

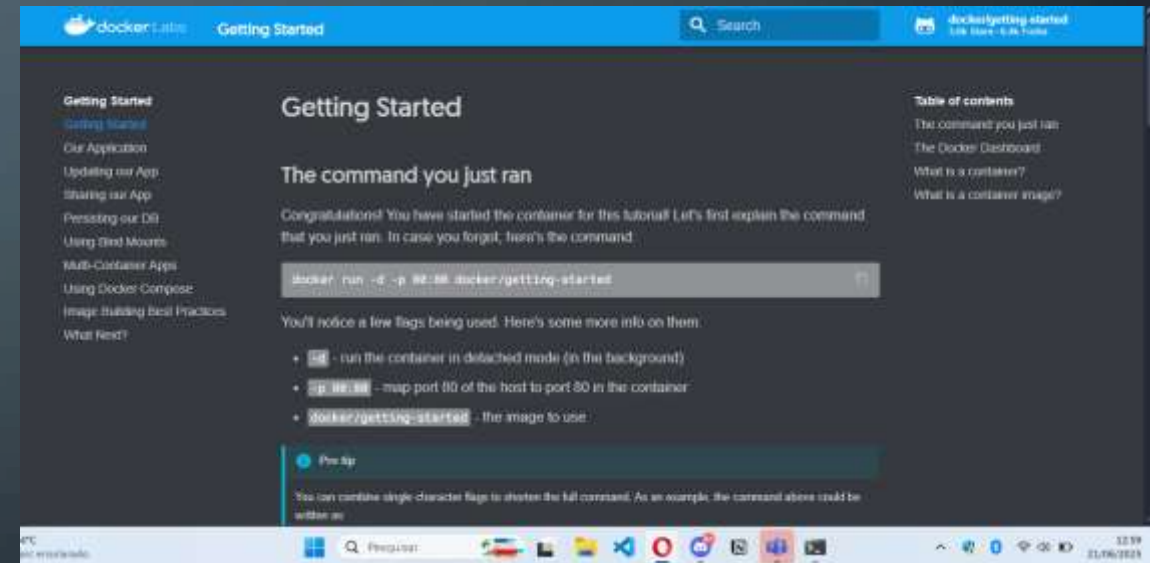


# DOCKER E CONTAINERS

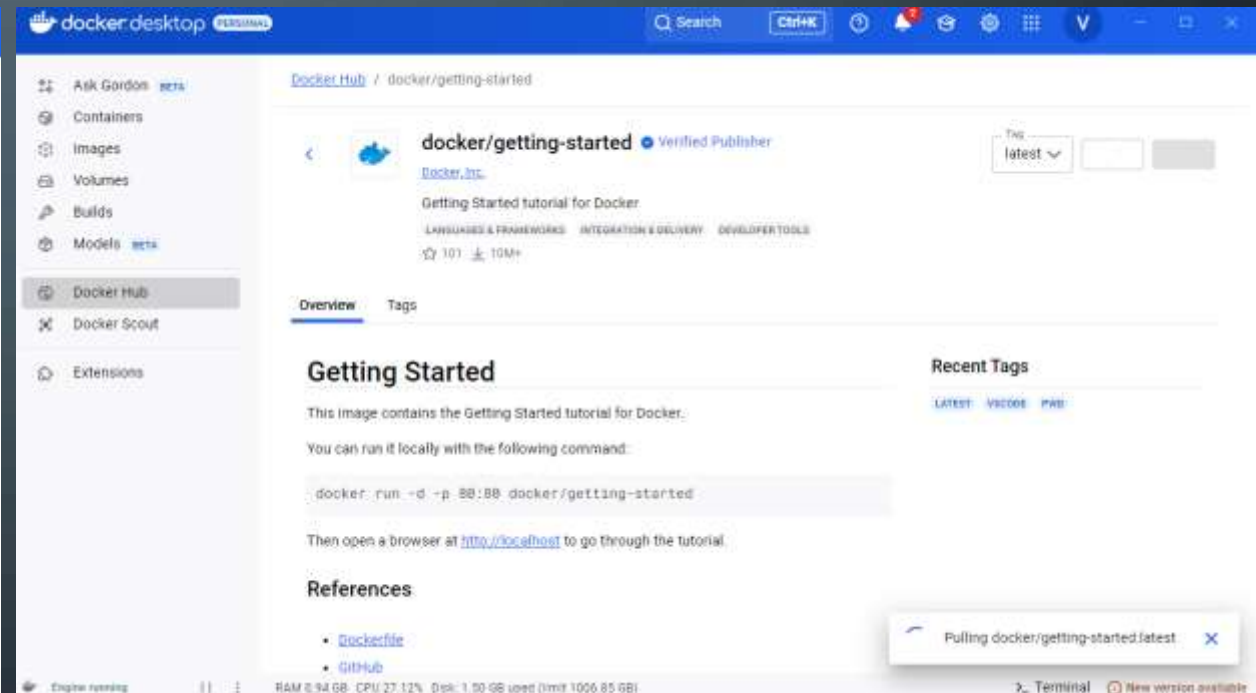
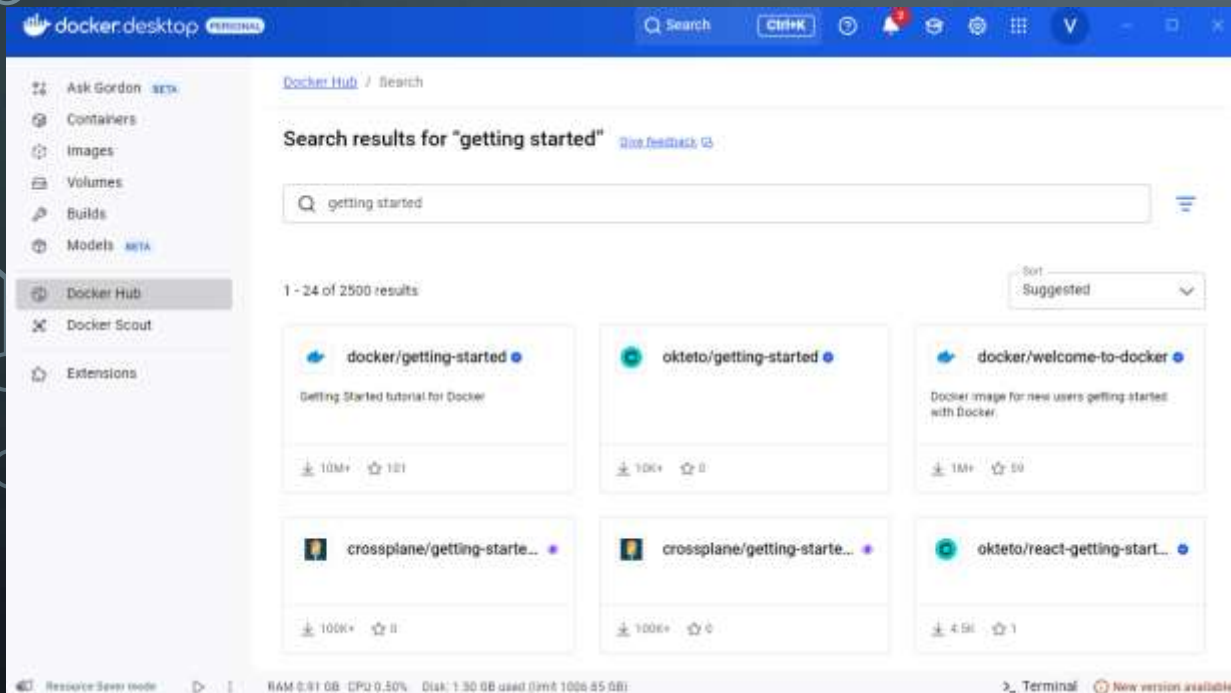
ALUNO: VINÍCIUS FREITAS

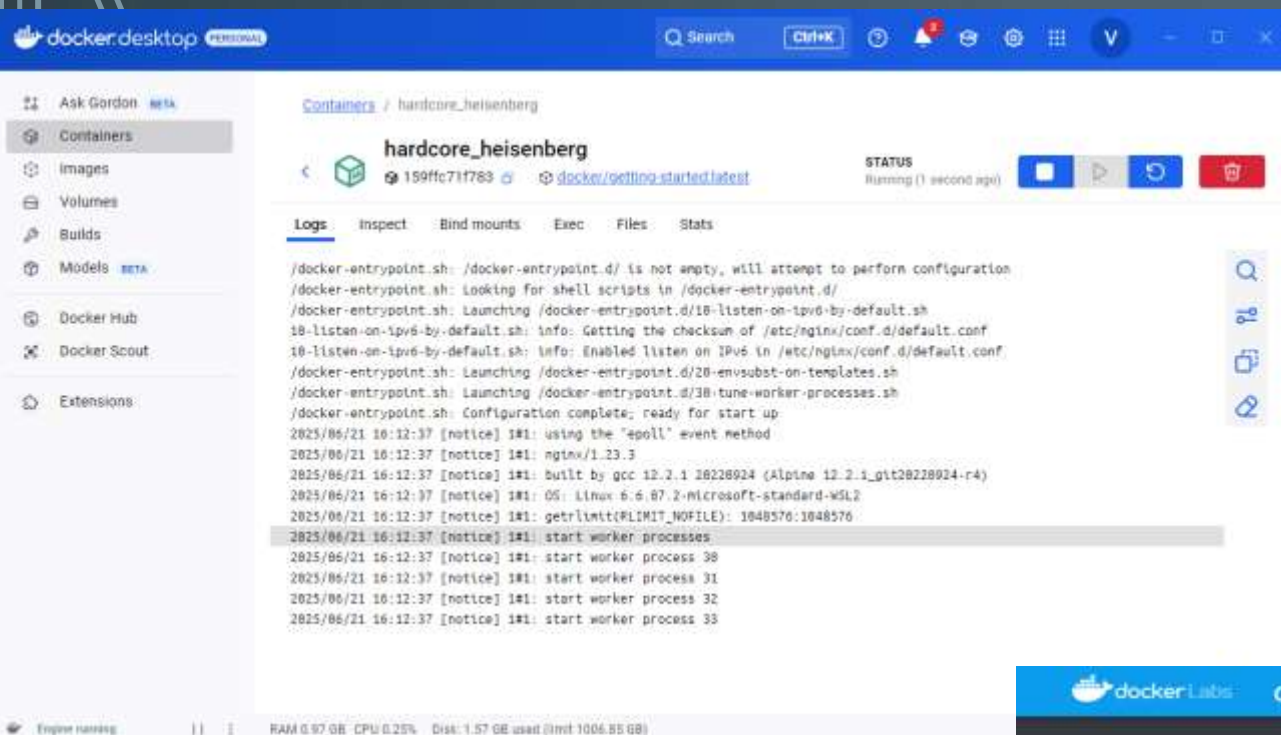
# RODANDO A PRIMEIRA APLICAÇÃO

```
viniciusterrallab@DESKTOP-48EFNT1: ~$ docker run -d -p 80:80 docker/getting-started
This message is shown once a day. To disable it please create the
/home/viniciusterrallab/.hushlogin file.
viniciusterrallab@DESKTOP-48EFNT1:/mnt/c/Users/USER$ docker run -d -p 80:80 docker
/getting-started
Unable to find image 'docker/getting-started:latest' locally
latest: Pulling from docker/getting-started
c158987b0551: Pull complete
1e35f6679fab: Pull complete
cb9626c74200: Pull complete
b6334b6ace34: Pull complete
f1d1c9928c82: Pull complete
9b6f639ec6ea: Pull complete
ee68d3549ec8: Pull complete
33e0cbbb4673: Pull complete
4f7e34c2de10: Pull complete
Digest: sha256:d79336f4812b6547a53e735480dde67f8f8f7071b414fbd9297609ffb989abc1
Status: Downloaded newer image for docker/getting-started:latest
2ccc21e705364cc58e63cb2e97c95377e26dbf915527b1ee30d0a338823c49b3
viniciusterrallab@DESKTOP-48EFNT1:/mnt/c/Users/USER$ docker stop $(docker ps -q)
2ccc21e70536
viniciusterrallab@DESKTOP-48EFNT1:/mnt/c/Users/USER$
```



# RODANDO PELA INTERFACE DO DOCKER DESKTOP

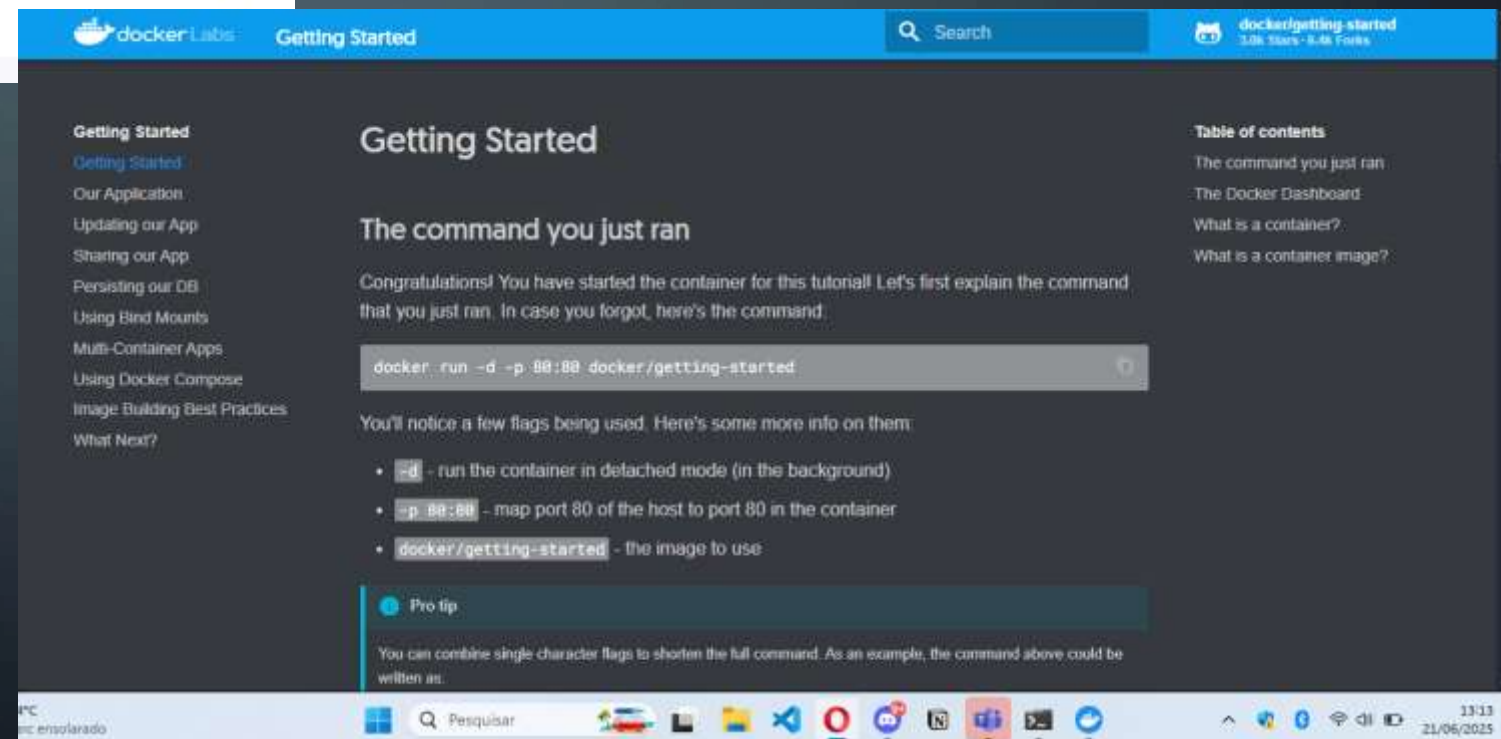




Executando uma imagem após fazer o pull dela:

Após iniciar o container, abra seu navegador e acesse <http://localhost> (ou a porta que você configurou) para visualizar a aplicação em execução.

Se quiser rodar outra aplicação ou acessar uma página diferente, basta utilizar outra imagem ou alterar as configurações de porta ao criar o container.





# MONTANDO UMA IMAGEM PELO WSL

```
viniciusterrallab@DESKTOP-48EFNT1: $ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS        NAMES
viniciusterrallab@DESKTOP-48EFNT1: $ docker search
docker: 'docker search' requires 1 argument

Usage:  docker search [OPTIONS] TERM

Run 'docker search --help' for more information
viniciusterrallab@DESKTOP-48EFNT1: $
viniciusterrallab@DESKTOP-48EFNT1: $ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS        NAMES
viniciusterrallab@DESKTOP-48EFNT1: $ docker image
Usage:  docker image COMMAND

Manage images

Commands:
 build      Build an image from a Dockerfile
 history    Show the history of an image
 import     Import the contents from a tarball to create a filesystem image
 inspect    Display detailed information on one or more images
 load       Load an image from a tar archive or STDIN
 ls         List images
 prune      Remove unused images
 pull       Download an image from a registry
 push       Upload an image to a registry
 rm         Remove one or more images
 save       Save one or more images to a tar archive (streamed to STDOUT by default)
```

```
viniciusterrallab@DESKTOP-48EFNT1: $ docker search python
NAME                DESCRIPTION                                STARS   OFFICIAL
python              Python is an interpreted, interactive, objec... 10154   [OK]
circleci/python     Python is an interpreted, interactive, objec... 108
cing/python         23
bitnami/python      Bitnami container image for Python           30
demisto/python      The Demisto base python image                5
okteto/python       0
ubuntu/python       A chiselled Ubuntu rock with the Python runt... 23
paketobuildpacks/python  Build, ship and run secure software with Cha... 4
chainguard/python   2
intel/python        https://github.com/corpusops/docker-images/   1
corpusops/python    High-level scripting language                0
rootpublic/python   0
stagex/python       1
vulhub/python       0
linuxserver/python  Dockerfiles for CPython of lysnikolaou's tag... 0
koxudaxi/python     Deploy, scale, and secure critical infrastru... 1
cleanstart/python   Necessary Python3 packages for plotting GRIB... 1
dtcenter/python     1
openeuler/python    0
nanozoo/python      Docker image for local development of http://... 0
python/docker-bpo   Repo for python jobs                         0
saagie/python       3
appsvc/python       Python is an interpreted, interactive, objec... 50
viniciusterrallab@DESKTOP-48EFNT1: $
```



viniciusterrallab@DESKTOP-48EFNT1



```
viniciusterrallab@DESKTOP-48EFNT1:~$ docker search --filter is-official=true --filter stars=3 python
NAME          DESCRIPTION          STARS    OFFICIAL
python        Python is an interpreted, interactive, objec...  10154    [OK]
viniciusterrallab@DESKTOP-48EFNT1:~$
```

```
viniciusterrallab@DESKTOP-48EFNT1:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
python	latest	5f69d22a88dd	9 days ago	1.47GB
postgres	15.1-alpine	f19eede5a214	2 years ago	347MB
docker/getting-started	latest	d79336f4812b	2 years ago	73.9MB

```
viniciusterrallab@DESKTOP-48EFNT1:~$
```

```
viniciusterrallab@DESKTOP-48EFNT1:~$ docker run -it python
```

```
Python 3.13.5 (main, Jun 12 2025, 22:47:08) [GCC 12.2.0] on linux
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> print("hello, terralab")
```

```
hello, terralab
```

```
>>>
```

```
viniciusterrallab@DESKTOP-48EFNT1:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS          NAMES
cdfad2e1f1b0   python    "python3"               About a minute   Up About a minute          nervous_cohen
viniciusterrallab@DESKTOP-48EFNT1:~$ docker stop cdfad2e1f1b0
cdfad2e1f1b0
viniciusterrallab@DESKTOP-48EFNT1:~$
```

Ao invés de colocar o id do Docker no “Docker stop id”, pode também dar um nome e solicitar a para pelo nome, exemplo: “docker stop my-file”, caso tivesse apelidado o container de “my-file”

```
viniciusterrallab@DESKTOP-48EFNT1:~$ docker run -it python
Python 3.13.5 (main, Jun 12 2025, 22:47:08) [GCC 12.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print("hello, terralab")
hello, terralab
>>> viniciusterrallab@DESKTOP-48EFNT1:~$
```



# CRIANDO A PRIMEIRA DOCKERFILE E DOCKERIMAGE

```
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ nano Dockerfile
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ nano app.py
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ ls
Dockerfile  app.py
viniciusterrallab@DESKTOP-48EFNT1:~/devops$
```

Primeiro passo criar a Dockerfile com os comandos e suas dependências para quando rodar o container

```
GNU nano 6.2 Dockerfile
FROM python:3.10.2-slim

COPY . /app
WORKDIR /app

RUN pip install --upgrade pip && pip install flask art
ENV Name="ViniciusTerraLab"

ENTRYPOINT ["python", "app.py"]
```

# APÓS CRIAR A DOCKERFILE, CRIAR O SCRIPT DE PYTHON COM OS COMANDOS NECESSÁRIOS PARA ABRIR O ARQUIVO FLASK NO NAVEGADOR E FINALMENTE RODAR O DOCKER IMAGE

```
viniciusterrallab@DESKTOP-4€ x + v
GNU nano 6.2 app.py
import os
from flask import Flask

APP = Flask(__name__)

@APP.route('/')
def say_hello():
    name = os.environ['Name']
    return f'Hello {name}\n'

if __name__ == '__main__':
    APP.run(host='0.0.0.0', port=8080, debug=True)
```

```
viniciusterrallab@DESKTOP-4€ x + v
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ docker build -t my-flask-app .
[+] Building 41.4s (10/10) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.2s
=> => transferring dockerfile: 206B                                0.0s
=> [internal] load metadata for docker.io/library/python:3.10.2-slim 5.5s
=> [auth] library/python:pull token for registry-1.docker.io       0.0s
=> [internal] load .dockerignore                                   0.2s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                   0.4s
=> => transferring context: 463B                                     0.0s
=> [1/4] FROM docker.io/library/python:3.10.2-slim@sha256:6faf002f0bce2ce81bec4a22 11.0s
=> => resolve docker.io/library/python:3.10.2-slim@sha256:6faf002f0bce2ce81bec4a225 0.1s
=> => sha256:d87688ad24ef168e105068280a296bbb7e70647be7fb64a788b6 11.22MB / 11.22MB 3.9s
=> => sha256:0db4d52e41af9884b9b4048c06a7276acd22602b80b7cf1de28c8fe3b 235B / 235B 0.7s
=> => sha256:92c59ec44e08abbd071efa42d226c5bdb8396ee193a53e02c42322 1.08MB / 1.08MB 2.4s
=> => sha256:51606b1d16e3e7d2917554d74c73a3212fbf9166c307100c11fb26 2.64MB / 2.64MB 2.0s
=> => sha256:f7a1c6dad28192bd417b78079d6ddc03cbca6d5ea46bba12769b 31.37MB / 31.37MB 4.9s
=> => extracting sha256:f7a1c6dad28192bd417b78079d6ddc03cbca6d5ea46bba12769b235b635 2.3s
=> => extracting sha256:92c59ec44e08abbd071efa42d226c5bdb8396ee193a53e02c4232296ef8 0.3s
=> => extracting sha256:d87688ad24ef168e105068280a296bbb7e70647be7fb64a788b69e35271 1.0s
=> => extracting sha256:0db4d52e41af9884b9b4048c06a7276acd22602b80b7cf1de28c8fe3b1 0.1s
=> => extracting sha256:51606b1d16e3e7d2917554d74c73a3212fbf9166c307100c11fb26e87b5 0.5s
=> [2/4] COPY . /app                                              1.3s
=> [3/4] WORKDIR /app                                             0.4s
=> [4/4] RUN pip install --upgrade pip && pip install flask art 15.5s
=> exporting to image                                             5.8s
=> => exporting layers                                             3.5s
=> => exporting manifest sha256:995fbdcab15f2019db42087941615891b87a9fee09079bb3cca 0.1s
=> => exporting config sha256:4ea6e95995185d3f9b5dbb4243aa73e7937e8ad01fcc4bf0ffc81 0.1s
=> => exporting attestation manifest sha256:8d9affdb99a926ab94a1867d82b9f19544e17d2 0.3s
=> => exporting manifest list sha256:3c6f84ade97af240be6d67739986b5323b6cc42f9d8e2a 0.2s
=> => naming to docker.io/library/my-flask-app:latest             0.0s
=> => unpacking to docker.io/library/my-flask-app:latest          1.3s
```

Certificando  
se a imagem  
foi criada  
com êxito:

```
=> => unpacking to docker.io/library/my-flask-app:latest 1.3s
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ docker images
REPOSITORY          TAG          IMAGE ID          CREATED           SIZE
my-flask-app         latest       3c6f84ade97a     57 seconds ago   229MB
python               latest       5f69d22a88dd     10 days ago      1.47GB
postgres             15.1-alpine f19eede5a214     2 years ago      347MB
docker/getting-started latest       d79336f4812b     2 years ago      73.9MB
viniciusterrallab@DESKTOP-48EFNT1:~/devops$
```

Executando o  
container com  
docker run:

```
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ docker run -p 8081:8080 my-flask-app
172.17.0.1 - - [22/Jun/2025 02:09:46] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:47] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:48] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:48] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:48] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:54] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:09:54] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:10:11] "GET /tutorial/ HTTP/1.1" 404 -
172.17.0.1 - - [22/Jun/2025 02:14:22] "GET /tutorial/ HTTP/1.1" 404 -
^Cviniciusterrallab@DESKTOP-48EFNT1:~/devops$
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ curl http://localhost
curl: (7) Failed to connect to localhost port 80 after 3 ms: Connection refused
viniciusterrallab@DESKTOP-48EFNT1:~/devops$ docker run -p 8081:8080 my-flask-app
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8080
* Running on http://172.17.0.2:8080
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 556-754-454
```

**OBS:** a  
porta 80 já  
estava  
ocupada por  
testes  
anteriores,  
então  
precisei  
alterar a  
porta para  
que tudo  
funcionasse  
corretamente

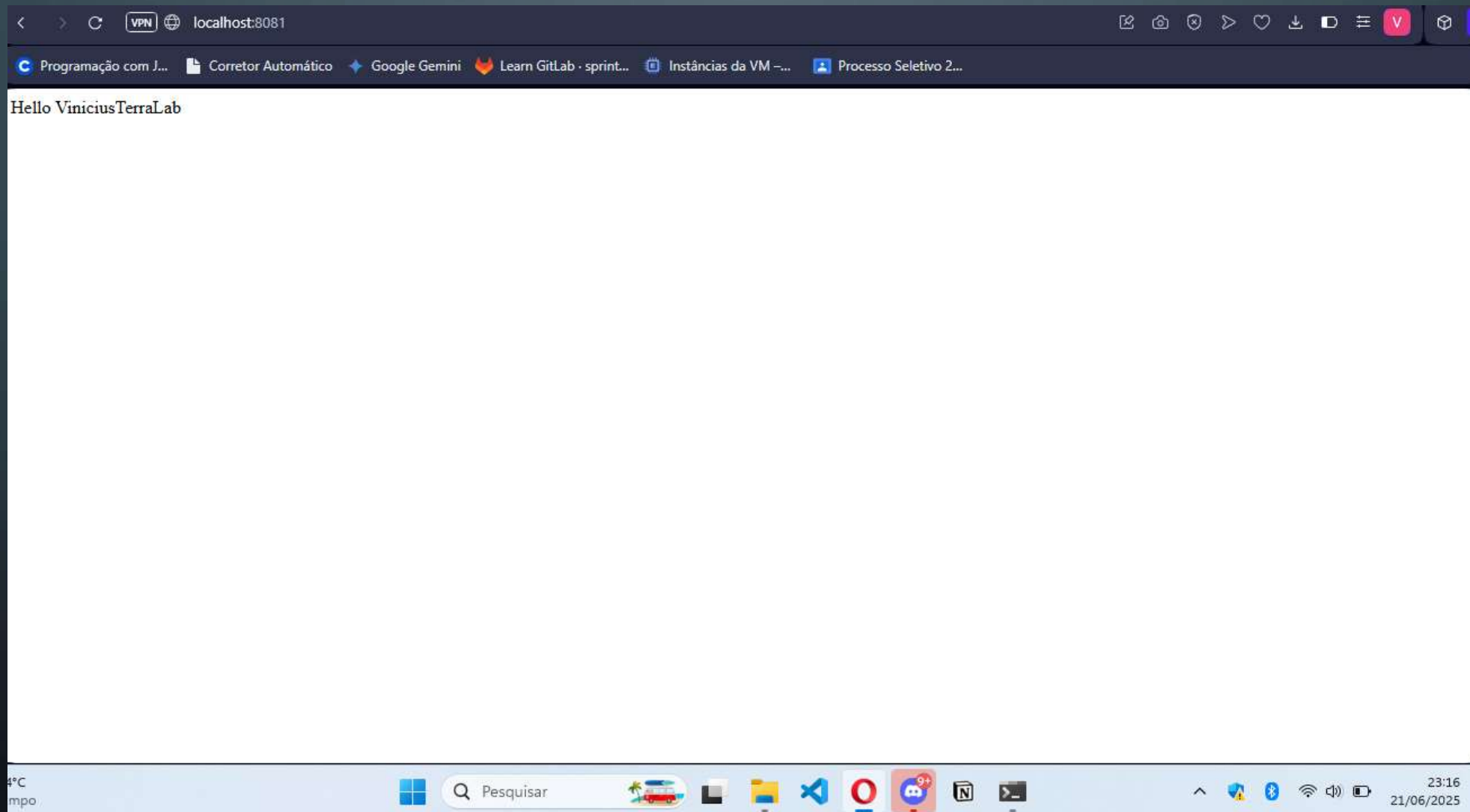
# VERIFICANDO QUAIS CONTAINERS ESTAVAM ATIVOS E DANDO STOP NELES

```
viniciusterrallab@DESKTOP-4E: X + -
docker/getting-started latest d79336f4812b 2 years ago 73.9MB
viniciusterrallab@DESKTOP-48EFNT1: $ docker rm docker/getting-started
Error response from daemon: No such container: docker/getting-started
viniciusterrallab@DESKTOP-48EFNT1: $ docker rm <docker/getting-started>
-bash: syntax error near unexpected token `newline'
viniciusterrallab@DESKTOP-48EFNT1: $ docker ps -a
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
RTS
ad28a7d8641b   my-flask-app                        "python app.py"         5 minutes ago Up 5 minutes   0.0.0.0:80->8080/tcp, [::]:80->8080/tcp
cdfad2e1f1b0   python                              "python3"               7 hours ago   Exited (137) 7 hours ago
159ffc71f783   docker/getting-started:latest      "/docker-entrypoint.s..." 10 hours ago   Exited (0) 10 hours ago
2b03f32b7a0b   postgres:15.1-alpine              "docker-entrypoint.s..." 4 days ago    Exited (0) 3 days ago
jolly_newton
viniciusterrallab@DESKTOP-48EFNT1: $ docker rm 159ffc71f783
159ffc71f783
viniciusterrallab@DESKTOP-48EFNT1: $ docker ps -a
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
ad28a7d8641b   my-flask-app                        "python app.py"         5 minutes ago Up 5 minutes   0.0.0.0:80->8080/tcp, [::]:80->8080/tcp
cdfad2e1f1b0   python                              "python3"               7 hours ago   Exited (137) 7 hours ago
2b03f32b7a0b   postgres:15.1-alpine              "docker-entrypoint.s..." 4 days ago    Exited (0) 3 days ago
jolly_newton
viniciusterrallab@DESKTOP-48EFNT1: $
```

```
viniciusterrallab@DESKTOP-4E: X + -
* Running on http://127.0.0.1:8080
* Running on http://172.17.0.2:8080
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 556-754-454
172.17.0.1 -- [22/Jun/2025 02:16:32] "GET / HTTP/1.1" 200 -
172.17.0.1 -- [22/Jun/2025 02:16:32] "GET /favicon.ico HTTP/1.1" 404 -
^C
viniciusterrallab@DESKTOP-48EFNT1: ~/devops$
viniciusterrallab@DESKTOP-48EFNT1: ~/devops$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS        NAMES
e2e8d3a19b6e   my-flask-app                        "python app.py"         5 minutes ago   Exited (0) 18 seconds ago   stoic_
ad28a7d8641b   my-flask-app                        "python app.py"         18 minutes ago   Exited (0) 7 minutes ago   quizz_
cdfad2e1f1b0   python                              "python3"               8 hours ago     Exited (137) 8 hours ago   nervou
s_cohen
2b03f32b7a0b   postgres:15.1-alpine              "docker-entrypoint.s..." 4 days ago      Exited (0) 3 days ago      jolly_
newton
viniciusterrallab@DESKTOP-48EFNT1: ~/devops$ docker stop e2e8d3a19b6e
e2e8d3a19b6e
viniciusterrallab@DESKTOP-48EFNT1: ~/devops$
```



# CONCLUÍDO COM SUCESSO!





# CRIANDO DOCKER COMPOSE

```
viniciusterrallab@DESKTOP-4E X + v
GNU nano 6.2 Dockerfile
FROM python:alpine
ADD app.py requirements.txt code/
WORKDIR /code
RUN pip install -r requirements.txt
CMD ["python", "app.py"]
```

```
viniciusterrallab@DESKTOP-4E X + v
GNU nano 6.2 docker-compose.yaml
services:
  web-fe:
    build:
    command: python app.py
    ports:
      -5000:5000
  redis:
    image:"redis:alpine"
    ports:
      -6379
```

```
viniciusterrallab@DESKTOP-4E X + v
GNU nano 6.2 app.py
import time
import redis
from flask import Flask

app = Flask(__name__)
cache = redis.Redis(host='redis', port=6379)

def get_hit_count():
    retries = 5
    while True:
        try:
            return cache.incr('hits')
        except redis.exceptions.ConnectionError as exc:
            if retries == 0:
                raise exc
            retries -= 1
            time.sleep(0.5)

@app.route('/')
def hello():
    count = get_hit_count()
    return "Cole estudante de Docker! Você me visitou {} vezes!\n".format(count)

if __name__ == "__main__":
    app.run(host="0.0.0.0", debug=True)
```

```
viniciusterrallab@DESKTOP-4E X + v
GNU nano 6.2 requirements.txt
flask
redis
```

viniciusterrallab@DESKTOP-48EFNT1:~/projeto\$ docker compose build

[+] Building 15.9s (11/11) FINISHED

```
=> [internal] load local bake definitions 0.0s
=> => reading from stdin 363B 0.0s
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 168B 0.0s
=> [internal] load metadata for docker.io/library/python:alpine 1.1s
=> [internal] load .dockerignore 0.1s
=> => transferring context: 2B 0.0s
=> [internal] load build context 0.1s
=> => transferring context: 67B 0.0s
=> [1/4] FROM docker.io/library/python:alpine@sha256:9b4929a72599b6c6389ece4ecbf415fd1355129f22bb92b 3.6s
=> => resolve docker.io/library/python:alpine@sha256:9b4929a72599b6c6389ece4ecbf415fd1355129f22bb92b 0.1s
=> => sha256:858ff9217c427e024d971e5b190e2b91d2e032273c2801738e3c519185c36625 12.54MB / 12.54MB 1.6s
=> => sha256:b26c3d41364be873c41bcfc6338fd3a7dd25b9166f7a721f8f4af75c0de0f975 460.22kB / 460.22kB 0.6s
=> => sha256:b1c9952943a1f4f0fadf37eeae49cc2d264aa63fa27c9e7ab032a49a1b912d16 249B / 249B 0.6s
=> => sha256:fe07684b16b82247c3539ed86a65ff37a76138ec25d380bd80c869a1a4c73236 3.80MB / 3.80MB 1.2s
=> => extracting sha256:fe07684b16b82247c3539ed86a65ff37a76138ec25d380bd80c869a1a4c73236 0.4s
=> => extracting sha256:b26c3d41364be873c41bcfc6338fd3a7dd25b9166f7a721f8f4af75c0de0f975 0.3s
=> => extracting sha256:858ff9217c427e024d971e5b190e2b91d2e032273c2801738e3c519185c36625 0.8s
=> => extracting sha256:b1c9952943a1f4f0fadf37eeae49cc2d264aa63fa27c9e7ab032a49a1b912d16 0.1s
=> [2/4] ADD app.py requirements.txt code/ 1.1s
=> [3/4] WORKDIR /code 0.3s
=> [4/4] RUN pip install -r requirements.txt 6.2s
=> exporting to image 2.3s
=> => exporting layers 1.3s
=> => exporting manifest sha256:3565ce6e9b96dee8f81d841654eebe4171fcebcb1956d95ad68a9e3b16c2e6366 0.1s
=> => exporting config sha256:217f4abd2eef7306aa6b6e75ce00137e37e6291aa345df7073fc77c5c9e8e838 0.1s
=> => exporting attestation manifest sha256:2c6cf7a0e0b8574c1be6d2e9ad36728f268696df7588f2357626e12d 0.1s
=> => exporting manifest list sha256:f676b571fc6440e8281fd88a7231dd0241039c346888936e07f8440b1b6c42e 0.1s
=> => naming to docker.io/library/projeto-web-fe:latest 0.0s
=> => unpacking to docker.io/library/projeto-web-fe:latest 0.4s
=> resolving provenance for metadata file 0.0s
```

```
viniciusterrallab@DESKTOP-48EFNT1:~/projeto$ docker compose up -d
```

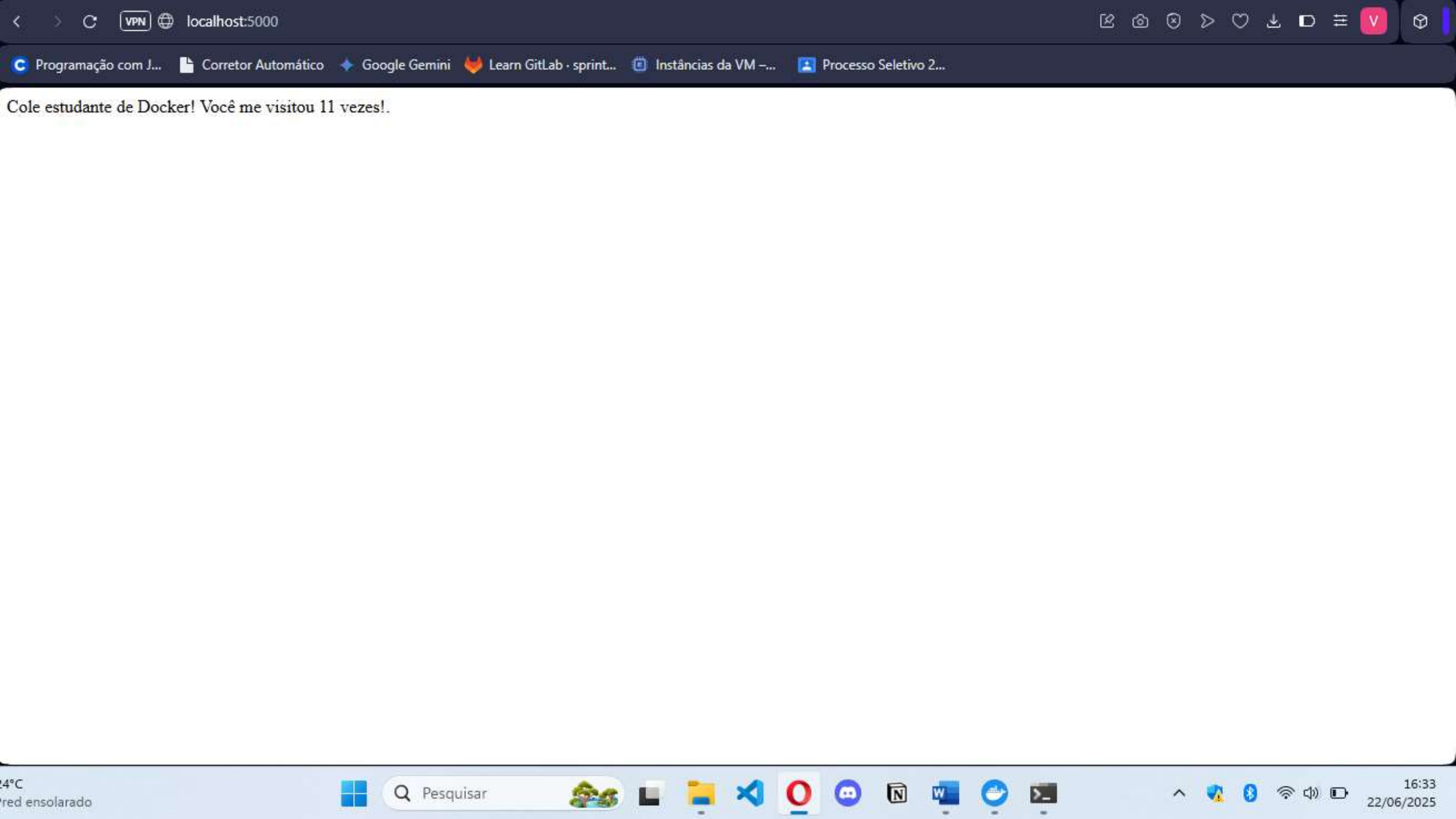
```
[+] Running 8/8
```

✓redis Pulled	8.1s
✓8493ebef02b7 Pull complete	3.4s
✓f03ac91e0937 Pull complete	2.7s
✓3db14a52e194 Pull complete	2.3s
✓4f4fb700ef54 Pull complete	0.0s
✓f18232174bc9 Pull complete	2.1s
✓3535ba13b4da Pull complete	3.1s
✓63ba5ae8d20d Pull complete	3.2s

```
[+] Running 3/3
```

✓Network projeto_default	Created	0.1s
✓Container projeto-web-fe-1	Started	3.2s
✓Container projeto-redis-1	Started	3.1s

```
viniciusterrallab@DESKTOP-48EFNT1:~/projeto$
```



Cole estudante de Docker! Você me visitou 11 vezes!.



Pesquisar

