DevOps Bootcamp**

PropPulse

Date of Submission: 28/02/2024

Reporting Period: 24/02/2024 to 02/03/2024

Group name: ParkPulse
Group members: Bahaa Abou Shakra, Rimah Housamedine, Aleen Zeidan, Jalal Sobh, Raafat Al Halabi

Instructor: Elie Tahchi

Technical Advisor: Jana Kerbaj

Team Represented: Bahaa Abou Shakra

Section I: Overview of the Project

This project aims to develop and deploy a scalable web application, tailored for managing internal operations in medical facilities such as hospitals and polyclinics, using a CI/CD pipeline managed locally with GitHub, Jenkins, DockerHub and Minikube. The CI/CD pipeline will automate the build, test and deployment processes, ensuring continuous integration and delivery of updates. DockerHub will serve as the repository for Docker images in the application.

For local development and testing, Minikube is utilized to create a local Kubernetes cluster. This allows developers to simulate the deployment environment and test changes before pushing them to production. Cloudways is utilized for global deployment, providing a managed hosting solution for the application.

To monitor the application's performance and health, Grafana and Prometheus are integrated into the deployment. Grafana will provide visualizations and dashboards for monitoring various metrics, while Prometheus will collect and store the metrics data.

Overall, this project combines various DevOps tools and practices to streamline the development, deployment and monitoring processes of a web application, ensuring reliability, scalability and efficiency throughout its lifecycle.

Section II: Summary of the Week's Overall Progress

- *We have completed the CI/CD deployment documentation that provides comprehensive instructions and guidelines on how to deploy an application using GitHub, DockerHub, Jenkins and minikube.*

  "This documentation was implemented by Bahaa, in collaboration with Rimah & Aleen."

- *We have finalized the staging deployment environment for our application;*

- *We are in the process of creating a production environment for our deployment;*

  "The finalization of the staging environment was done in collaboration between Bahaa and Rimah, while the creation of the production environment was done by Rimah. The existence of such environments are essential for mitigating risks and ensuring quality since any changes are first tested on the staging then pushed to the production after successfully performing quality control."

- *We have successfully concluded editing the code after carefully reviewing and implementing all necessary changes;*
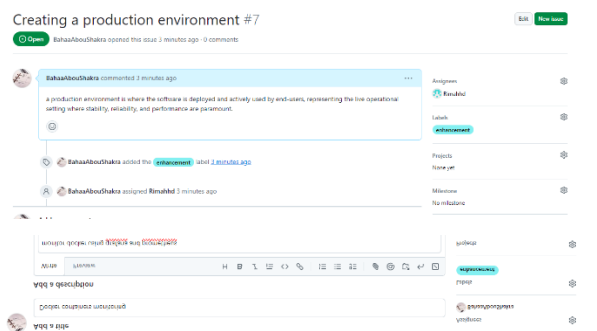
"The above task was concluded by Aleen & Rimah, while Rimah managed the database and backend files, Aleen worked on the frontend."

- *We are shifting from NewRelic, due to technical issues in the configuration files, impacting our monitoring capabilities, to Grafana and Prometheus for code and infrastructure monitoring.*

"This task is in progress, we have concluded monitoring our local server and jenkins jobs, by the end of this week we must complete the monitoring process of Docker containers and the minikube cluster. Bahaa & Rimah are working on the monitoring process."

- *Implementation of a project management tool – GitHub Issues.*

"Tasks are assigned to team members that are notified by email upon assignement."

As appears in the above example, after assigning a task to Rimah, he received an email to notify him about the assigned task; same goes for other team members and tasks.

Section III: Distribution of Tasks per Team Member

CI/CD documentation – Bahaa, Rimah & Aleen;
Staging environment finalization – Bahaa & Rimah;
Monitoring & logging – Bahaa & Rimah;
Production environment creation – Rimah.

Section IV: Unfinished Business and Pending Activities

__Pending tasks:__

- *Creation of a production environment -* __Almost done ~ deadline by the end of this week;__
- *Monitoring and logging using Grafana & Prometheus –* __we have devised the plan for implementation and finalized 50% of the work as mentioned in the SUMMARY OF THE WEEK'S OVERALL PROGRESS ~ deadline by the end of this week.__