Task5.1P

Overview

This task involves building a simple calculator with a front-end using the React framework and a back-end using Node.js, both containerized with Docker and orchestrated using Docker Compose. Subsequently, the front-end and back-end images are to be published to DockerHub.

GitHub Link

[userstarwind/sit323-737-2024-t1-prac5p (github.com)](github.com)

Step1: Write Dockerfile

front end

```
FROM node:alpine as build

WORKDIR /app/frontend

COPY package*.json ./

RUN npm install

COPY . .

RUN npm run build

FROM nginx:alpine

COPY --from=build /app/frontend/build /usr/share/nginx/html

EXPOSE 80

CMD ["nginx", "-g", "daemon off;"]
```

back end

```
FROM node:alpine

WORKDIR /app/backend

COPY package*.json ./

RUN npm install

COPY . .

EXPOSE 8080

CMD ["node", "server.js"]
```

Step2: Build the Docker image

Step3: Create a Docker Compose file

```yaml
version: '3.8'
services:
  backend:
    build:
      context: ./backend
      dockerfile: Dockerfile
    ports:
      - "8080:8080"
    networks:
      - app-network

  frontend:
    build:
      context: ./frontend
      dockerfile: Dockerfile
    ports:
      - "80:80"
    environment:
      - REACT_APP_API_URL=http://backend:8080
    depends_on:
      - backend
    networks:
      - app-network

networks:
  app-network:
    driver: bridge
```

Step4: Test the application

Container CPU usage ⓘ	Container memory usage ⓘ	Show charts
0.00% / **1600%** (16 CPUs available)	**0B** / 15.11GB	

🔍 Search   ▥   ◯ Only show running containers

	Name	Image	Status	CPU (%)	Port(s)	Last started	Actions
☐ › ≋	**app**		Running (2/2)	0%		1 hour ago	▪ ⋮ 🗑

Simple Calculator

Please enter the first number:

324

Please enter the second number:

34

Choose the operator:

* ⌄

Calculate

Answer: 11016

Step5: Push the Docker image to the DockerHub

	Tags	OS	Vulnerabilities	Last pushed	Size	
🌐 **starwindsurf/app-frontend**	latest	⬙	🚫 Inactive	1 minute ago	18.11 MB	View in Hub Pull
🌐 **starwindsurf/app-backend**	latest	⬙	🚫 Inactive	8 minutes ago	52.05 MB	

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