

O que é Docker?

Docker é um software que ajuda os desenvolvedores a resolver um dos maiores problemas dos projetos: *diferenças de ambiente*. Sabe aquela famosa frase “na minha máquina funciona”? Pois é — o Docker veio pra acabar com isso.

Conceitos básicos

♦ Imagem

Uma imagem é como um pacote com tudo que o projeto precisa: código, dependências, configurações, etc.

É a base para criar os contêineres.

♦ Contêiner

É a imagem em execução. Um contêiner roda isolado, como se fosse uma mini máquina virtual — mas muito mais leve e rápida.

♦ Dockerfile

É um arquivo que descreve como montar uma imagem. Nele você define o que instalar, copiar e executar.

Exemplo de Dockerfile

Dockerfile

```
# Imagem base com Node.js
FROM node:18
```

```
# Diretório de trabalho dentro do contêiner
WORKDIR /app
```

```
# Copia os arquivos de dependência
COPY package*.json ./
```

```
# Instala as dependências
RUN npm install
```

```
# Copia o restante do código
COPY . .
```

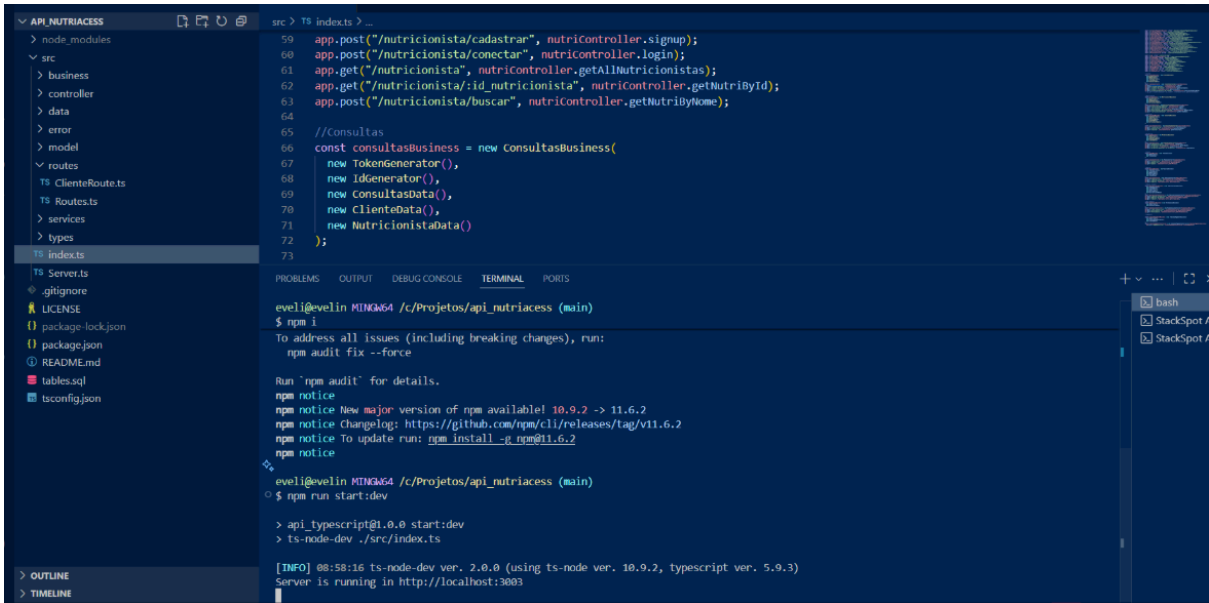
```
# Compila o TypeScript
RUN npm run build
```

```
# Expõe a porta da API
EXPOSE 3000
```

```
# Comando para iniciar a API
CMD ["node", "build/index.js"]
```

Passo a passo

1. Abrir o projeto no VS Code

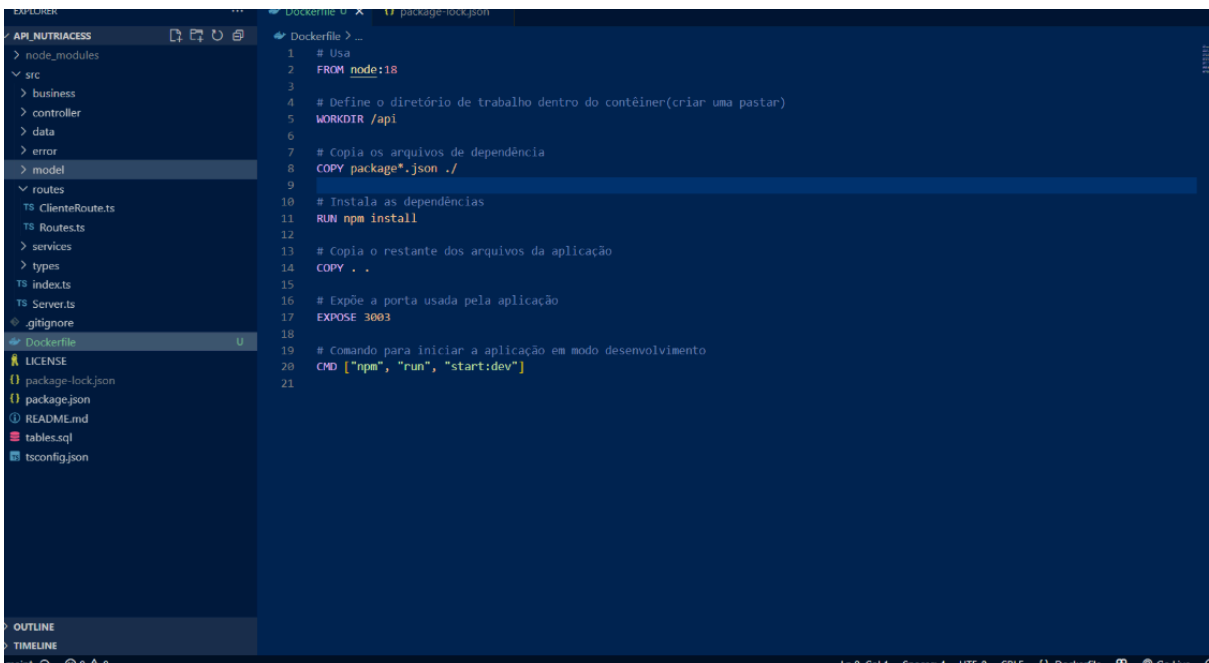


```
src > TS index.ts > ...
59 app.post("/nutricionista/cadastrar", nutriController.signup);
60 app.post("/nutricionista/conectar", nutriController.login);
61 app.get("/nutricionista", nutriController.getAllNutricionistas);
62 app.get("/nutricionista/:id_nutricionista", nutriController.getNutriById);
63 app.post("/nutricionista/buscar", nutriController.getNutriByNome);
64
65 //consultas
66 const consultasBusiness = new ConsultasBusiness(
67   new TokenGenerator(),
68   new IdGenerator(),
69   new ConsultasData(),
70   new ClienteData(),
71   new NutricionistaData()
72 );
73
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
eveli@evelin MINGW64 /c:/Projetos/api_nutriaccess (main)
$ npm i
To address all issues (including breaking changes), run:
npm audit fix --force
Run 'npm audit' for details.
npm notice
npm notice New major version of npm available! 10.9.2 -> 11.6.2
npm notice Changelog: https://github.com/npm/cli/releases/tag/v11.6.2
npm notice To update run: npm install -g npm@11.6.2
npm notice
eveli@evelin MINGW64 /c:/Projetos/api_nutriaccess (main)
$ npm run start:dev
> api_typescript@1.0.0 start:dev
> ts-node-dev ./src/index.ts
[INFO] 08:58:16 ts-node-dev ver. 2.0.0 (using ts-node ver. 10.9.2, typescript ver. 5.9.3)
Server is running in http://localhost:3003
```

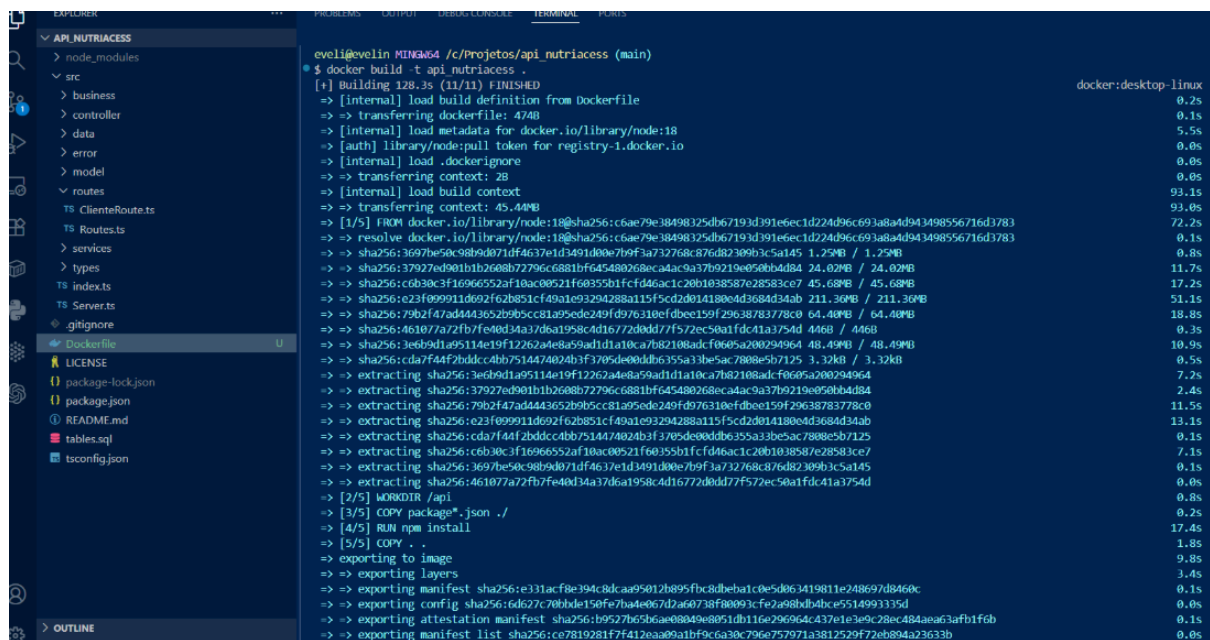
2. Criar a imagem Dockerfile

bash

docker build -t api_nutriaccess .



```
Dockerfile > ...
1 # Usa
2 FROM node:18
3
4 # Define o diretório de trabalho dentro do contêiner(criar uma pasta)
5 WORKDIR /api
6
7 # Copia os arquivos de dependência
8 COPY package*.json ./
9
10 # Instala as dependências
11 RUN npm install
12
13 # Copia o restante dos arquivos da aplicação
14 COPY . .
15
16 # Expõe a porta usada pela aplicação
17 EXPOSE 3003
18
19 # Comando para iniciar a aplicação em modo desenvolvimento
20 CMD [\"npm\", \"run\", \"start:dev\"]
21
```

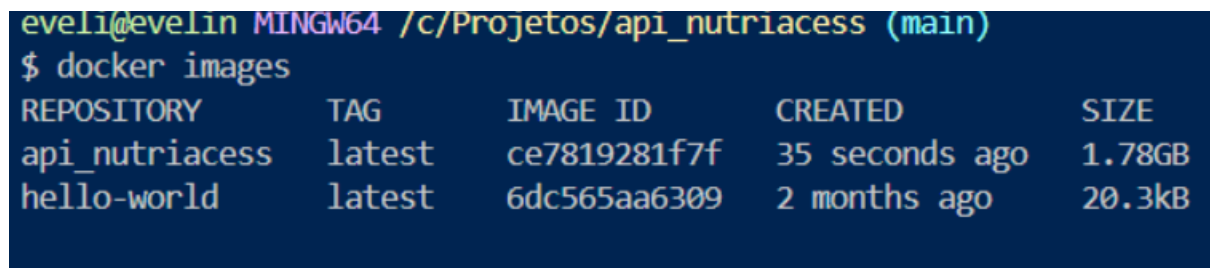


```
eveli@evelin MINGW64 /c/Projetos/api_nutriaccess (main)
$ docker build -t api_nutriaccess .
[+] Building 128.3s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 474B
=> [internal] load metadata for docker.io/library/node:18
=> [auth] library/node:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 45.44MB
=> [1/5] FROM docker.io/library/node:18@sha256:c6ae79e38498325db67193d391e6ec1d224d96c693a8a4d943498556716d3783
=> => resolve docker.io/library/node:18@sha256:c6ae79e38498325db67193d391e6ec1d224d96c693a8a4d943498556716d3783
=> => sha256:3697be50c98b9d071df4637e1d3491d00e7b9f3a732768c876d82309b3c5a145 1.25MB / 1.25MB
=> => sha256:37927ed901b1b2608b72796c6881bf645480268eca4ac9a37b9219e050bb4d84 24.02MB / 24.02MB
=> => sha256:c6b30c3f16966552af10ac00521f60355b1fcfd46ac1c20b1038587e28583ce7 45.68MB / 45.68MB
=> => sha256:e23f099911d092f62b851cf49a1e93294288a115f5cd2d014180e4d3684d34ab 211.30MB / 211.30MB
=> => sha256:79b2f47ad4443652b9b5cc81a95ede249f076310efdb0e159f29638783778c0 64.40MB / 64.40MB
=> => sha256:461077a72fb7f4e0d34a37d6a1958c4d16772d0dd77f572ec50a1fdc41a3754d 446B / 446B
=> => sha256:3e69d1a95114e19f1262a4e8e59ad1d1a10ca788210eadcf0695a200294964 48.49MB / 48.49MB
=> => sha256:cda7f44f2bdc4bb7514474024b3f3705de00db6355a33be5ac7808e5b7125 3.12kB / 3.12kB
=> => extracting sha256:3e69d1a95114e19f1262a4e8e59ad1d1a10ca788210eadcf0695a200294964
=> => extracting sha256:37927ed901b1b2608b72796c6881bf645480268eca4ac9a37b9219e050bb4d84
=> => extracting sha256:79b2f47ad4443652b9b5cc81a95ede249f076310efdb0e159f29638783778c0
=> => extracting sha256:e23f099911d092f62b851cf49a1e93294288a115f5cd2d014180e4d3684d34ab
=> => extracting sha256:cda7f44f2bdc4bb7514474024b3f3705de00db6355a33be5ac7808e5b7125
=> => extracting sha256:ceb30c3f16966552af10ac00521f60355b1fcfd46ac1c20b1038587e28583ce7
=> => extracting sha256:3697be50c98b9d071df4637e1d3491d00e7b9f3a732768c876d82309b3c5a145
=> => extracting sha256:461077a72fb7f4e0d34a37d6a1958c4d16772d0dd77f572ec50a1fdc41a3754d
=> [2/5] WORKDIR /api
=> [3/5] COPY package*.json ./
=> [4/5] RUN npm install
=> [5/5] COPY . .
=> => exporting to image
=> => exporting manifest sha256:e331acf8e394c8dca95012b895fbc8d8ebac10e5d063419811e248697d8460c
=> => exporting config sha256:6d627c70bde150fe7b4e067d2a60738f80093cfe2a98bd4bce5514993335d
=> => exporting attestation manifest sha256:b9527b65bae08049e0051db116e296964c437e1e3e9c28ec484aa63afb1f6b
=> => exporting manifest list sha256:ce7819281f7f412eaa0a0a1bf9c6a30c796e757971a3812529f72eb894a23633b
```

3. Verificar se a imagem foi criada

bash

docker images



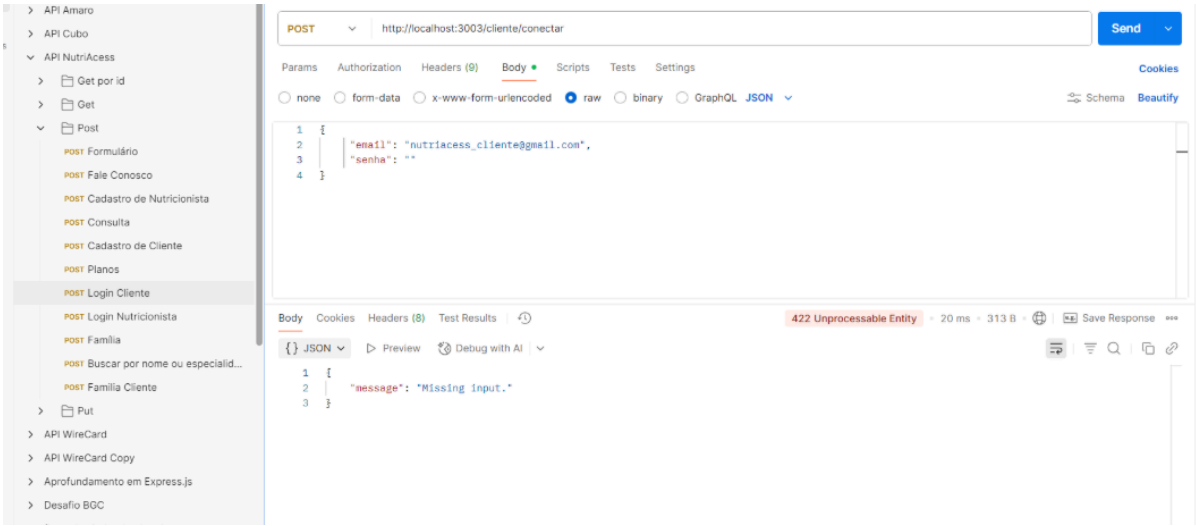
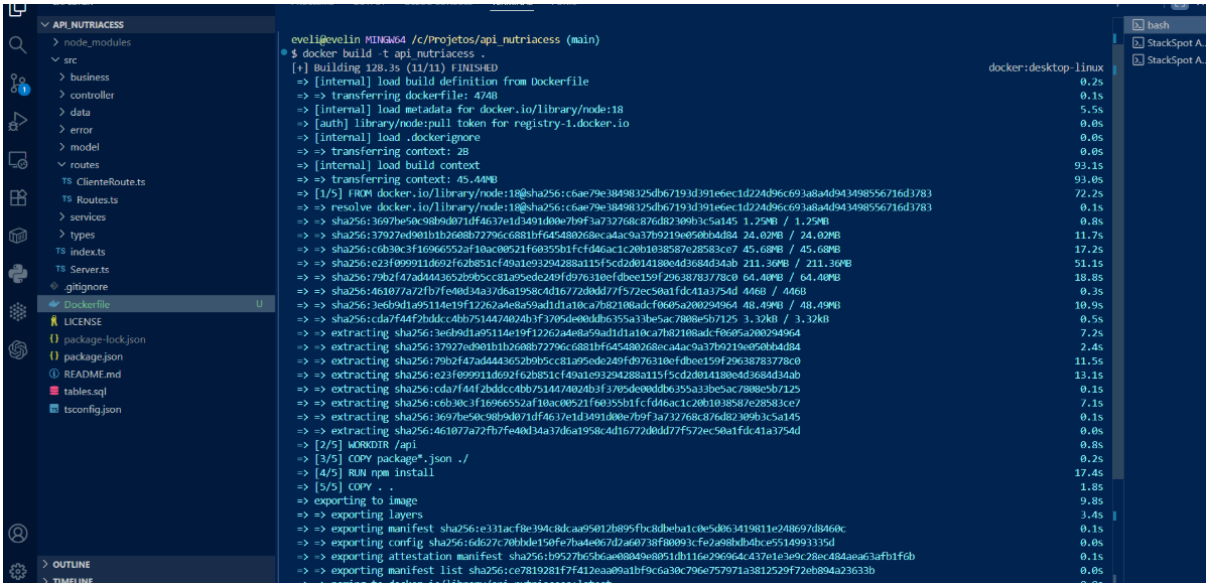
```
eveli@evelin MINGW64 /c/Projetos/api_nutriaccess (main)
$ docker images

REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
api_nutriaccess     latest             ce7819281f7f       35 seconds ago     1.78GB
hello-world         latest             6dc565aa6309       2 months ago       20.3kB
```

4. Executar a imagem (criar um contêiner para o backend)

bash

docker run -p 3003:3003 api_nutriaccess



0.00% / 1200% (12 CPUs available) 268.6MB / 7.42GB

Search Only show running containers

	Name	Container ID	Image	Port(s)	CPU (%)	Last started	Actions
	bold_bhabha	a59ff87c9396	api_nutriaccess	3003:3003	0%	in 1 second	