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Freifach: Advanced DevOps

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COMPUTER SCIENCE AND DIGITAL COMMUNICATIONS

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Kubernetes for Container Orchestration

Objective

Assignment Objective: Gain insights into Kubernetes and container orchestration.

Key Concepts: Pods, ReplicaSets, and Deployments in Kubernetes.

Requirements: Utilize a local Kubernetes cluster (e.g., Kind, Rancher).

Task

- Deploy a containerized web application on your local Kubernetes cluster.
- Implement a rolling update strategy for zero-downtime deployments.
- Scale the application by adjusting replica counts using Kubernetes commands.
- The application should be accessed by your local machine

Steps

- Step 0: Familiarize with the Kubernetes
- Step 1: Push the web-app to a image registry (local or DockerHub)
- Step 2: Learn about how to deploy an Image on Kubernetes
- Step 3: Think about scaling strategies you could use and what could trigger the scaling to ensure zero-down-time
- Step 4: Think about how you would assert that the deployment works as expected
- Step 5: Hand in one or more (depending on your strategies) YAML files showing how you would deploy the application and a short description how you would assert the desired behaviour.

Hints

- Consider adding a liveness / health endpoint in the web-app

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Questions?