KIND CLUSTER SETUP

1. Kind version

```
PS C:\Users\admin\Desktop\Assignment\assignment2> kind version
kind v0.20.0 go1.20.4 windows/amd64
PS C:\Users\admin\Desktop\Assignment\assignment2>
```

2. Create the cluster using the configuration file:

```
PS C:\Users\admin\Desktop\Assignment\assignment2> cd .\KIND-K8s-Automation\
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> ls


    Directory: C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----        20-03-2025     21:46            391 dashboard-admin-user.yml
-a----        20-03-2025     21:46            209 kind-cluster-config.yml
-a----        20-03-2025     21:46            457 kind-kubectl-installation.sh
-a----        20-03-2025     21:46             21 README.md
```

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kind create cluster --config kind-cluster-config.yml --name my-kind-cluster
Creating cluster "my-kind-cluster" ...
 • Ensuring node image (kindest/node:v1.31.2) 🖼 ...
 ✓ Ensuring node image (kindest/node:v1.31.2) 🖼
 • Preparing nodes 📦 📦 📦  ...
 ✓ Preparing nodes 📦 📦 📦
 • Writing configuration 📜 ...
 ✓ Writing configuration 📜
 • Starting control-plane 🕹️ ...
 ✓ Starting control-plane 🕹️
 • Installing CNI 🔌 ...
 ✓ Installing CNI 🔌
 • Installing StorageClass 💾 ...
 ✓ Installing StorageClass 💾
 • Joining worker nodes 🚜 ...
 ✓ Joining worker nodes 🚜
Set kubectl context to "kind-my-kind-cluster"
You can now use your cluster with:

kubectl cluster-info --context kind-my-kind-cluster

Have a nice day! 👋
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation>
main ⟳ 9↓ 0↑  ⊗ 0 ⚠ 0  kind-my-kind-cluster  default  VAISHNAVIP0419 (23 hours ago)  Ln 7, Col 36 (12 selected)  Spaces: 2  UTF-8  CRLF  YAML
```

3. Verify the Nodes:

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kubectl get nodes
NAME                           STATUS   ROLES           AGE     VERSION
my-kind-cluster-control-plane  Ready    control-plane   2m54s   v1.31.2
my-kind-cluster-worker         Ready    <none>          2m43s   v1.31.2
my-kind-cluster-worker2        Ready    <none>          2m43s   v1.31.2
```

4. Accessing the Cluster

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kubectl cluster-info
Kubernetes control plane is running at https://127.0.0.1:61413
CoreDNS is running at https://127.0.0.1:61413/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation>
```

5. Setting Up the Kubernetes Dashboard

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kubectl apply -f https://raw.githubusercontent.com/kubernetes/dashboard/v2.7.0/aio/deploy/recommended.yaml
namespace/kubernetes-dashboard created
serviceaccount/kubernetes-dashboard created
service/kubernetes-dashboard created
secret/kubernetes-dashboard-certs created
secret/kubernetes-dashboard-csrf created
secret/kubernetes-dashboard-key-holder created
configmap/kubernetes-dashboard-settings created
role.rbac.authorization.k8s.io/kubernetes-dashboard created
clusterrole.rbac.authorization.k8s.io/kubernetes-dashboard created
rolebinding.rbac.authorization.k8s.io/kubernetes-dashboard created
clusterrolebinding.rbac.authorization.k8s.io/kubernetes-dashboard created
deployment.apps/kubernetes-dashboard created
service/dashboard-metrics-scraper created
deployment.apps/dashboard-metrics-scraper created
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation>
```

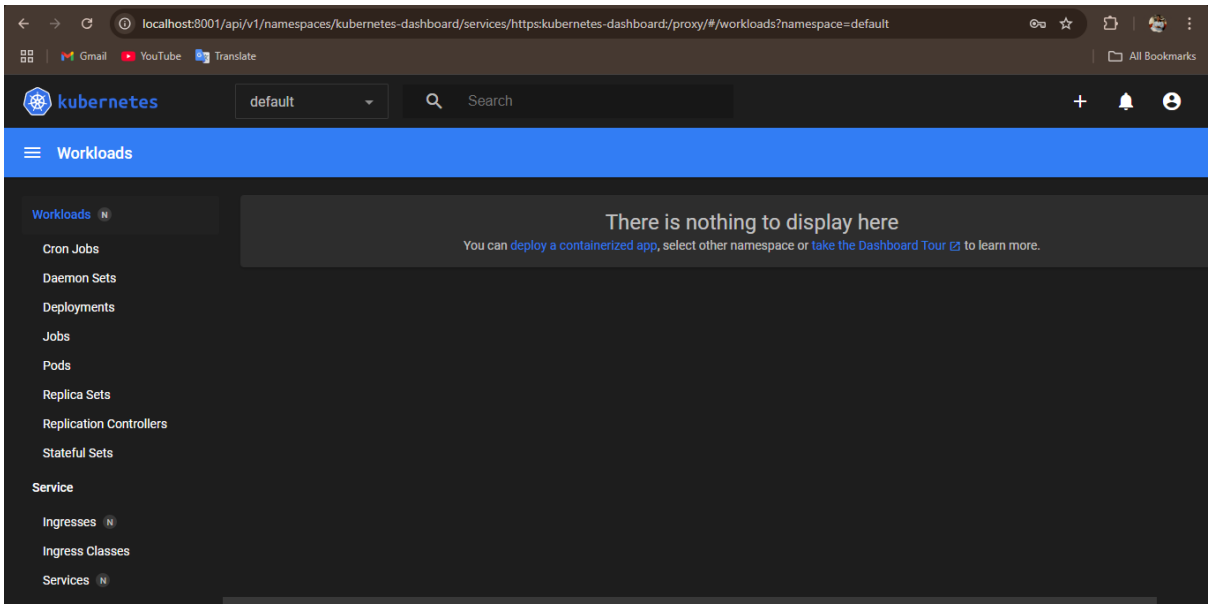
6. Apply the configuration

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kubectl apply -f dashboard-admin-user.yml
serviceaccount/admin-user created
clusterrolebinding.rbac.authorization.k8s.io/admin-user created
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation>
```

7. Start the Dashboard using kubectl proxy

```
PS C:\Users\admin\Desktop\Assignment\assignment2\KIND-K8s-Automation> kubectl proxy
Starting to serve on 127.0.0.1:8001
```

8. Open the Dashboard in browser and login with token



9. Deleting the Cluster