Technical Report

Student IDs and Names

|  |  |  |
| --- | --- | --- |
| Date of Change | Contributor | Summary of Change |
|  |  |  |

***Note****: Screenshots included in the report need to include unique identifying information for your group (such as naming the EC2 instance with your group number), and you need to briefly explain what each screenshot shows.* *You should also have a screenshot of the Details of the EC2 instance with its IP address. You may consider putting the commands execution (in the terminal) and Web interface (in the browser) in the same screenshots.*

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# Overview

*Provide an overview of the assignment tasks and how much you have achieved in each of them, e.g., Task 1 is about … Our group have successfully … but we could not get … to work.*

*Task 2 is about … Our group have successfully … but we could not get … to work.*

*Task 3 is about … Our group have successfully … but we could not get … to work.*

# Task 1

## Customize Images

*Include the content of Dockerfile(s) with explanations or comments, screenshots of the commands to build image(s), and screenshots to show image built successfully. Discuss what you have tried or modified to make it work.*

## Run Individual Containers

*Include screenshots of the commands to run the containers with explanations. Provide screenshots to show everything works successfully, which would include:*

* *the log messages showing the containers are running and the database is successfully connected;*
* *the Web interface is accessed via the correct (HTTPS) URL and port number (make sure the screenshots include the complete URL);*
* *the Mongo Express interface is accessed via the correct URL and port number (make sure the screenshots include the complete URL);*
* *adding/updating data from the Mongo Express interface works correctly; and*
* *adding/updating data from the Web interface and checking the updated data from the Web interface or Mongo Express.*

*You may consider putting the commands execution (in the terminal) and Web interface (in the browser) in the same screenshots. Discuss what you have tried or configured to make it work.*

# Task 2

## Docker Compose

*Include the content of docker compose file(s) with explanations or comments. Explain the port mappings, networks, volumes and environment variables. Discuss what you have tried or modified to make it work.*

## Run Containers with Docker Compose

*Include screenshots of the commands to run the containers with explanations. Provide screenshots to show everything works successfully, which would include those demonstrated in Section 1.2, with different commands execution (in the terminal) in the same screenshots. Discuss what you have tried in those commands to make it work.*

# Task 3

## Create Pods

*Include the content of any files involved, which may include pod, deployment, and service file(s) with explanations or comments. Explain the port mappings, environment variables, and replicas. Discuss what you have tried or modified to make it work.*

## Run Cluster with Minikube

*Include screenshots of the commands to run the cluster with explanations. Provide screenshots to show everything works successfully. You may consider putting the commands execution (in the terminal) and Web interface (in the browser) in the same screenshots. Discuss what you have tried in those commands to make it work.*

# Benefits of Container Technologies (7623ICT students only)

*You should discuss the benefits of Containers and related technologies in software development operations (DevOps). In particular, you need to*

* *briefly describe the technologies you used in the assignment,*
* *discuss how they fit into the bigger picture of DevOps, e.g., who will use them at what stages of the software development and deployment,*
* *what are the major benefits of these technologies compared to more traditional ways of software development*

# Self-Learning

*You should describe details of the self-learning resources you have used, such as online forums, articles, videos, and ChatGPT, including examples of questions/ keywords you used.*

# References