

Task

Deploy a multi-container application on Kubernetes using Docker. The application consists of three services: a web server, a Laravel base project, and a database. The web server is nginx, and the database is built using MySQL.

- A basic example Laravel project
(<https://laravel.com/docs/10.x/installation#your-first-laravel-project>)
- A Mysql database.
- An Nginx server as a web server.

Requirements

- Create a Kubernetes cluster using any cloud provider or local environment.
- Create a Dockerfile for the nginx web server that serves as an entry point for applications.
- Create a Dockerfile for the FPM that installs and copies the application code into the container.
- Create a Dockerfile for the database that installs MySQL.
- Use Kubernetes deployment and service objects to deploy the application.
- Use Kubernetes' ingress object to expose the application to the internet.
- Test the deployment by using health check commands and verifying that all services are running correctly and are healthy.
- Run laravel migration after each deployment to update the database structure.

Additional Points

- Configure Kubernetes secrets and config maps for sensitive data and configuration files, respectively.
- Implement rolling updates and rollbacks for the deployment.
- Implement horizontal scaling for the deployment based on CPU utilization.

Deliverables

- A GitHub repository containing all necessary files for deploying the application on Kubernetes using Docker.
- A detailed README file explaining how to deploy, update, and scale the application on Kubernetes.