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The steps have been followed according to the assignment guidelines.

ISSUES IDENTIFIED AND RESOLUTION STEPS:

Error in docker-compose.yaml file

1)changed "eighty:80" to "8080:80"   as in my device "80:80" was already given to XAMPP local server.

2) changed "eight thousand" to "8000"

3) changed ./nginx/nginx.conf:/etc/nginx/nginx.confi to ./nginx/nginx.conf:/etc/nginx/nginx.conf

4) networks:

  nginx-network:

   driver: bridg

   options:

    compelex_option: value   to

networks:

  nginx-network:

   driver: bridge

5) build:

    context: ./nginx

    dockerfile: Dockerfile

Similarly, build:

    context: ./python

    dockerfile: Dockerfile

Errors in nginx dockerfile,

1) FROM nginx:latests to FROM nginx:latest
2) COPY nginix.conf /etc/nginx/nginx.conf to COPY nginx.conf /etc/nginx/nginx.conf
3) Remove COPY ./html /usr/share/nginx/htmll
4) EXPOSE "eighty" to EXPOSE 80
5) CMD ["nginx", "-g", "daemon of;"] to CMD ["nginx", "-g", "daemon off;"]

ERRORS IN PYTHON DOCKERFILE AND nginx.conf

1)WORKDIR /appp to WORKDIR /app

2)COPY appy.py /app to COPY app.py /app

3)RUN pip install flask netiface to RUN pip install flask netifaces

4)EXPOSE "eight thousand" to EXPOSE 8000

5)CMD ["pythn", "app.py"] to CMD ["python", "app.py"]

6) worker_process auto to worker_processes auto;
7) worker_connection 1024; to worker_connections 1024;
8) include   /etc/nginx/mime.typess;
9)   default_typ application/octet-stream;   to   include   /etc/nginx/mime.types;
                                                                       default_type application/octet-stream;

1)Made a logs directory or folder in nginx folder.

2)Made 2 files access.log and error.log in logs folder.

3) Made changes in docker-compose.yaml file

volumes:

- ./nginx/nginx.conf:/etc/nginx/nginx.conf

 - ./nginx/logs:/var/log/nginx   ← added this to map log directory to host.

4) Made changes in nginx.conf

In HTTP added : access_log /var/log/nginx/access.log; error_log /var/log/nginx/error.log; to access log files.

5)Then restarted the containers

6)Checking access logs using:

docker exec -it devops-internship-challenge-nginx-1 cat /var/log/nginx/access.log

The Images of the access log are attached at the end.

#STEP-BY-STEP

ISSUES FACED:

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose up --build -d

validating C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge\docker-compose.yaml: networks.nginx-network Additional property options is not allowed

Error in docker-compose.yaml file

1)changed "eighty:80" to :8080:80"   as in my device "80:80" was already given to XAMPP local server.

2) changed "eight thousand" to "8000"

3) changed ./nginx/nginx.conf:/etc/nginx/nginx.confi to ./nginx/nginx.conf:/etc/nginx/nginx.conf

4) networks:

```
  nginx-network:

    driver: bridg

    options:

      compelex_option: value          to

networks:

  nginx-network:

    driver: bridge

5) build:

    context: ./nginx

    dockerfile: Dockerfile
```

context specifies docker where to look for files.

Build specifies how docker should an image for a service.

Dockerfile specifies name of dockerfile.

Similarly, build:

```
    context: ./python

    dockerfile: Dockerfile
```

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose up --build -d

time="2024-10-31T11:18:41+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"

[+] Building 0.9s (4/4) FINISHED   docker:desktop-linux

 => [python-app internal] load build definition from Dockerfile   0.2s

 => => transferring dockerfile: 182B   0.1s

 => [nginx internal] load build definition from Dockerfile   0.2s

 => => transferring dockerfile: 187B   0.1s

 => CANCELED [nginx internal] load metadata for docker.io/library/nginx:latests   0.6s

 => [python-app internal] load metadata for docker.io/library/python:3.9   0.3s

failed to solve: failed to process "\"eight": unexpected end of statement while looking for matching double-quote

<mark>Errors in nginx dockerfile,</mark>

1) FROM nginx:latests to FROM nginx:latest
2) COPY nginix.conf /etc/nginx/nginx.conf to COPY nginx.conf /etc/nginx/nginx.conf
3) Remove COPY ./html /usr/share/nginx/htmll
4) EXPOSE "eighty" to EXPOSE 80
5) CMD ["nginx", "-g", "daemon of;"] to CMD ["nginx", "-g", "daemon off;"]

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose up --build -d

time="2024-10-31T11:20:43+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"

[+] Building 4.4s (13/13) FINISHED   docker:desktop-linux

 => [nginx internal] load build definition from Dockerfile   0.1s

 => => transferring dockerfile: 187B   0.1s

 => [python-app internal] load build definition from Dockerfile   0.1s

 => => transferring dockerfile: 170B   0.1s

 => [python-app internal] load metadata for docker.io/library/python:3.9   0.2s

 => ERROR [nginx internal] load metadata for docker.io/library/nginx:latests   4.0s

 => [python-app internal] load .dockerignore   0.0s

 => => transferring context: 2B   0.0s

 => [python-app 1/4] FROM docker.io/library/python:3.9@sha256:ed8b9dd4e9f89c111f4bdb85a55f8c9f0e227 3.8s

 => => resolve docker.io/library/python:3.9@sha256:ed8b9dd4e9f89c111f4bdb85a55f8c9f0e22796a29844938 3.8s

 => [python-app internal] load build context   0.0s

 => => transferring context: 1.25kB   0.0s

 => [nginx auth] library/nginx:pull token for registry-1.docker.io   0.0s

 => [python-app auth] library/python:pull token for registry-1.docker.io   0.0s

 => CACHED [python-app 2/4] WORKDIR /app   0.0s

 => CACHED [python-app 3/4] COPY app.py /app   0.0s

 => CACHED [python-app 4/4] RUN pip install flask netifaces   0.0s

 => CANCELED [python-app] exporting to image   0.0s

 => => exporting layers   0.0s

=> => exporting manifest
sha256:552b15b646e50b28bcdedd57f2bb24a981e19f7d1961b12c39ab1887639f9173   0.0s

 => => exporting config
sha256:b419f8ca66546cf5d6fb1b065c02a53cfc29517d9b409b1b2bb88858c9160e2a   0.0s

------

 > [nginx internal] load metadata for docker.io/library/nginx:latests:

------

failed to solve: nginx:latests: failed to resolve source metadata for docker.io/library/nginx:latests:
docker.io/library/nginx:latests: not found

ERRORS IN PYTHON DOCKERFILE AND nginx.conf

WORKDIR /appp to WORKDIR /app

COPY appy.py /app to COPY app.py /app

RUN pip install flask netiface to RUN pip install flask netifaces

EXPOSE "eight thousand" to EXPOSE 8000

CMD ["pythn", "app.py"] to CMD ["python", "app.py"]

worker_process auto to worker_processes auto;

worker_connection 1024; to worker_connections 1024;

include   /etc/nginx/mime.typess;

   default_typ application/octet-stream;   to   include   /etc/nginx/mime.types;

                                                                          default_type application/octet-stream;

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose up --build -
d

time="2024-10-31T11:25:45+05:30" level=warning
msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-
compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid
potential confusion"

[+] Building 1.5s (18/18) FINISHED   docker:desktop-linux

 => [nginx internal] load build definition from Dockerfile   0.1s

 => => transferring dockerfile: 142B   0.0s

 => [python-app internal] load build definition from Dockerfile   0.1s

 => => transferring dockerfile: 170B   0.0s

 => [python-app internal] load metadata for docker.io/library/python:3.9   0.1s

```
=> [nginx internal] load metadata for docker.io/library/nginx:latest                    0.1s

=> [nginx internal] load .dockerignore                          0.0s

=> => transferring context: 2B                          0.0s

=> [python-app internal] load .dockerignore                          0.1s

=> => transferring context: 2B                          0.0s

=> [nginx internal] load build context                          0.0s

=> => transferring context: 592B                          0.0s

=> [nginx 1/2] FROM
docker.io/library/nginx:latest@sha256:28402db69fec7c17e179ea87882667f1e0543911  0.1s

=> => resolve
docker.io/library/nginx:latest@sha256:28402db69fec7c17e179ea87882667f1e054391138f77f  0.1s

=> [python-app 1/4] FROM
docker.io/library/python:3.9@sha256:ed8b9dd4e9f89c111f4bdb85a55f8c9f0e227  0.1s

=> => resolve
docker.io/library/python:3.9@sha256:ed8b9dd4e9f89c111f4bdb85a55f8c9f0e22796a29844938
0.1s

=> [python-app internal] load build context                          0.0s

=> => transferring context: 28B                          0.0s

=> CACHED [nginx 2/2] COPY nginx.conf /etc/nginx/nginx.conf                          0.0s

=> [nginx] exporting to image                          0.5s

=> => exporting layers                          0.0s

=> => exporting manifest
sha256:cf8b973f0e0ace96c645047cebf4ca7af410de15f4826470a852ec0bb04122b7   0.0s

=> => exporting config
sha256:80d780602b707280461883f8f30b2de49c9cf00b435557b691eb07c92cbb44e3      0.0s

=> => exporting attestation manifest
sha256:a410d2da260e8e15493c4f98f0c57e9dd00905e8940a6a7cd344d3  0.1s

=> => exporting manifest list
sha256:67f2f33e79c99ba6e06ffec3c8c4056b3c98a55b0303792df54527e2fa8a9  0.1s

=> => naming to docker.io/library/local-nginx:latest                          0.0s

=> => unpacking to docker.io/library/local-nginx:latest                          0.1s

=> CACHED [python-app 2/4] WORKDIR /app                          0.0s

=> CACHED [python-app 3/4] COPY app.py /app                          0.0s

=> CACHED [python-app 4/4] RUN pip install flask netifaces                          0.0s
```

```
 => [python-app] exporting to image                                    0.5s

 => => exporting layers                                    0.0s

 => => exporting manifest
sha256:552b15b646e50b28bcdedd57f2bb24a981e19f7d1961b12c39ab1887639f9173   0.0s

 => => exporting config
sha256:b419f8ca66546cf5d6fb1b065c02a53cfc29517d9b409b1b2bb88858c9160e2a     0.0s

 => => exporting attestation manifest
sha256:25a62af3ec871b087a55c52f70949d1a7cea1ba7dac91c7fb6077a  0.1s

 => => exporting manifest list
sha256:aacc28344521a3be913fa4f3ae52a23467b0ead584290b038dc47ee769991  0.1s

 => => naming to docker.io/library/local-python-app:latest             0.1s

 => => unpacking to docker.io/library/local-python-app:latest          0.1s

 => [nginx] resolving provenance for metadata file            0.0s

 => [python-app] resolving provenance for metadata file          0.0s

[+] Running 2/2

✓ Container devops-internship-challenge-nginx-1  Started            3.7s

✓ Container python_app              Started          3.7s
```
#BOTH THE NGINX AND PYTHON APP CONTAINERS START

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose ps

time="2024-11-03T14:05:35+05:30" level=warning
msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"

```
NAME                      IMAGE        COMMAND           SERVICE   CREATED      STATUS
PORTS

devops-internship-challenge-nginx-1   local-nginx     "/docker-entrypoint.…"  nginx     58 minutes
ago   Up 58 minutes   0.0.0.0:8080->80/tcp

python_app              local-python-app  "python app.py"      python-app   58 minutes ago
Up 58 minutes   8000/tcp
```

TO SHOW ACCESS LOGS, I MADE FEW CHANGES

1)Made a logs directory or folder in nginx folder.

2)Made 2 files access.log and error.log in logs folder.

3) Made changes in docker-compose.yaml file

volumes:

- ./nginx/nginx.conf:/etc/nginx/nginx.conf

- ./nginx/logs:/var/log/nginx   ← added this to map log directory to host.

4) Made changes in nginx.conf

In HTTP added : access_log /var/log/nginx/access.log; error_log /var/log/nginx/error.log; to access log files.

5)Then restarted the containers

6)Checking access logs using:

docker exec -it devops-internship-challenge-nginx-1 cat /var/log/nginx/access.log

The Images of access log are attached later.

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker exec -it devops-internship-challenge-nginx-1 curl http://python_app:8000

```
<html>
<body>
    <p><b>IP Address:</b> 172.20.0.3</p>
    <p><b>MAC Address:</b> 00:00:00:00:00:00</p>
    <p><b>Username:</b> Guest</p>
    <p><b>Timestamp:</b> 2024-11-03 07:41:28</p>
    <br>
    <h3>Assignment completed successfully!</h3>
</body>
</html>
```
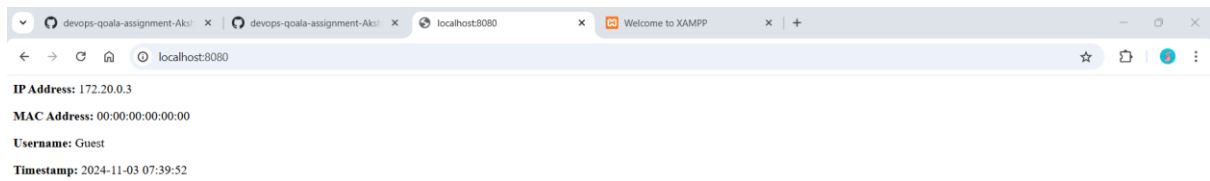
What's next:

    Try Docker Debug for seamless, persistent debugging tools in any container or image → docker debug devops-internship-challenge-nginx-1

    Learn more at https://docs.docker.com/go/debug-cli/

Screenshot :

Access logs Image:

VS Code editor — `access.log`:

```
1  172.20.0.1 - - [03/Nov/2024:07:37:24 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
2  172.20.0.1 - - [03/Nov/2024:07:37:25 +0000] "GET /favicon.ico HTTP/1.1" 404 207 "http://localhost:8080/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/53
3  172.20.0.1 - - [03/Nov/2024:07:38:29 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
4  172.20.0.1 - - [03/Nov/2024:07:38:35 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
5  172.20.0.1 - - [03/Nov/2024:07:38:54 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
6  172.20.0.1 - - [03/Nov/2024:07:39:52 +0000] "GET / HTTP/1.1" 200 305 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
7
```

OUTPUT panel:
```
Loading configuration....
Done loading configuration
```

Do you want to install the recommended 'Docker' extension from Microsoft for the Docker language? [Install] [Show Recommendations]

Command Prompt — C:\Windows\System32\cmd.exe:

```
       Try Docker Debug for seamless, persistent debugging tools in any container or image → docker debug devops-internship-challenge-nginx-1
       Learn more at https://docs.docker.com/go/debug-cli/

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose ls
NAME                          STATUS        CONFIG FILES
devops-internship-challenge   running(2)    C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge\docker-compose.yaml

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose ps
time="2024-11-03T13:33:43+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
NAME                              IMAGE             COMMAND                 SERVICE       CREATED          STATUS          PORTS
devops-internship-challenge-nginx-1   local-nginx       "/docker-entrypoint..."   nginx         26 minutes ago   Up 26 minutes   0.0.0.0:8080->80/tcp
python_app                        local-python-app  "python app.py"         python-app    26 minutes ago   Up 26 minutes   8000/tcp

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker container ls
CONTAINER ID   IMAGE             COMMAND                 CREATED          STATUS          PORTS                      NAMES
b65ae93315a8   local-python-app  "python app.py"         26 minutes ago   Up 26 minutes   8000/tcp                   python_app
abf9675248ec   local-nginx       "/docker-entrypoint..."   26 minutes ago   Up 26 minutes   0.0.0.0:8080->80/tcp       devops-internship-challenge-nginx-1
adc627686a7b   39c8f2ad73fe      "/bin/sh -c 'flask r..."   3 days ago       Up 2 hours      0.0.0.0:57891->5000/tcp    web1_3

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose logs python_app
time="2024-11-03T13:34:00+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
no such service: python_app

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose logs local-python-app
time="2024-11-03T13:34:24+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
no such service: local-python-app

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>docker-compose logs python-app
time="2024-11-03T13:34:49+05:30" level=warning msg="C:\\Users\\aksha\\OneDrive\\Desktop\\tester\\devops-internship-challenge\\docker-compose.yaml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion"
python_app   | * Serving Flask app 'app'
python_app   | * Debug mode: off
python_app   | WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
python_app   | * Running on all addresses (0.0.0.0)
python_app   | * Running on http://127.0.0.1:8000
python_app   | * Running on http://172.20.0.2:8000
python_app   | Press CTRL+C to quit
python_app   | 172.20.0.3 - - [03/Nov/2024 07:37:24] "GET / HTTP/1.0" 200 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:37:25] "GET /favicon.ico HTTP/1.0" 404 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:38:29] "GET / HTTP/1.0" 200 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:38:35] "GET / HTTP/1.0" 200 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:38:54] "GET / HTTP/1.0" 200 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:39:52] "GET / HTTP/1.0" 200 -
python_app   | 172.20.0.3 - - [03/Nov/2024 07:41:28] "GET / HTTP/1.1" 200 -

C:\Users\aksha\OneDrive\Desktop\tester\devops-internship-challenge>
```