**DECLARATION**

We hereby declare that the Capstone Project Phase - 2 entitled **“Deploying EOX microservice to Kubernetes cluster and improve scalability”** has been carried out by us under the guidance of **Prof Venkatesh Prasad** and submitted in partial fulfilment of the course requirements for the award of degree of **Bachelor of Technology** in **Computer Science and Engineering** of **PES University, Bengaluru** during the academic semester June - December 2023. The matter embodied in this report has not been submitted to any other university or institution for the award of any degree.

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**ABSTRACT**

This report details the process of deploying the EOX Vantage microservice onto a Kubernetes cluster and enhancing its scalability using a custom controller. Leveraging Kubernetes' robust container orchestration capabilities, the deployment process ensures seamless integration and efficient resource utilization for the EOX Vantage microservice. The focal point lies in the development and implementation of a custom controller tailored to optimize the microservice's scalability. This controller dynamically manages resources based on predefined metrics, enabling automatic adjustments to varying workloads, thereby improving performance and responsiveness.

The project's core objectives include configuring the microservice for Kubernetes compatibility, optimizing resource allocation, and evaluating the custom controller's impact on scalability. Performance metrics such as scalability, resource usage, and response times are systematically analysed. Overall, this initiative represents a comprehensive approach to deploying and enhancing the scalability of the EOX Vantage microservice within a Kubernetes environment, offering insights into maximizing microservice performance and adaptability.

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Project deals with deploying microservices on cloud and reduce the resource consumption like CPUs, memory, and bring down the cost of creation of pods.

The project is aimed to improve and optimize resource utilization, improve security feature and be able to monitor the performance and visualize the metrics to study the behaviour of the microservices to increased load.

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