Lab2 Kubctl & minikube installation ss

I already have kubctl install in my system.

Kubectl

```
sufiyanmemon@Sufiyans-Air ~ % kubectl
kubectl controls the Kubernetes cluster manager.

 Find more information at: https://kubernetes.io/docs/reference/kubectl/

Basic Commands (Beginner):
  create          Create a resource from a file or from stdin
  expose          Take a replication controller, service, deployment or pod and expose it as a new Kubernetes service
  run             Run a particular image on the cluster
  set             Set specific features on objects

Basic Commands (Intermediate):
  explain         Get documentation for a resource
  get             Display one or many resources
  edit            Edit a resource on the server
  delete          Delete resources by file names, stdin, resources and names, or by resources and label selector

Deploy Commands:
  rollout         Manage the rollout of a resource
  scale           Set a new size for a deployment, replica set, or replication controller
  autoscale       Auto-scale a deployment, replica set, stateful set, or replication controller

Cluster Management Commands:
  certificate     Modify certificate resources
```

```
sufiyanmemon@Sufiyans-Air ~ % kubectl version --client
Client Version: v1.28.2
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
```

Minikube

```
sufiyanmemon@Sufiyans-Air ~ % brew install minikube
Running `brew update --auto-update`...
==> Auto-updated Homebrew!
Updated 4 taps (homebrew/services, mongodb/brew, homebrew/core and homebrew/cask).
==> New Formulae
cargo-llvm-cov     dotter      hopscotch-map   kiota          ncmdump                rathole         steamguard-cli   urlscan        wasmedge
csvlens            halp        jot             libnsbmp       netsurf-buildsystem    rattler-build   sugarjar         veilid         zipkin
doltgres           helm-ls     k8sgpt          libwapcaplet   pivit                  ruby@3.2        texi2mdoc        vulkan-volk
==> New Casks
aqua               emby            ia-presenter             keyboard-cowboy   markedit   openthesaurus-deutsch   roam          wakatime
creality-print     geekbench-ml    imazing-profile-editor   lightburn         ollama     pile                    streammusic   xact
egovframedev       heynote         jyutping                 lw-scanner        opencat    prettyclean             taccy

You have 13 outdated formulae installed.

==> Downloading https://ghcr.io/v2/homebrew/core/minikube/manifests/1.32.0
######################################################################################################################## 100.0%
==> Fetching dependencies for minikube: kubernetes-cli
==> Downloading https://ghcr.io/v2/homebrew/core/kubernetes-cli/manifests/1.29.0
######################################################################################################################## 100.0%
==> Fetching kubernetes-cli
==> Downloading https://ghcr.io/v2/homebrew/core/kubernetes-cli/blobs/sha256:2900368303076b6792520840a6b447b609b639f22016548d467a8f142fa9e34b
######################################################################################################################## 100.0%
==> Fetching minikube
==> Downloading https://ghcr.io/v2/homebrew/core/minikube/blobs/sha256:a068a5f5bd364df8e8c0b7084332800943084802c57c72560ae1d7499b8838b7
######################################################################################################################## 100.0%
==> Installing dependencies for minikube: kubernetes-cli
==> Installing minikube dependency: kubernetes-cli
==> Downloading https://ghcr.io/v2/homebrew/core/kubernetes-cli/manifests/1.29.0
Already downloaded: /Users/sufiyanmemon/Library/Caches/Homebrew/downloads/d0d41f71d000ad05213dbc7e5d7e52f266605176972a4e70daf2fc1deb794676--kubernetes-cli-1.29.0.bottle_manifest.json
==> Pouring kubernetes-cli--1.29.0.arm64_ventura.bottle.tar.gz
🍺  /opt/homebrew/Cellar/kubernetes-cli/1.29.0: 234 files, 59.2MB
==> Installing minikube
==> Pouring minikube--1.32.0.arm64_ventura.bottle.tar.gz
==> Caveats
zsh completions have been installed to:
  /opt/homebrew/share/zsh/site-functions
==> Summary
🍺  /opt/homebrew/Cellar/minikube/1.32.0: 9 files, 87.7MB
==> Running `brew cleanup minikube`...
Disable this behaviour by setting HOMEBREW_NO_INSTALL_CLEANUP.
Hide these hints with HOMEBREW_NO_ENV_HINTS (see `man brew`).
==> Caveats
==> minikube
zsh completions have been installed to:
  /opt/homebrew/share/zsh/site-functions
sufiyanmemon@Sufiyans-Air ~ %
```

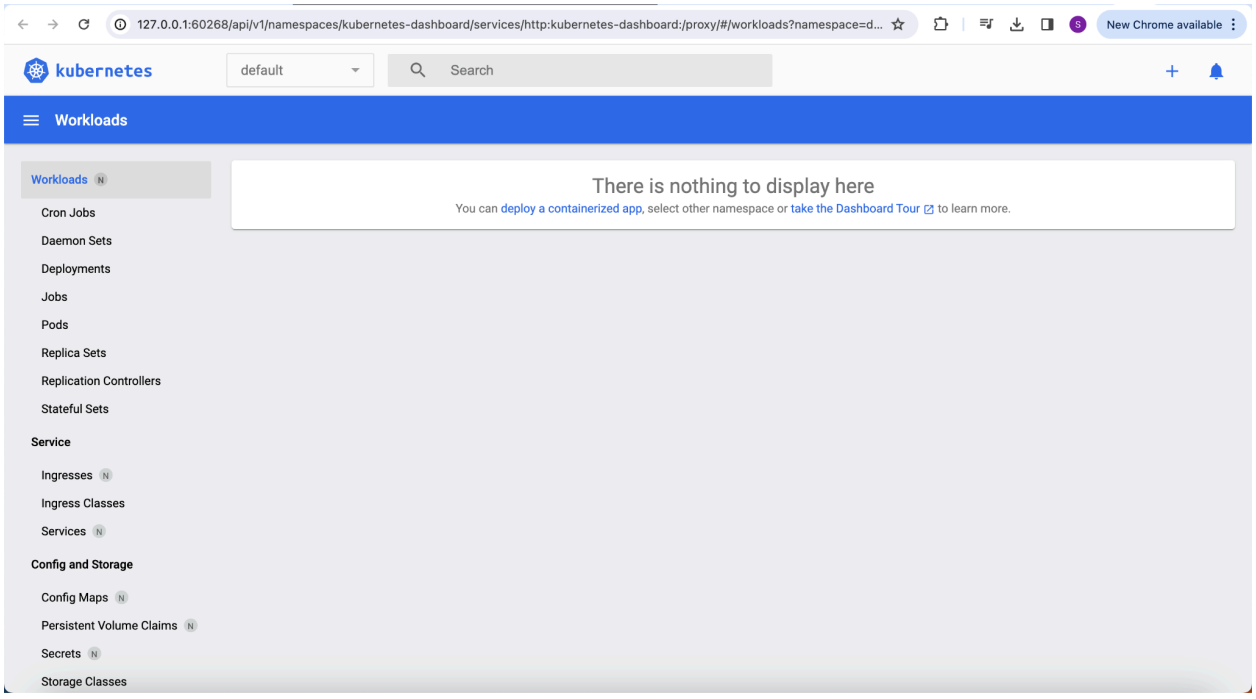
```
sufiyanmemon@Sufiyans-Air ~ % minikube start
😄  minikube v1.32.0 on Darwin 13.4 (arm64)
✨  Automatically selected the docker driver
📌  Using Docker Desktop driver with root privileges
👍  Starting control plane node minikube in cluster minikube
🚜  Pulling base image ...
💾  Downloading Kubernetes v1.28.3 preload ...
    > preloaded-images-k8s-v18-v1...:  341.16 MiB / 341.16 MiB  100.00% 39.51 M
    > gcr.io/k8s-minikube/kicbase...:  410.58 MiB / 410.58 MiB  100.00% 41.74 M
🔥  Creating docker container (CPUs=2, Memory=2200MB) ...
🐳  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) ...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🔎  Verifying Kubernetes components...
🌟  Enabled addons: default-storageclass, storage-provisioner
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % kubectl get po -A
NAMESPACE     NAME                               READY   STATUS    RESTARTS      AGE
kube-system   coredns-5dd5756b68-vgqg2           1/1     Running   0             57s
kube-system   etcd-minikube                      1/1     Running   0             69s
kube-system   kube-apiserver-minikube            1/1     Running   0             69s
kube-system   kube-controller-manager-minikube   1/1     Running   0             69s
kube-system   kube-proxy-v9qt2                   1/1     Running   0             57s
kube-system   kube-scheduler-minikube            1/1     Running   0             77s
kube-system   storage-provisioner                1/1     Running   2 (23s ago)   60s
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube dashboard
🔌  Enabling dashboard ...
    ▪ Using image docker.io/kubernetesui/dashboard:v2.7.0
    ▪ Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
💡  Some dashboard features require the metrics-server addon. To enable all features please run:

        minikube addons enable metrics-server


🤔  Verifying dashboard health ...
🚀  Launching proxy ...
🤔  Verifying proxy health ...
🎉  Opening http://127.0.0.1:60268/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
```



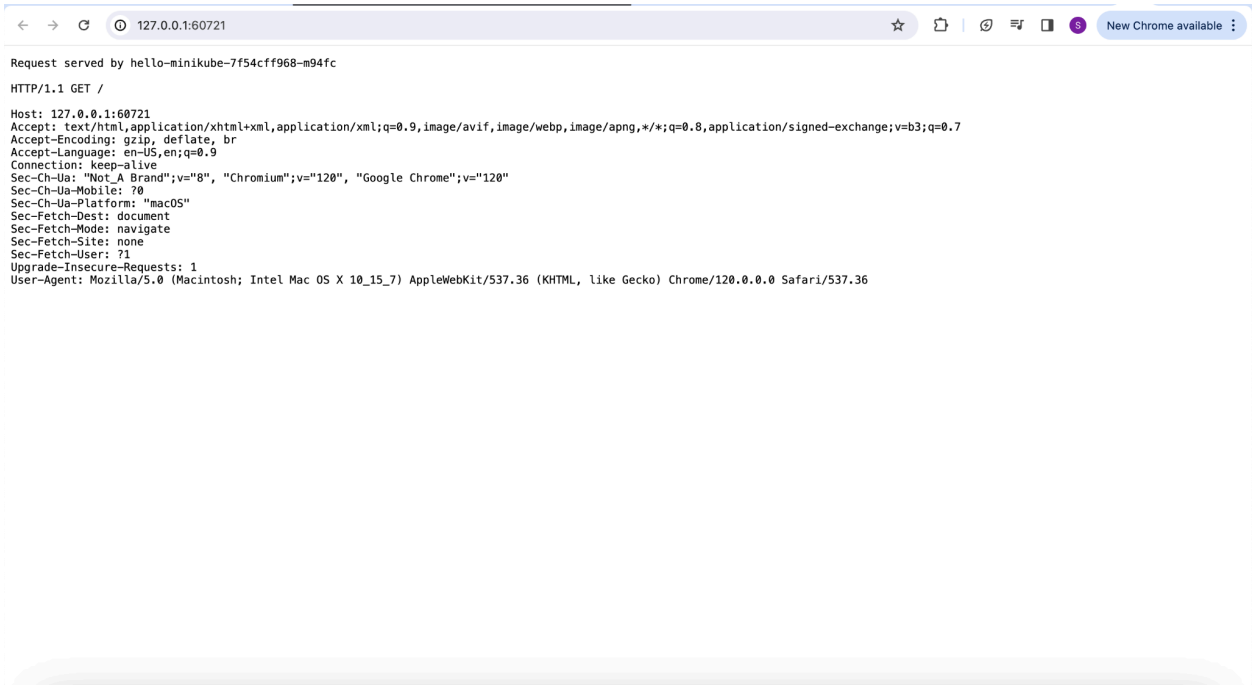
Deploy applications

```
sufiyanmemon@Sufiyans-Air ~ % kubectl create deployment hello-minikube --image=kicbase/echo-server:1.0
deployment.apps/hello-minikube created

sufiyanmemon@Sufiyans-Air ~ % kubectl expose deployment hello-minikube --type=NodePort --port=8080
service/hello-minikube exposed

sufiyanmemon@Sufiyans-Air ~ % kubectl get services hello-minikube
NAME             TYPE       CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
hello-minikube   NodePort   10.110.173.226   <none>        8080:30847/TCP   13s
sufiyanmemon@Sufiyans-Air ~ %

sufiyanmemon@Sufiyans-Air ~ % minikube service hello-minikube
|-----------|----------------|-------------|---------------------------|
| NAMESPACE |      NAME      | TARGET PORT |            URL            |
|-----------|----------------|-------------|---------------------------|
| default   | hello-minikube |        8080 | http://192.168.103.2:30847 |
|-----------|----------------|-------------|---------------------------|
🏃  Starting tunnel for service hello-minikube.
|-----------|----------------|-------------|------------------------|
| NAMESPACE |      NAME      | TARGET PORT |          URL           |
|-----------|----------------|-------------|------------------------|
| default   | hello-minikube |             | http://127.0.0.1:60721 |
|-----------|----------------|-------------|------------------------|
🎉  Opening service default/hello-minikube in default browser...
❗  Because you are using a Docker driver on darwin, the terminal needs to be open to run it.
```




```
sufiyanmemon@Sufiyans-Air ~ % kubectl port-forward service/hello-minikube 7080:8080
Forwarding from 127.0.0.1:7080 -> 8080
Forwarding from [::1]:7080 -> 8080
```

Manage your cluster

```
sufiyanmemon@Sufiyans-Air ~ % minikube pause
⏸️ Pausing node minikube ...
⏯️ Paused 18 containers in: kube-system, kubernetes-dashboard, storage-gluster, istio-operator
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube unpause
⏸️ Unpausing node minikube ...
⏸️ Unpaused 18 containers in: kube-system, kubernetes-dashboard, storage-gluster, istio-operator
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube stop
✋  Stopping node "minikube"  ...
🛑  Powering off "minikube" via SSH ...
🛑  1 node stopped.
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube config set memory 9001
❗  These changes will take effect upon a minikube delete and then a minikube start
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube addons list
|-----------------------------|----------|--------------|--------------------------------|
|         ADDON NAME          | PROFILE  |    STATUS    |           MAINTAINER           |
|-----------------------------|----------|--------------|--------------------------------|
| ambassador                  | minikube | disabled     | 3rd party (Ambassador)         |
| auto-pause                  | minikube | disabled     | minikube                       |
| cloud-spanner               | minikube | disabled     | Google                         |
| csi-hostpath-driver         | minikube | disabled     | Kubernetes                     |
| dashboard                   | minikube | enabled ✅   | Kubernetes                     |
| default-storageclass        | minikube | enabled ✅   | Kubernetes                     |
| efk                         | minikube | disabled     | 3rd party (Elastic)            |
| freshpod                    | minikube | disabled     | Google                         |
| gcp-auth                    | minikube | disabled     | Google                         |
| gvisor                      | minikube | disabled     | minikube                       |
| headlamp                    | minikube | disabled     | 3rd party (kinvolk.io)         |
| helm-tiller                 | minikube | disabled     | 3rd party (Helm)               |
| inaccel                     | minikube | disabled     | 3rd party (InAccel             |
|                             |          |              | [info@inaccel.com])            |
| ingress                     | minikube | disabled     | Kubernetes                     |
| ingress-dns                 | minikube | disabled     | minikube                       |
| inspektor-gadget            | minikube | disabled     | 3rd party                      |
|                             |          |              | (inspektor-gadget.io)          |
| istio                       | minikube | disabled     | 3rd party (Istio)              |
| istio-provisioner           | minikube | disabled     | 3rd party (Istio)              |
| kong                        | minikube | disabled     | 3rd party (Kong HQ)            |
| kubeflow                    | minikube | disabled     | 3rd party                      |
| kubevirt                    | minikube | disabled     | 3rd party (KubeVirt)           |
| logviewer                   | minikube | disabled     | 3rd party (unknown)            |
| metallb                     | minikube | disabled     | 3rd party (MetalLB)            |
| metrics-server              | minikube | disabled     | Kubernetes                     |
| nvidia-device-plugin        | minikube | disabled     | 3rd party (NVIDIA)             |
| nvidia-driver-installer     | minikube | disabled     | 3rd party (Nvidia)             |
| nvidia-gpu-device-plugin    | minikube | disabled     | 3rd party (Nvidia)             |
| olm                         | minikube | disabled     | 3rd party (Operator Framework) |
| pod-security-policy         | minikube | disabled     | 3rd party (unknown)            |
| portainer                   | minikube | disabled     | 3rd party (Portainer.io)       |
| registry                    | minikube | disabled     | minikube                       |
| registry-aliases            | minikube | disabled     | 3rd party (unknown)            |
| registry-creds              | minikube | disabled     | 3rd party (UPMC Enterprises)   |
| storage-provisioner         | minikube | enabled ✅   | minikube                       |
| storage-provisioner-gluster | minikube | disabled     | 3rd party (Gluster)            |
| storage-provisioner-rancher | minikube | disabled     | 3rd party (Rancher)            |
| volumesnapshots             | minikube | disabled     | Kubernetes                     |
|-----------------------------|----------|--------------|--------------------------------|
sufiyanmemon@Sufiyans-Air ~ %
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube start -p aged --kubernetes-version=v1.16.1
😄  [aged] minikube v1.32.0 on Darwin 13.4 (arm64)
✨  Automatically selected the docker driver

❌  Exiting due to MK_USAGE: Docker Desktop has only 3928MB memory but you specified 9001MB
```

```
sufiyanmemon@Sufiyans-Air ~ % minikube delete --all
🔥  Deleting "minikube" in docker ...
🔥  Removing /Users/sufiyanmemon/.minikube/machines/minikube ...
💀  Removed all traces of the "minikube" cluster.
❌  Failed to stop ssh-agent process: failed loading config: cluster "aged" does not exist
💀  Removed all traces of the "aged" cluster.
🔥  Successfully deleted all profiles
sufiyanmemon@Sufiyans-Air ~ %
```