**DEPLOY A MULTI-TIER WEB APPLICATION ON KUBERNETES**

**Prerequisites**

- Kubernetes Cluster (minikube/kubeadm):

kubectl cluster-info

minikube status

sudo kubeadm version

- Docker

docker --version

- kubectl CLI

kubectl version --client

**Folder Structure & File Usages**

k8s-project/

│── mysql/ # MySQL Database Configuration

│ ├── mysql-pv.yaml # Persistent Volume for MySQL Data Storage

│ ├── mysql-secret.yaml # Stores MySQL Root Password Securely

│ ├── mysql-deployment.yaml # Deploys MySQL Database as a StatefulSet

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│── flask/ # Flask Backend Configuration

│ ├── app.py # Flask API Code

│ ├── Dockerfile # Flask App Containerization

│ ├── requirements.txt # Dependencies

│ ├── flask-deployment.yaml # Deploys Flask App

│ ├── flask-service.yaml # Exposes Flask App

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│── nginx/ # Nginx Configuration

│ ├── nginx-configmap.yaml # Reverse Proxy Configuration

│ ├── nginx-deployment.yaml # Deploys Nginx

│ ├── nginx-service.yaml # Exposes Nginx via NodePort









