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Day18 Challenge: Build Your Kubernetes Playground with Minikube and Kubeadm

1 message

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Hello Learners,

Welcome back to the **DevOps SRE Daily Challenge!** 🎉

Today, we'll explore two essential methods for setting up Kubernetes clusters: **Minikube** for local, single-node setups and **Kubeadm** for multi-node, production-like environments.

What You'll Learn:

- How to install and configure Minikube for a single-node Kubernetes cluster.
- How to set up a Kubernetes cluster using Kubeadm.
- Core differences between Minikube and Kubeadm setups.

Challenge Tasks

1. Minikube Setup

- Install Minikube on your system (Windows/Linux/Mac).
Reference: [Minikube Installation Guide](#)
- Start a Minikube cluster and verify its status:

```
minikube start  
minikube status
```

- List all available nodes in the cluster:

```
kubectl get nodes
```

- Share the output of `kubectl get nodes` in your submission.

2. Kubeadm Cluster Setup

- Use **Kubeadm** to set up a 3-node Kubernetes cluster (1 control-plane, 2 nodes).
Reference: [Kubeadm Kubernetes Cluster Setup](#)
- Key steps include:
 - Setting up prerequisites (e.g., container runtime, kubelet, kubeadm, kubectl).
 - Initializing the control plane using `kubeadm init`.
 - Joining a node to the cluster using the `kubeadm join` command.
- Verify the cluster setup with:

```
kubectl get nodes
```

- Share screenshots of the control-plane and node status.

3. Theory Comparison

- Write a brief explanation comparing Minikube and Kubeadm setups. Address the following:
 - Use cases for Minikube vs. Kubeadm.
 - How they differ in cluster complexity and purpose.

Bonus Task

- Install and enable the Kubernetes dashboard on your Kubernetes cluster.
- Access the dashboard and share a screenshot.

Submission Guidelines

- Include:
 - Outputs of `kubectl get nodes` for both Minikube and Kubeadm setups.
 - Screenshots showing the successful cluster setup.
 - Minikube vs. Kubeadm
- Post your experience on social media with the hashtags: `#getfitwithsagar`, `#SRELife`, `#DevOpsForAll` `#ckawithsagar`

Resources to Help You:

- [Minikube and Kubeadm Setup \(YouTube\)](#)
- [Kubeadm Kubernetes Cluster Guide \(YouTube\)](#)
- Kubernetes Official Docs: <https://kubernetes.io/docs>

If you missed any previous challenges, you can catch up by reviewing the problem statements on [GitHub](#).

Best regards,
Sagar Utekar