Qoala DevOps Assignment

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Overview

This report details the steps taken to debug, resolve errors, and verify the completion of the DevOps assignment. The goal was to configure a Dockerized environment using Docker and Docker Compose,troubleshoot deliberately introduced errors, and ensure the application's functionality in a webbrowser.

Issues Identified, Debugging Steps, and Resolutions

1. Nginx Configuration (nginx.conf)

- **Issue**: Multiple errors in the configuration file.

- **Debugging Steps**:

    o Reviewed Nginx container logs, which revealed syntax errors in the nginx.conf file.

    o Examined each line in nginx.conf to locate typing errors.

- **Correction**:

    - worker_process to worker_processes

    - default_typ to default_type

    - worker_connection to worker_connections

    - mime.typess to mime.types

2. Nginx Dockerfile

Issues with file naming, paths, and commands were found in the Nginx Dockerfile.

Debugging Steps:

    a. Attempted to build the Docker image and encountered errors in paths and file names.
    b. Observed that Nginx failed to start because of an incorrect port specification and command syntax.

Corrections: Made the following corrections:

    o latests → latest

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o nginix.conf → nginx.conf o The line **COPY ./html**

/usr/share/nginx/html is not required.

o Port "eighty" → 80 o "daemon of;" → "daemon off;"

3. Python Application and Dockerfile

- **Issue:** The Python application Dockerfile contained several errors, including incorrect paths, ports, and package names.

- **Debugging Steps:**

  o Attempted to build the Python Docker image, encountering errors related to missing directories and files.

  o Application logs showed issues with importing netiface and failure to start on port 8000.

- **Resolution:** Adjusted the following issues:

  o Changed the working directory from appp to app. o   Corrected the file name from

  appy.py to app.py. o   Fixed the package name from netiface to netifaces.

  o Updated the port designation from "eight thousand" to 8000.

  o Corrected the command from pythn to python.

4. Docker-compose.yaml • **Issues**: There were few typing mistakes and wrong configurations in Docker

Compose file.

- **Debugging**:

Ran docker-compose up and upon running , it showed errors in port mapping as well as in network configuration. Further examined the files to identify issues in network settings and service configurations.

- **Resolution**:

- Port eighty is corrected as '80'

- Configuration path nginx.confi to nginx.conf

- Network driver **bridg** was corrected as **bridge** .

Debugging Tools and Commands

Following commands and tools were used:

Docker logs **<container_name>** is used to identify container-specific errors.

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Build and Run Commands: Docker-build is used and docker-compose up to catch build and runtime errors.

File Inspection: Manually inspected paths, filenames, and commands for typos.
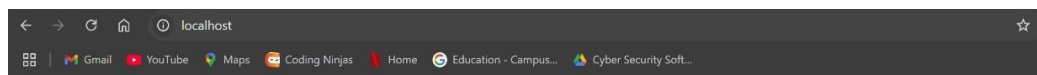
Verification

1. **Application Testing**:

   - Application was launched using Docker Compose.
   - Accessed **http://localhost** to ensure that Nginx was routing requests to the Python application correctly.

   O Verified Nginx logs that showed successful requests to the Python application.

Screenshots

   - **Application Running**:

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- **Nginx Logs**:

```
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: IPv6 listen already enabled
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/11/02 18:16:17 [emerg] 1#1: directive "worker_processes" is not terminated by ";" in /etc/nginx/nginx.conf:3
nginx: [emerg] directive "worker_processes" is not terminated by ";" in /etc/nginx/nginx.conf:3
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: IPv6 listen already enabled
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/11/02 18:27:50 [emerg] 1#1: directive "worker_processes" is not terminated by ";" in /etc/nginx/nginx.conf:3
nginx: [emerg] directive "worker_processes" is not terminated by ";" in /etc/nginx/nginx.conf:3
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: IPv6 listen already enabled
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
172.19.0.1 - - [02/Nov/2024:18:36:39 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537
.36 (KHTML, like Gecko) Chrome/130.0.0.0 Safari/537.36"
172.19.0.1 - - [02/Nov/2024:18:36:39 +0000] "GET /favicon.ico HTTP/1.1" 404 207 "http://localhost/" "Mozilla/5.0 (Windows NT 10.0;
Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/130.0.0.0 Safari/537.36"
```