Devops Engineer Assignment

Hello Candidate

Firstly thank you for expressing interest in joining Zocket!

Congratulations on being shortlisted for **Devops Engineer** & proceeding to our next hiring stage. 🎉
Below are the tasks you will be working on.

Assignment Title: Kubernetes Deployment and Scaling Project

Assignment Description:
As a DevOps Engineer, your task is to design and implement a Kubernetes deployment and scaling solution for a web application. The goal of this assignment is to showcase your knowledge and skills in deploying and managing applications using Kubernetes.

You use any web application codebase available on the internet and your task is to create a Kubernetes deployment that can effectively run and scale the application. The web application consists of a frontend component and a backend component, both of which need to be containerized and deployed using Kubernetes.

Assignment Objectives:

1. Containerize the web application:

a. Create Dockerfiles for both the frontend and backend components of the web application.
b. Build Docker images for each component.

2. Design Kubernetes deployment:

a. Create Kubernetes deployment manifests for the frontend and backend components.
b. Configure appropriate resource limits and requests for each component.
c. Define the required environment variables for the components.
d. Ensure proper logging and monitoring configurations.

3. Implement Kubernetes service:

a. Create a Kubernetes service to expose the frontend component.

b. Ensure the service is accessible within the cluster.

4. Configure application scaling:

a. Implement Horizontal Pod Autoscaling (HPA) for the backend component based on CPU utilisation.

b. Define the minimum and maximum number of replicas for the backend component.

5. Deployment and testing:

a. Deploy the web application using the Kubernetes deployment manifests.

b. Verify that the frontend and backend components are running successfully.

c. Perform load testing on the application and observe the scaling behavior of the backend component.

Deliverables:

1. Dockerfiles for both the frontend and backend components.
2. Kubernetes deployment manifests for the frontend and backend components.
3. Kubernetes service manifest for the frontend component.
4. A document describing the steps to deploy and scale the web application using Kubernetes.
5. Any additional scripts or configuration files required for the deployment.

Submission Guidelines:

1. Submit all the deliverables in a compressed file (e.g., ZIP or tarball) to the provided email address.
2. Include clear instructions on how to deploy and test the application.
3. Mention any assumptions or considerations made during the implementation.
4. Ensure the submission is done before the deadline specified (3 days from the start of the assignment).

Note: You are free to make any reasonable assumptions regarding the application requirements, infrastructure, or any other necessary configurations.

Note :

Kindly use tools like **terraform , prometheus and grafana**

Also Get it ready to deploy it on aws

Submit Task Here - DevOps Assignment Submission