## **Need of Minikube:**

- Kubernetes is a container orchestration tool that manages applications at scale.
- Setting up a full Kubernetes cluster requires multiple nodes and complex configurations.
- Minikube provides a lightweight, single-node Kubernetes cluster for local testing and development.

#### **Without Minikube:**

- A cloud-based Kubernetes cluster (like GKE, AKS, or EKS).
- A multi-node Kubernetes setup, which is complex to manage on a local machine.

#### minikube start

- This command starts a **Minikube cluster**.
- Minikube creates a single-node Kubernetes cluster in a VM or container.
- It's mainly used for local Kubernetes development and testing.

```
C:\Windows\System32>minikube start

* minikube v1.35.0 on Microsoft Windows 11 Home Single Language 10.0.26100.3037 Build 26100.3037

* Automatically selected the docker driver. Other choices: hyperv, virtualbox, ssh

* Using Docker Desktop driver with root privileges

* Starting "minikube" primary control-plane node in "minikube" cluster

* Pulling base image v0.0.46 ...

* Downloading Kubernetes v1.32.0 preload ...

> preloaded-images-k8s-v18-v1...: 333.57 MiB / 333.57 MiB 100.00% 2.58 Mi

> gcr.io/k8s-minikube/kicbase...: 500.31 MiB / 500.31 MiB 100.00% 2.43 Mi

* Creating docker container (CPUs=2, Memory=4000MB) ...

C:\Windows\System32>kubectl create deployment sankube --image=sanmathisedhupathi/guvi:taskmates --port=80

deployment.apps/sankube created

- Booting up control plane ...

- Configuring RBAC rules ...

* Configuring BRBC rules ...

* Verifying Kubernetes components...

- Using image gcr.io/k8s-minikube/storage-provisioner.v5

* Enabled addons: storage-provisioner, default-storageclass
```

## **Command**

kubectl expose deployment <name> --type=NodePort --port=80

kubectl get services

kubectl describe service <service-name>

## **Description**

Creates a service to expose a deployment.

Lists all services.

Shows details about a service.

The kubectl expose command is used to create a **Kubernetes Service** for an existing resource (Pod, Deployment, ReplicaSet, etc.), allowing network access.

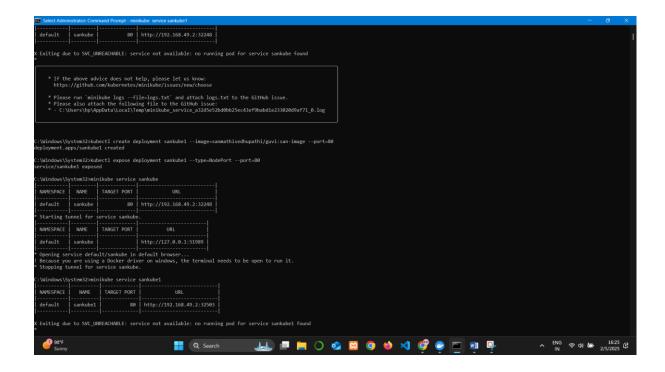
- Cluster-IP: The internal IP assigned to the service.
- External-IP: Usually <none> for Minikube, as it's only accessible locally.
- **PORT(S):** Shows **service port: assigned NodePort**.

C:\Windows\System32>kubectl expose deployment sankube --type=NodePort --port=80 service/sankube exposed

minikube service <service-name>

Opens a service in a browser.

Finds the service and launches it.



# Output in Chrome



# **Welcome to My Nginx Server**

This is a simple HTML page served by Nginx running in a Docker container. Enjoy the content!

