SIT323/SIT737- Cloud Native Application Development 10.1P: Monitoring and Visibility

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Overview

The objective of this task is to demonstrate your understanding and practical skills in implementing monitoring and visibility for a cloud-native application using Google Cloud Platform (GCP) tools. You will containerize a simple application using Node.js, Docker, and Kubernetes, and then deploy it to a GCP Kubernetes cluster. You will then apply monitoring and visibility tools to collect and analyze metrics and logs from the application and the Kubernetes cluster.

The required tools for doing this task are as follows:

- Git (https://github.com)
- Visual Studio (https://code.visualstudio.com/)
- Node.js (https://nodejs.org/en/download/)
- Docker
- Kubernetes // a computing platform to host your microservice
- Kubectl // the command-line tool for interacting with Kubernetes cluster
- MongoDB
- Docker Compose

Instructions

- Containerize a simple application using Node.js, Docker, and Kubernetes.
- Deploy the containerized application to a GCP Kubernetes cluster.
- To ensure proper monitoring and visibility of your cloud-native application, it is important to collect and analyze metrics and logs from both the application and the Kubernetes cluster. You can leverage various GCP tools for this purpose, such as Stackdriver Monitoring, Stackdriver Logging, and Prometheus,… . These tools provide real-time insights into the performance, availability, and health of your application and the underlying infrastructure. It is recommended to use one of these tools, preferably the one that was presented in the workshops or the one you are most confident with, to ensure efficient monitoring and troubleshooting of your cloud-native app.
- **Important: <<Please ensure responsible usage of GCP resources. It's important to control resource consumption by stopping any running projects once your tasks are finished.>>**

Submission Details

- Submit your **containerized application code** along with the **Kubernetes manifest files** used for deploying the application.
- Provide **screenshots of your Google Cloud Platform (GCP) project**, showing the deployment process and any monitoring tools used.

- Include **screenshots demonstrating how you set up monitoring and visibility**, such as configurations for logging, metrics, or alerts.
- Submit a **report** that explains:

- The steps you followed for deployment and monitoring
- The tools and configurations you used
- Any issues or challenges you faced and how you addressed them