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

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.

Submission Details

- Submit the containerized application code and the Kubernetes manifests used for deployment.
- Provide access to the GCP project used for the deployment and monitoring.
- Submit the monitoring and visibility configuration files and dashboards.
- Submit the report documenting the steps taken, tools and configurations used, and any challenges encountered.