DevOps

Matteo Moi

Contents

1 Docker

Definition: is a platform that allows developers to package applications into containers—standardized units of software that include everything the application needs to run. A container is actually a process in a Linux host that use Linux namespaces to provide isolation between different containers.

1.1 How to set up an environment with Docker

1.1.1 Create a Dockerfile

```
# Use a base image with Java
FROM openjdk:17-jdk-alpine

# Set the working directory inside the container
WORKDIR /app

# Copy the compiled JAR file from the target directory to the
    container
COPY target/myapp-0.0.1-SNAPSHOT.jar /app/myapp.jar

# Expose the port that the Spring Boot application will run on
EXPOSE 8080

# Define the command to run the application
ENTRYPOINT ["java", "-jar", "/app/myapp.jar"]
```

Build the Docker Image

```
docker build -t myapp:latest .
```

Run the Docker Container

```
docker run -p 8080:8080 myapp:latest
```

http://localhost:8080

1.1.2 Docker Compose for Multi-Container Setup

Docker Compose allows you to define and run multi-container Docker applications using a docker-compose.yml file.

```
version: '3'

services:
  service1:
    image: service1:latest
    build:
      context: ./service1
    ports:
      - "8081:8080"
    networks:
      - microservices-network
```

```
12
13    service2:
14      image: service2:latest
15      build:
16        context: ./service2
17      ports:
18        - "8082:8080"
19      networks:
20        - microservices-network
21
22 networks:
23   microservices-network:
24     driver: bridge
```

- **services**: Defines the microservices and their configurations.

- **image**: Specifies the image for each service.

- **build**: Defines the build context for each service (the directory containing the Dockerfile).

- **ports**: Maps the container ports to the host machine.

- **networks**: Creates an isolated network for the microservices to communicate with each other.

To start all the services

```
1 docker-compose up --build
```

2 in progress...