DevOps Assignment

Hands-On Assignment for DevOps Engineer (Nginx & Kubernetes Specialist)
Objective:
Showcase your Kubernetes and Nginx proficiency by automating the deployment of a secure application using Ansible and setting up an Nginx ingress on a Kubernetes cluster.

Tasks:

1. **Kubernetes Cluster Setup:**
   - Use Minikube to create a local Kubernetes cluster. Document the initiation process.
   - Detail any specific configurations applied to the cluster.
2. **Nginx Ingress Setup:**
   - Install an Nginx ingress controller using Helm to expedite the process.
   - Configure a basic ingress for the application, routing traffic through a single path.
3. **Sample Application Deployment:**
   - Deploy a "Hello World" application using a pre-built Docker image.
   - Create a Kubernetes manifest for deployment, ensuring the application is accessible via the ingress.
4. **Ansible Automation:**
   - Write an Ansible playbook that automates:
     - The deployment of the Nginx ingress controller.
     - The deployment of the sample application.
   - The playbook should be idempotent and handle potential errors or retries.
5. **Security with TLS/SSL:**
   - Implement TLS termination at the Nginx ingress using a self-signed certificate.
   - Include the process of generating and applying the certificate in the Ansible playbook.
6. **Documentation:**
   - Compile a README with clear instructions on how to run the Ansible playbook and access the application.
   - Include a section on any troubleshooting or considerations in the setup process.
7. **Presentation:**
   - Be prepared to explain the Ansible automation and the deployment process during the interview.

Deliverables:

- A GitHub or GitLab repository link with your Ansible playbook, Kubernetes manifests, and README documentation.