SE4010 - Current Trends in Software Engineering – Lab Assignment

Development, Containerization of a NodeJS (or Any Other Language) Application and push to Azure Container Registry

Duration: 1 hour

Assignment Description

In this assignment, you will develop and containerize a NodeJS (or Any Other Language) application using command lines and push it to Azure Container Registry. The Application should be an API that connects with a cloud database.

Instructions

1. **Setup and Prerequisites**

- Ensure that you have NodeJS (or any other technology you planned) and Docker installed on your system.
- Create an Azure account (if not already done) and set up an Azure Container Registry.

2. **Create Application**

- Create a simple To-Do application with API endpoints those interacts with a cloud database. You can choose any cloud database provider (e.g., Azure Cosmos DB, MongoDB Atlas, etc.).
- Implement basic API endpoints (GET, POST is enough) for To-Do s using appropriate libraries.
- API must create new To-Do data, and Read To-Do data.

3. Containerize the Application

- Write a Dockerfile that defines the environment and dependencies for your application.
- Use Docker command-line tools to build a Docker image of your application.
- Test the containerized application locally to ensure it works as expected. You can use Postman for testing API endpoints.

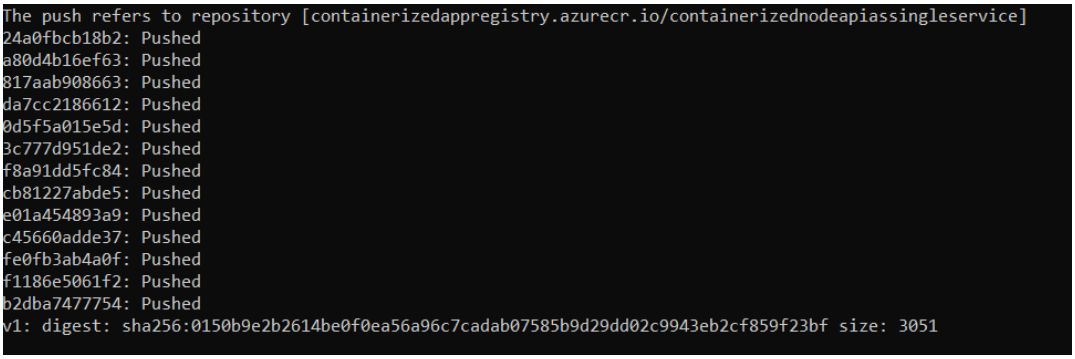
4. Push to Azure Container Registry

- Login to Azure Container Registry using Azure CLI or Azure PowerShell.
- Push the Docker image you built in the previous step to Azure Container Registry.

** **Note**: Students are encouraged to seek help from online resources, official documentation, and the Azure portal. No AI tools are allowed.

Tip

❖ This is how the end of the console looks like if you have successfully pushed your containerized application to Azure Container Registry.



Evaluation Criteria

- Successful cloud database connection. *(2 marks)*
- Successful containerization of the application using a Dockerfile. *(3 marks)*
- Perform a demonstration of the containerized application by running it locally and accessing the API endpoints via Postman and showing outputs to the panel. *(3 marks)*
- A proper push of the application to Azure Container Registry. Students have to show the console of the Azure CLI or PowerShell to the panel. *(2 marks)*