBAC rules ...
* Configuring bridge CNI (Container Networking Interface) ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: storage-provisioner, default-storageclass
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

```
PS C:\WINDOWS\system32> minikube version
W0114 19:41:43.623941   32628 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\me
a\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
minikube version: v1.32.0
commit: 8220a6eb95f0a4d75f7f2d7b14cef975f050512d
PS C:\WINDOWS\system32>
```



3: Quiz (1 point)

1. Understand what Kubernetes doesn't do from here (https://kubernetes.io/docs/concepts/overview/) and explain in your own words. **Do not copy and paste from the website.**

Ans: Kubernetes is not a comprehensive PaaS system; it doesn't limit application types, nor does it handle code deployment or application building, as they are the part of CI/CD process. It doesn't provide built-in application services like databases or message buses, nor does it offer specific logging, monitoring, or alerting solutions. Kubernetes doesn't control the configuration language and doesn't manage comprehensive machine tasks. Kubernetes goes beyond mere orchestration by continuously aligning the system's current state with the desired state, rather than following a rigid, predefined workflow.

2. What other Orchestration tools are available other than Kubernetes

Answer: Other than Kubernetes, there are several container orchestration tools available, including:

Docker Swarm, Rancher, HashiCorp, Mesos, Google Kubernetes Engine (GKE), Amazon ECS, Nomad, Azure Kubernetes Service, OpenShift, and Helios.