

ENTENDENDO BACKEND E RESTAPI

Presented by Talison Fabio



QUEM SOU EU



Talison Fabio

Backend developer



github.com/talis-fb



The image shows a white mobile application interface on a yellow background. At the top, there's a navigation bar with a back arrow, forward arrow, and a search bar with a plus sign. Below the bar, the text "GRADUANDO NO BTI" is displayed in a large, bold, black font. Underneath it, the text "2021 - Hoje (7º periodo)" is shown. A section titled "DESENVOLVIMENTO WEB" in bold black font follows, with the subtext "Front + Back 6 meses" and "Back 1 ano e meio". Another section titled "DESENVOLVIMENTO WEB" is shown below, with the subtext "Back 1 ano e meio". At the bottom, the text "IFRN- TÉCNICO EM ELETRÔNICA" is displayed in a large, bold, black font, followed by the text "2017 - 2020". A hand-drawn style "f" is visible in the top right corner of the slide.

GRADUANDO NO BTI

2021 - Hoje (7º periodo)

DESENVOLVIMENTO WEB

Front + Back 6 meses

Back 1 ano e meio

DESENVOLVIMENTO WEB

Back 1 ano e meio

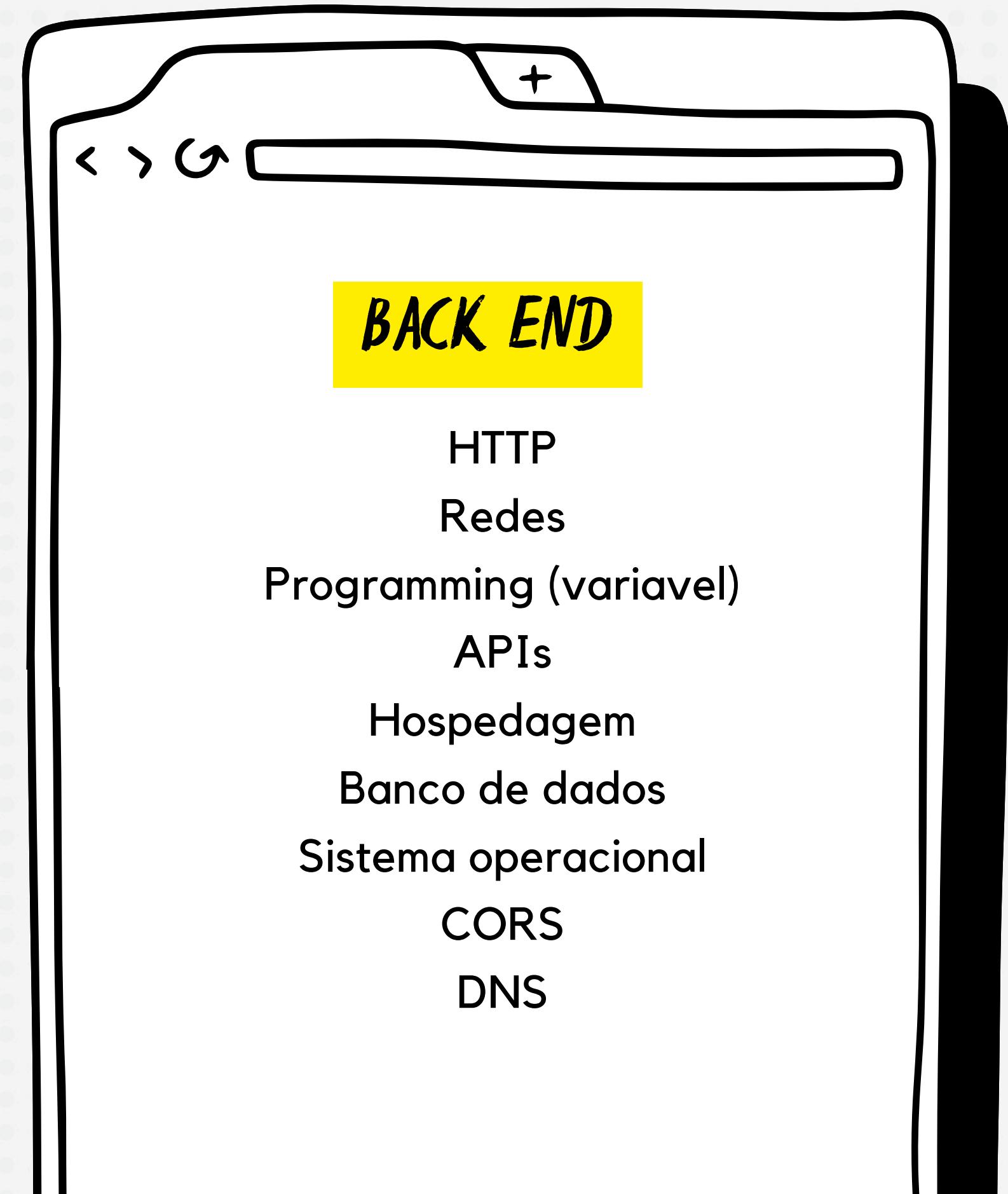
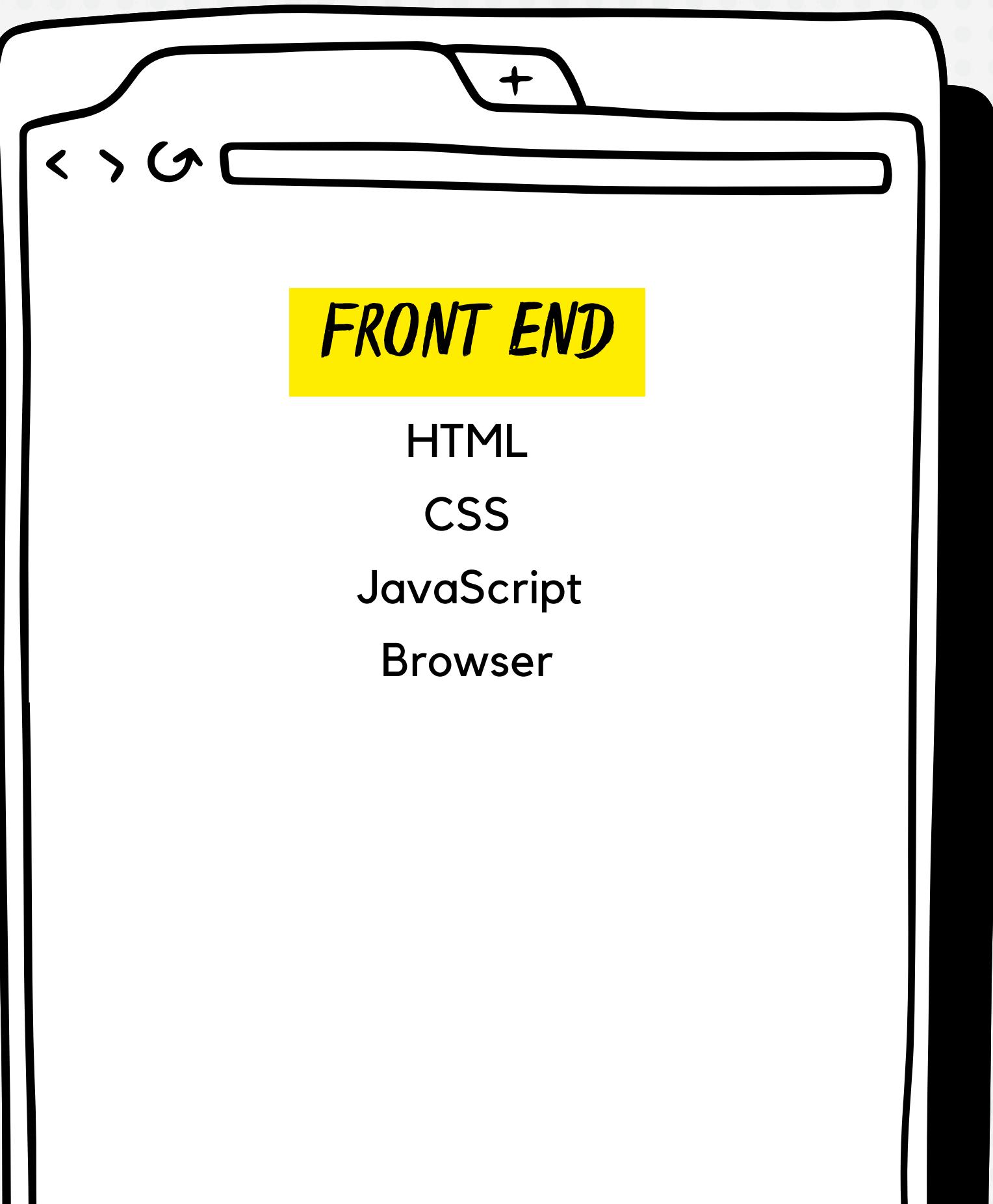
IFRN- TÉCNICO EM ELETRÔNICA

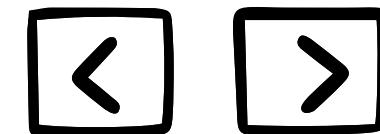
2017 - 2020

O QUE É BACKEND

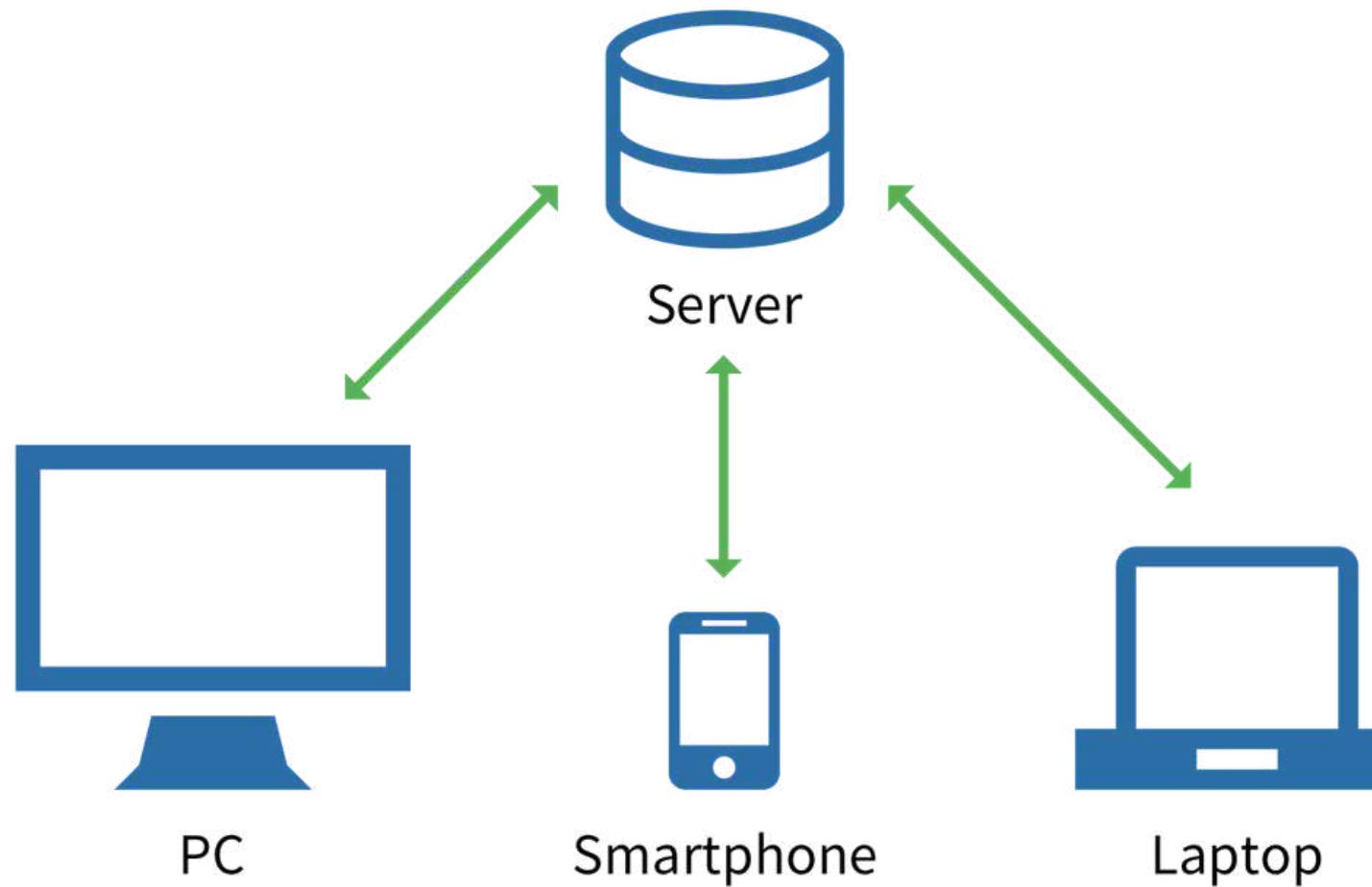
COMO SABER
REALMENTE
O QUE É BACKEND

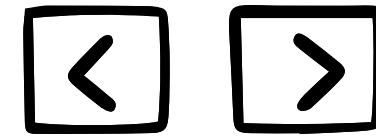
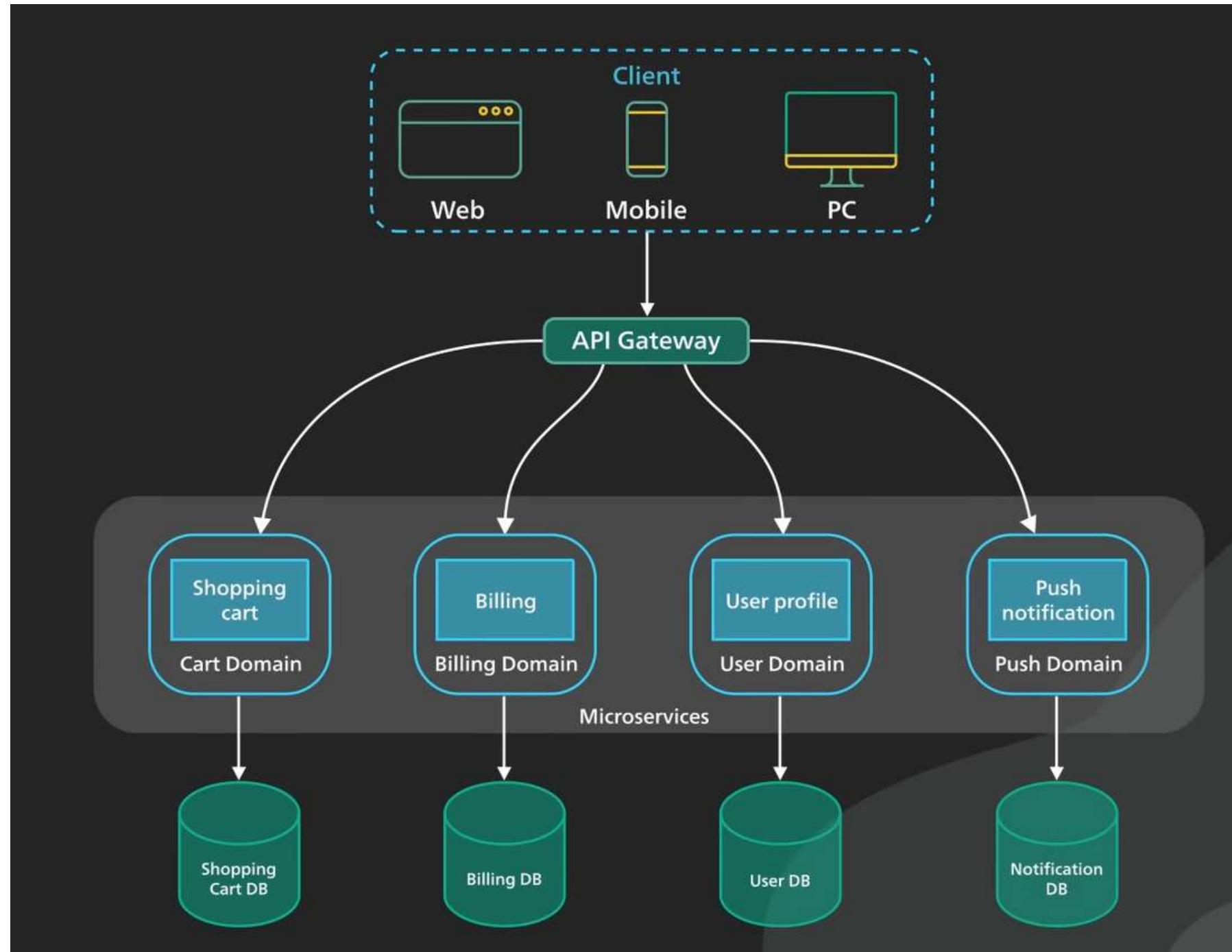
COMO SE TORNAR
DEV BACKEND

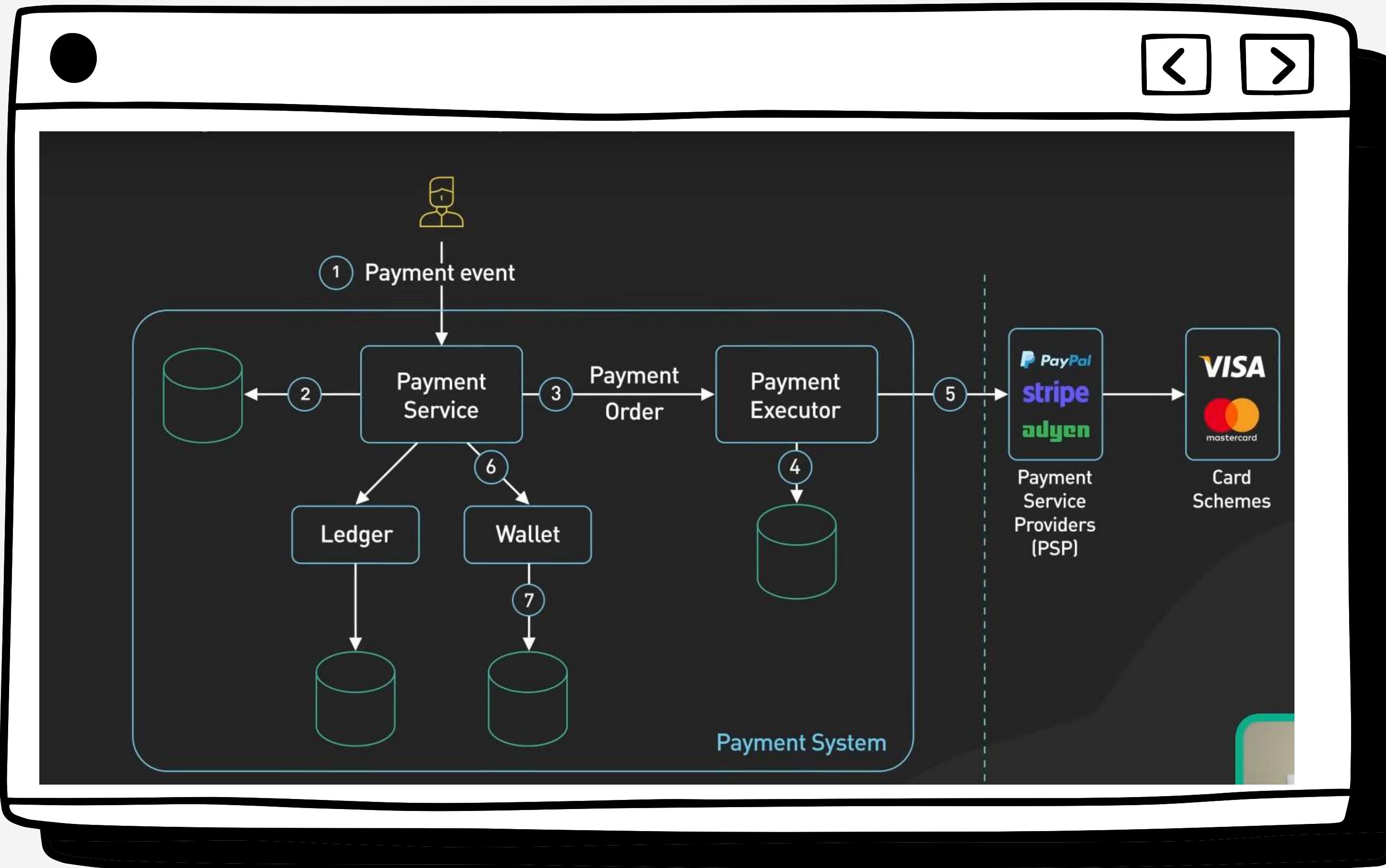


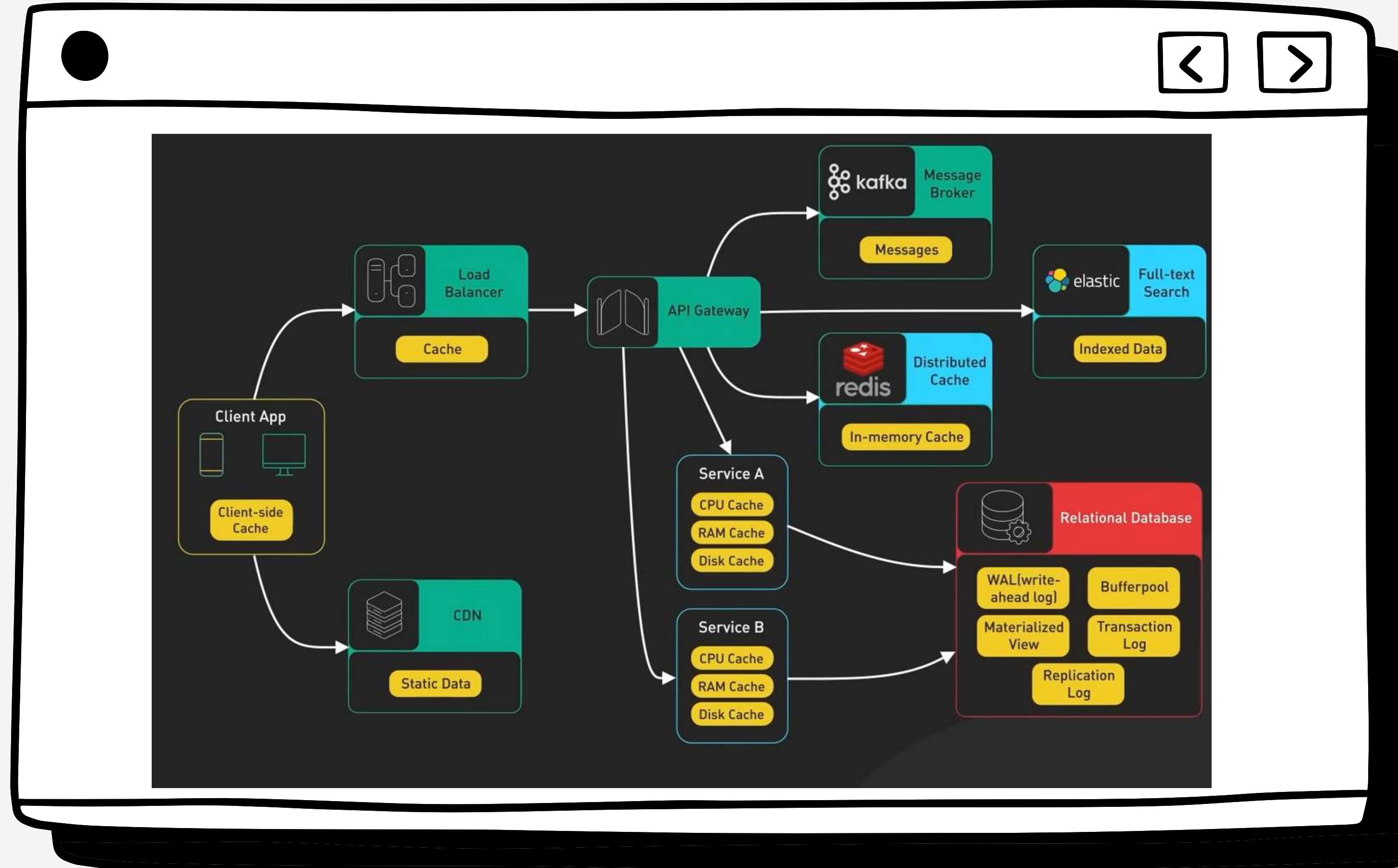


Client-Server Model





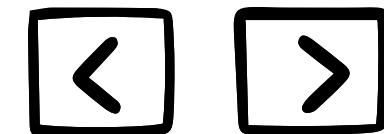




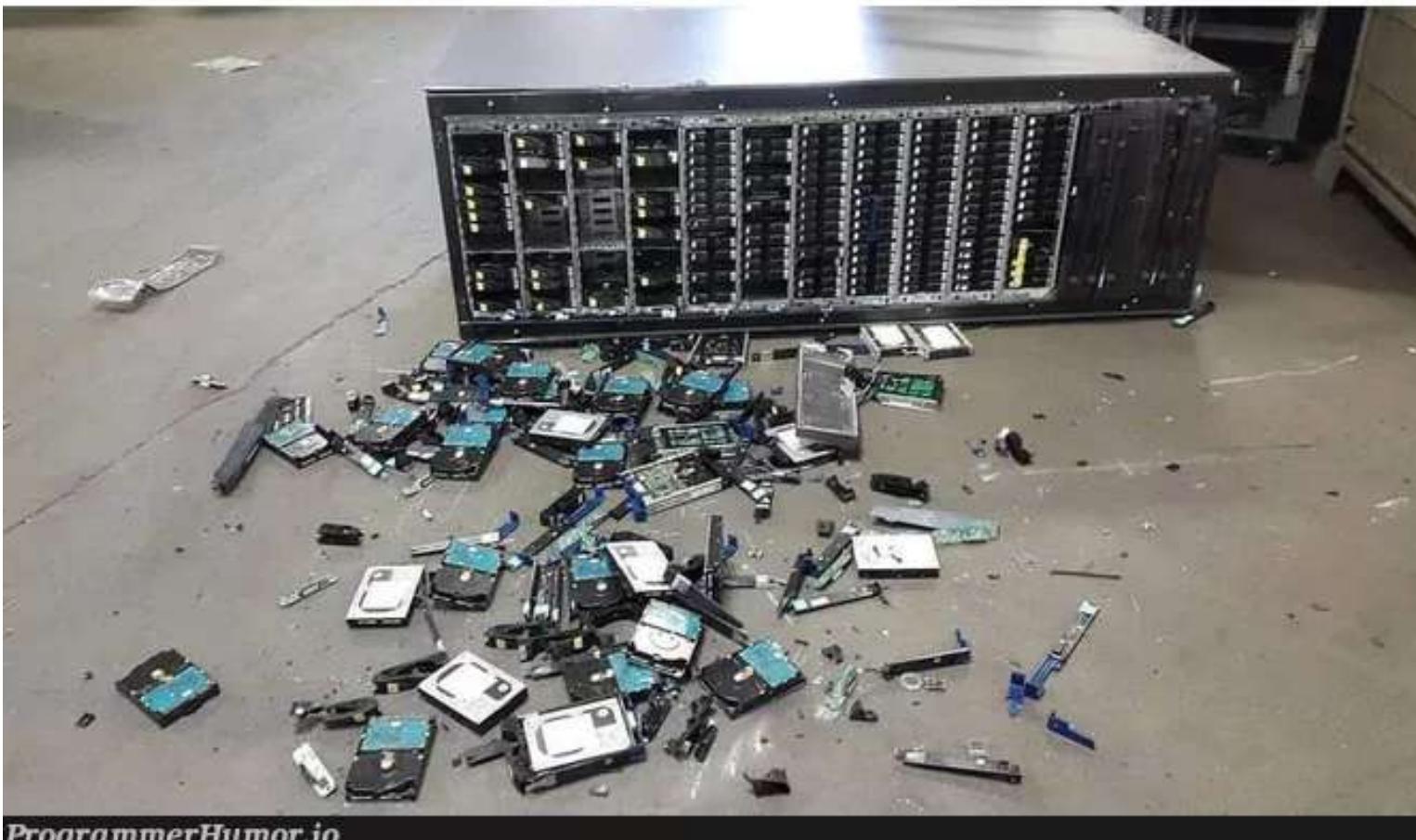


O QUE É BACKEND ?

O QUE É UM BACKEND?

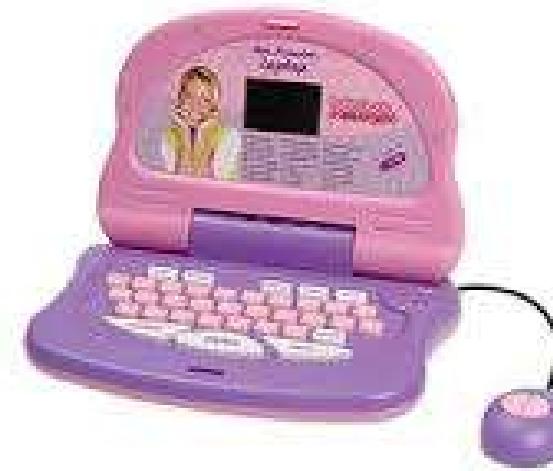
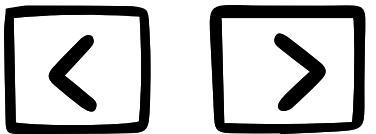


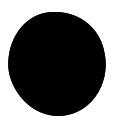
- Boss, the server is down!
- Well, just restart it
- Emmm, is not that simple.



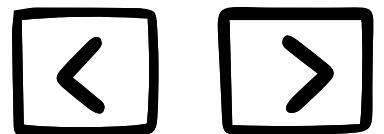
ProgrammerHumor.io

O QUE É UM BACKEND?

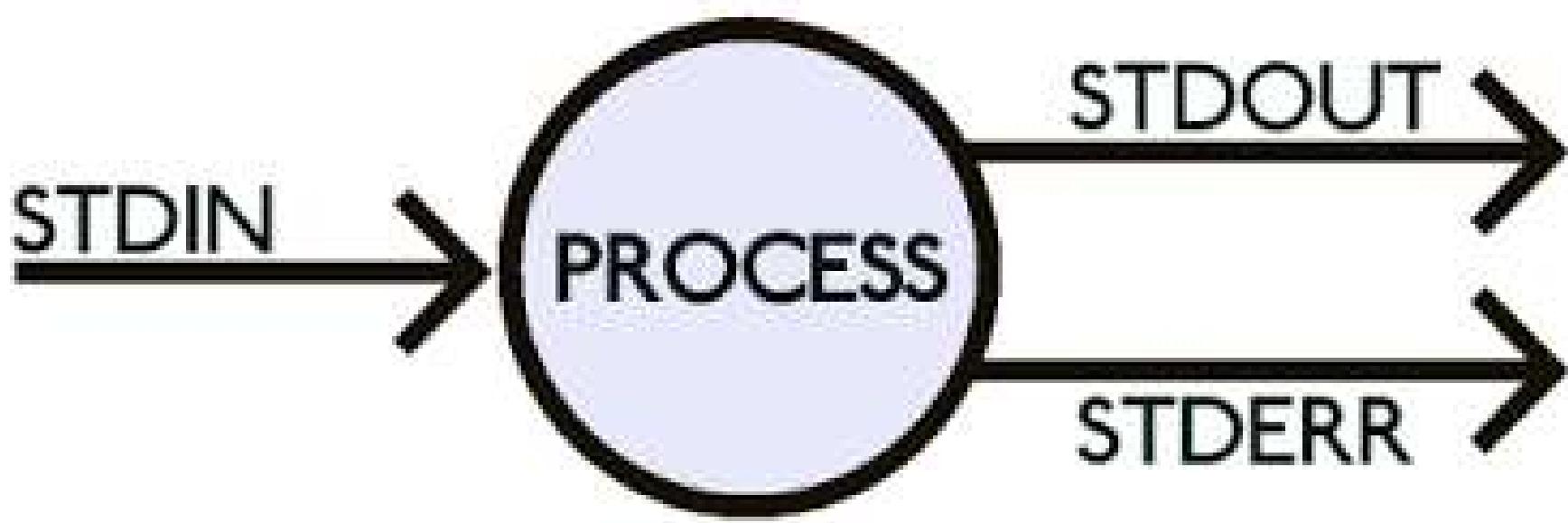




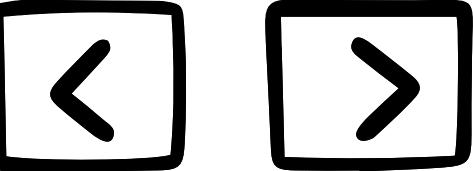
O QUE É UM SERVIDOR ?



É UM PROGRAMA RODANDO
EM UM COMPUTADOR



O QUE É UM SERVIDOR ?



● ● ●

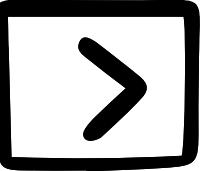
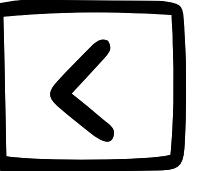
meu_programa.py

```
idade_input = input('qual sua idade?')
idade = int(idade_input)

if idade >= 18:
    print('Você é maior de idade')
else:
    print(f'Daqui {18 - idade} você é um homemzinho')
```

```
~/projects/python via ℹ v3.11.7
> python meu_programa.py
qual sua idade?18
Você é maior de idade
I
~/projects/python via ℹ v3.11.7
>
```

O QUE É UM SERVIDOR ?



```
meu_programa.py

import socket

HOST = 'localhost' # Endereço do servidor
PORT = 8181          # Porta do servidor

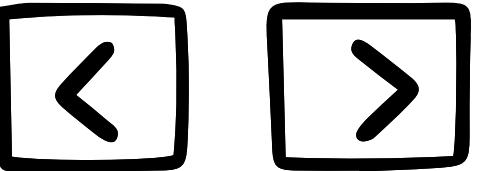
with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as s:
    s.connect((HOST, PORT))
    idade_input = s.recv(1024).decode()

    idade = int(idade_input)

    if idade >= 18:
        mensagem = 'Você é maior de idade\n'
    else:
        mensagem = f'Daqui {18 - idade} você é um homemzinho\n'

    conexao.sendall(mensagem.encode())
```

O QUE É HTTP?



Requests

```
POST / HTTP/1.1
Host: localhost:8000
User-Agent: Mozilla/5.0 (Macintosh;... )... Firefox/51.0
Accept: text/html,application/xhtml+xml,...,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Upgrade-Insecure-Requests: 1
Content-Type: multipart/form-data; boundary=-12656974
Content-Length: 345
```

```
-12656974
(more data)
```

Responses

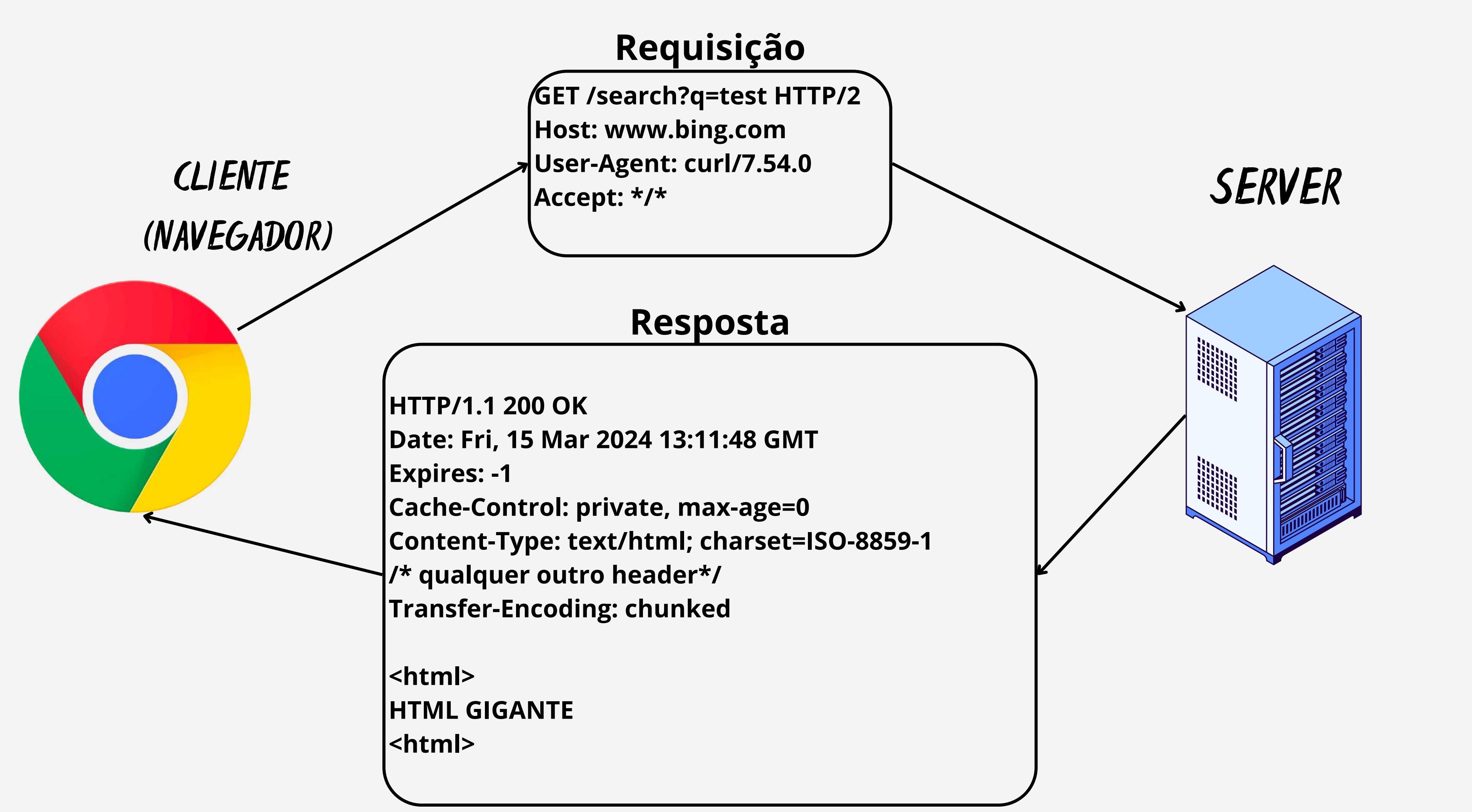
```
HTTP/1.1 403 Forbidden
Server: Apache
Content-Type: text/html; charset=iso-8859-1
Date: Wed, 10 Aug 2016 09:23:25 GMT
Keep-Alive: timeout=5, max=1000
Connection: Keep-Alive
Age: 3464
Date: Wed, 10 Aug 2016 09:46:25 GMT
X-Cache-Info: caching
Content-Length: 220
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML
2.0//EN">
(more data)
```

start-line

HTTP headers

empty line

body



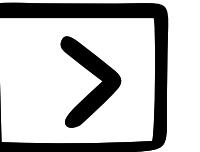
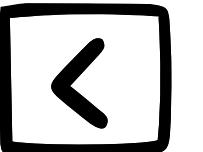
HTTP Request Methods

 GET	 POST	 PUT	 DELETE	 PATCH	 HEAD
retrieve data from server	add data to an existing file or resource	update(replace) an existing file or resource in server	delete data from server	update a resource partially (modify)	retrieve the resource's headers

Status code

1. Respostas Informativas (100 – 199)
2. Respostas bem-sucedidas (200 – 299)
3. Mensagens de redirecionamento (300 – 399)
4. Respostas de erro do cliente (400 – 499)
5. Respostas de erro do servidor (500 – 599)

UM POUCO SOBRE FRONT



HTML



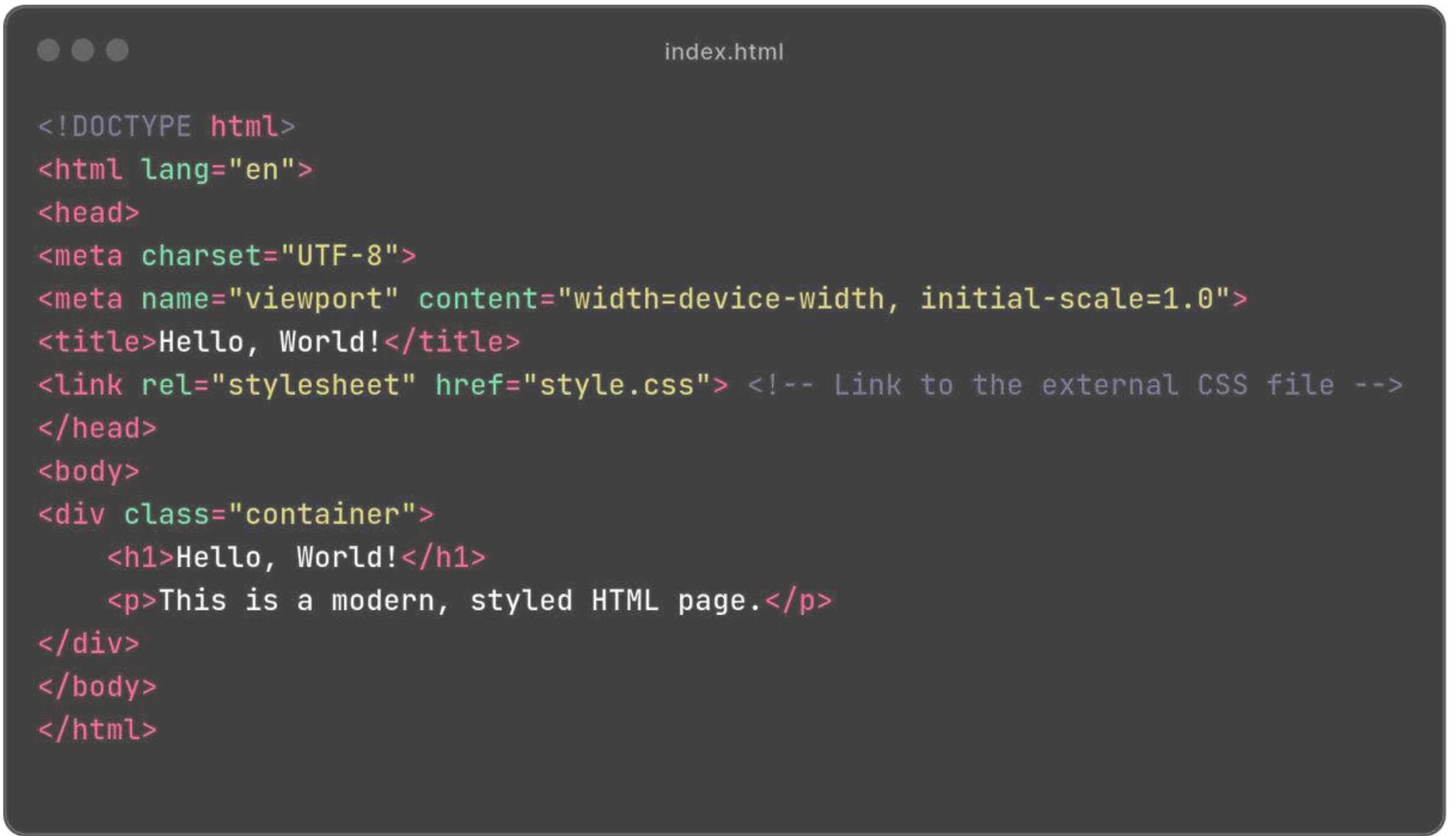
CSS



JS



```
<!DOCTYPE html>
<html>
<head>
    <title>Hello, World!</title>
</head>
<body>
    <h1>Hello, World!</h1>
    <p>This is a simple HTML page.</p>
</body>
</html>
```



A screenshot of a mobile browser window. The title bar says "index.html". The page content is a modern, styled HTML page with a yellow background, centered text, and a container div containing an h1 and a p tag.

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Hello, World!</title>
<link rel="stylesheet" href="style.css"> <!-- Link to the external CSS file --&gt;
&lt;/head&gt;
&lt;body&gt;
&lt;div class="container"&gt;
  &lt;h1&gt;Hello, World!&lt;/h1&gt;
  &lt;p&gt;This is a modern, styled HTML page.&lt;/p&gt;
&lt;/div&gt;
&lt;/body&gt;
&lt;/html&gt;</pre>
```



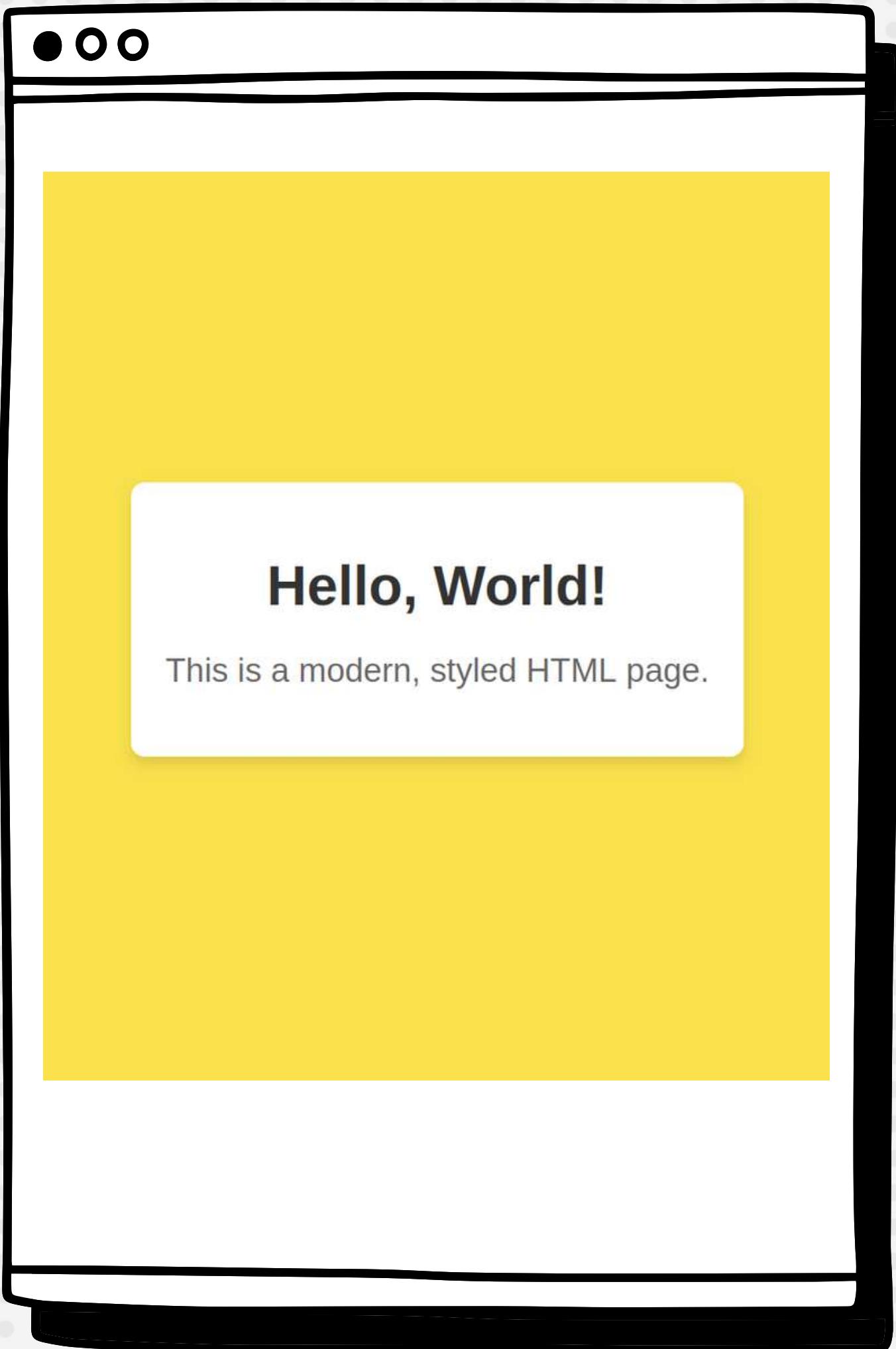
A screenshot of a mobile browser window. The title bar says "style.css". The page content is the CSS code for the "style.css" file, defining styles for the body, container, h1, and p elements.

```
body {
  font-family: Arial, sans-serif;
  margin: 0;
  padding: 0;
  display: flex;
  justify-content: center;
  align-items: center;
  height: 100vh;
  background-color: #f9e04d; /* Smooth yellow background color */
}

.container {
  text-align: center;
  padding: 20px;
  background-color: #fff;
  border-radius: 8px;
  box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);
}

h1 {
  color: #333;
  font-size: 2em;
  margin-bottom: 20px;
}

p {
  color: #666;
  font-size: 1.2em;
}
```



•oo

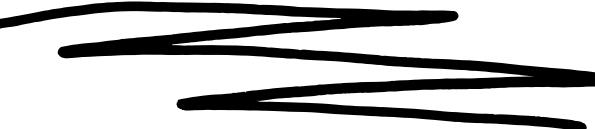
MAS COMO LEVANTO UM SERVIDOR

Vamos descobrir...

< > C

^ O =

SERVIDORES ESTÁTICOS



```
projects/inclass/static_server
> ls --icons --tree
.
├── index.html
├── info.html
└── user
    ├── francisco.html
    ├── index.html
    └── maria.html
```

<- url.com/

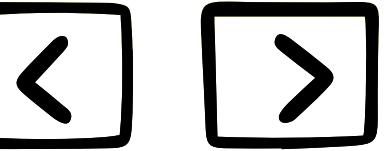
<- url.com/info

<- url.com/user/francisco

<- url.com/user/

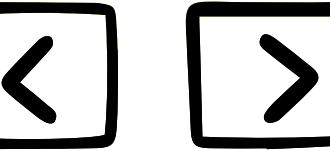
<- url.com/user/maria

JSON



```
{  
    "name": "Francisco",  
    "languages": ["Java", "Go", "Python"],  
    "details": {  
        "country": "BR",  
        "age": 30,  
        "job": "Devops",  
        "hair": null  
    }  
}
```

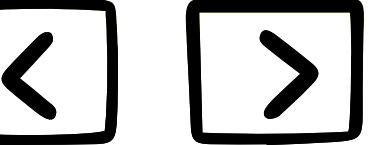
JSON



```
{  
  "name": "Francisco",  
  "languages": ["Java", "Go", "Python"],  
  "details": {  
    "country": "BR",  
    "age": 30,  
    "job": "Devops",  
    "hair": null  
  }  
}
```

```
const person = {  
  name: "Francisco",  
  languages: ["Java", "Go", "Python"],  
  details: {  
    country: "BR",  
    age: 30,  
    job: "Devops",  
    hair: null,  
  }  
}
```

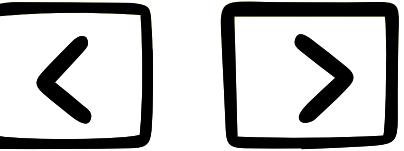
JSON



```
{  
  "name": "Francisco",  
  "languages": ["Java", "Go", "Python"],  
  "details": {  
    "country": "BR",  
    "age": 30,  
    "job": "Devops",  
    "hair": null  
  }  
}
```

```
const json_conteudo_como_string = '''  
{  
  "name": "Francisco",  
  "languages": ["Java", "Go", "Python"],  
  "details": {  
    "country": "BR",  
    "age": 30,  
    "job": "Devops",  
    "hair": null,  
  }  
}'  
  
const json_object = JSON.parse(json_conteudo_como_string)
```

JSON



HTTP/1.1 200 OK

Date: Fri, 15 Mar 2024 13:11:48 GMT

Expires: -1

Cache-Control: private, max-age=0

Content-Type: text/html; charset=ISO-8859-1

/* qualquer outro header*/

Transfer-Encoding: chunked

<html>

HTML GIGANTE

</html>

HTTP/1.1 200 OK

Date: Fri, 15 Mar 2024 13:11:48 GMT

Content-Type: application/json

```
{  
  "name": "Francisco",  
  "some-other-data": {}  
}
```

O QUE É UMA API REST?



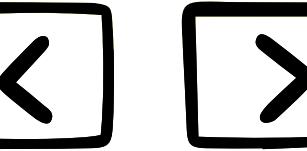
O QUE É UMA API REST?

Frontend Dev

HORA DE CODAR!

HACKERMAN

Backend Dev



README

MIT license

Security

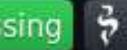


FastAPI

FastAPI framework, high performance, easy to learn, fast to code, ready for production



Test passing



coverage 100%

pypi package v0.110.0

python 3.8 | 3.9 | 3.10 | 3.11 | 3.12

Documentation: <https://fastapi.tiangolo.com>

Source Code: <https://github.com/tiangolo/fastapi>

```
from fastapi import FastAPI

app = FastAPI()

@app.get("/")
def hello_world():
    return {"Hello": "World"}


@app.get("/hello/{name}")
def say_hello(name: str):
    return {
        "Hello": name
    }
```

```
from fastapi import FastAPI

BANCO_DE_DADOS = [
    {"id": 1, "name": "João"}, 
    {"id": 2, "name": "Maria"}, 
    {"id": 3, "name": "Pedro"}, 
]

app = FastAPI()
```

```
Codiumate: Options | Test this function
@app.get("/user/{id}")
def get_user(id):
    for user in BANCO_DE_DADOS:
        if user["id"] == id:
            return user
```

```
Codiumate: Options | Test this function
@app.post("/user/{name}")
def create_user(name: str):
    new_id = len(BANCO_DE_DADOS) + 1
    new_user = {
        "id": new_id,
        "name": name
    }
    BANCO_DE_DADOS.append(new_user)
```

```
return {
    "id": new_id
}
```

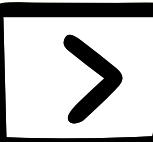
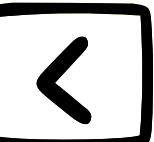
```
Codiumate: Options | Test this function
@app.put("/user/{id}")
def update_user(id: int, item: str):
    for user in BANCO_DE_DADOS:
        if user["id"] == id:
            user["name"] = item
    return user
```

COMO SE TORNAR UM DEV BACKEND?

Dami ☀️ dakitidami.eth @dakitidami · 10h
The backend dev and the frontend dev



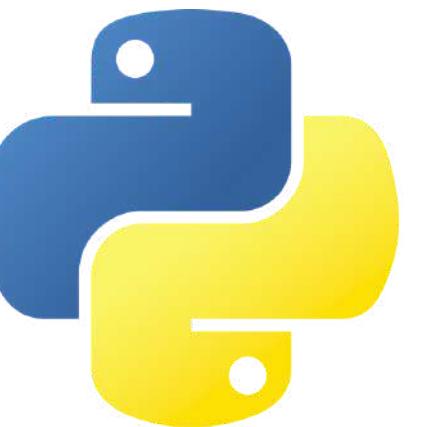
LINGUAGENS



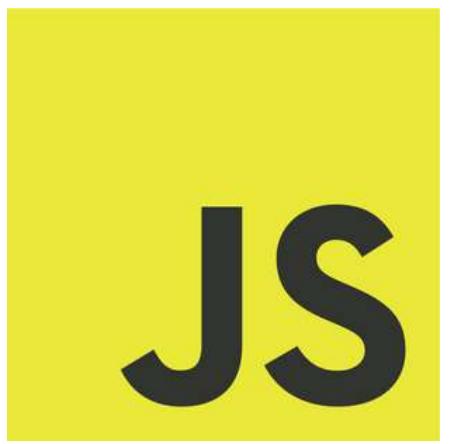
PHP



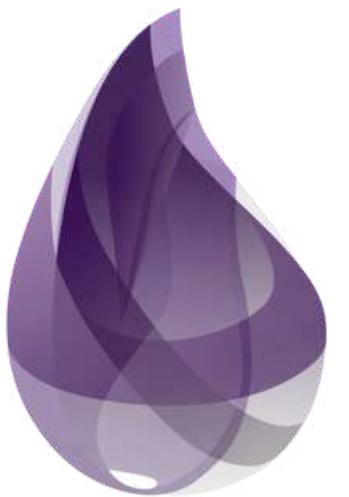
JAVA



PYTHON



JAVASCRIPT



ELIXIR



RUBY

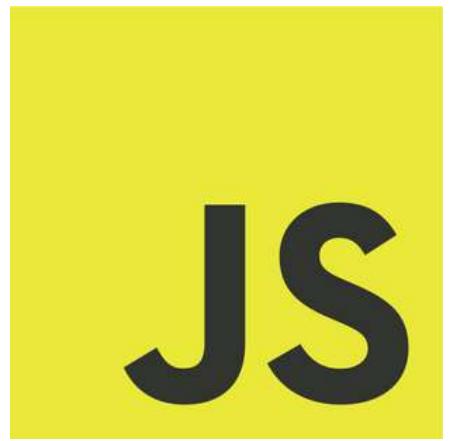
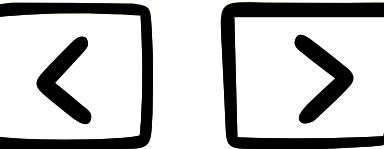


GO



C#

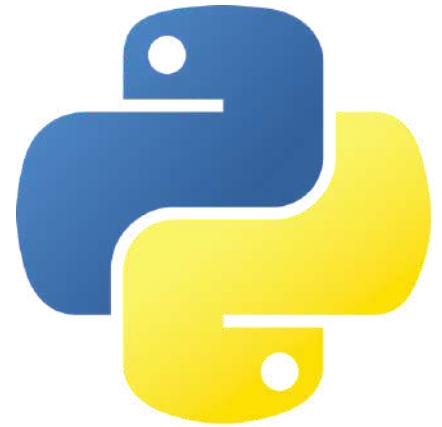
LINGUAGENS



JAVASCRIPT



JAVA



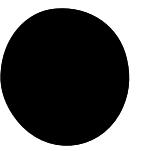
PYTHON



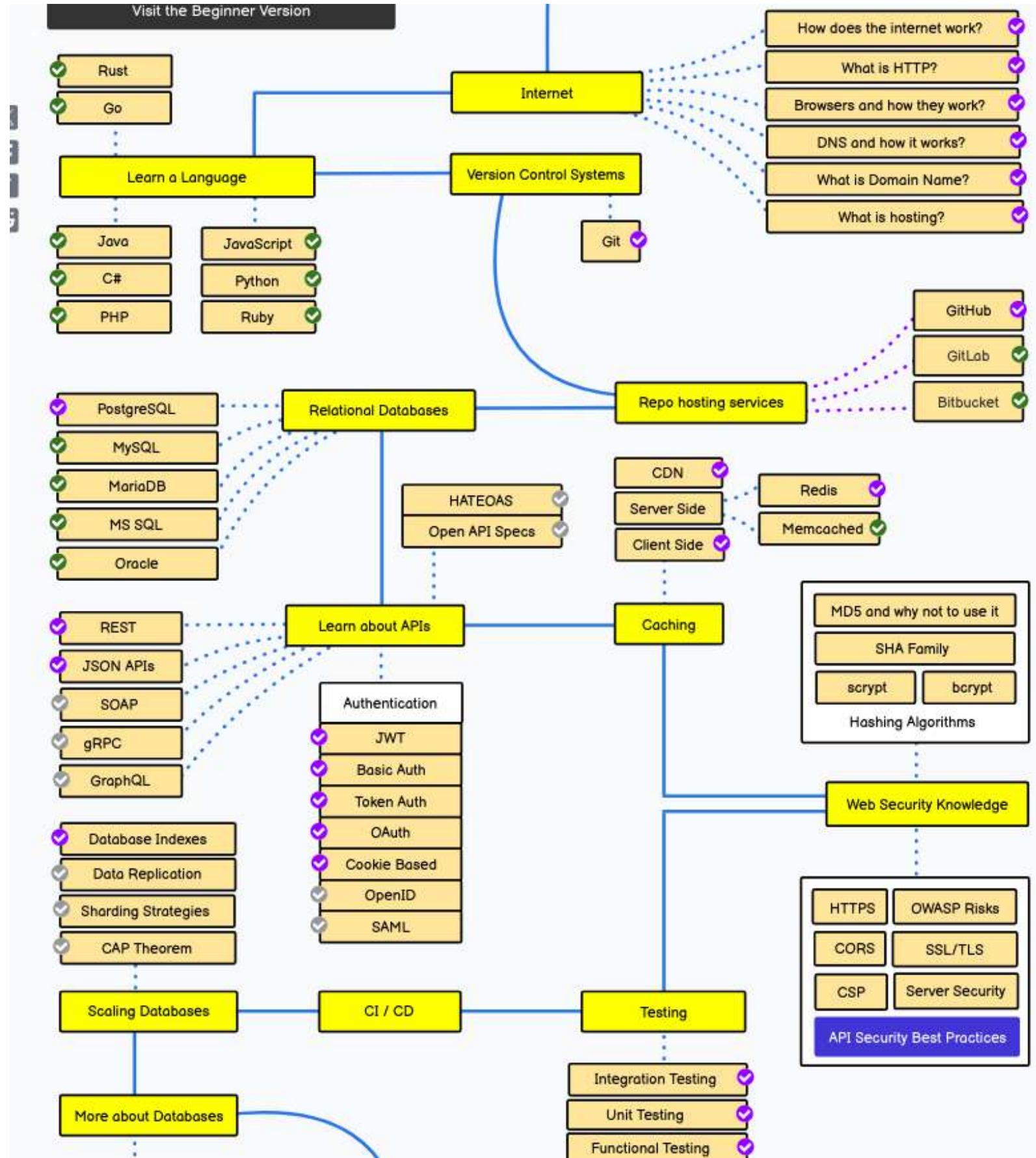
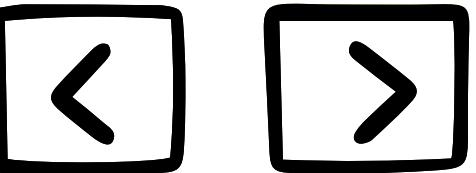
PHP



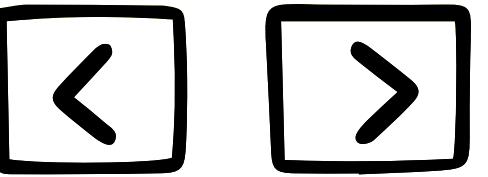
C#



ROADMAP



<https://roadmap.sh/backend>



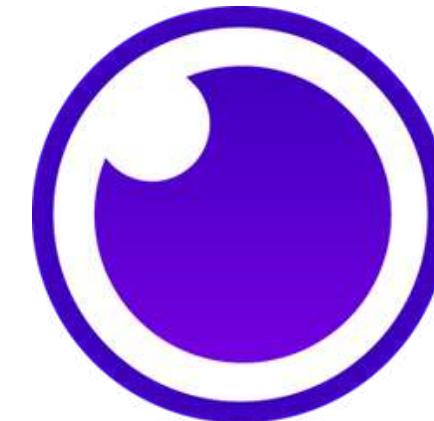
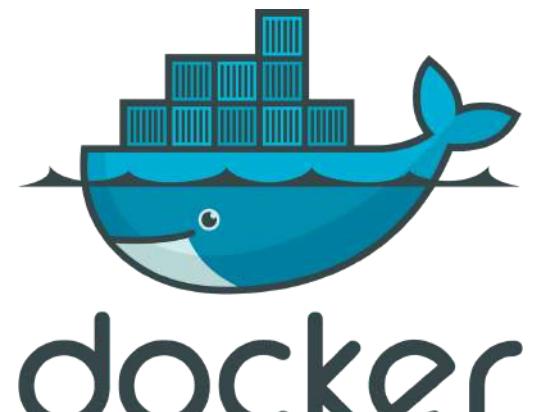
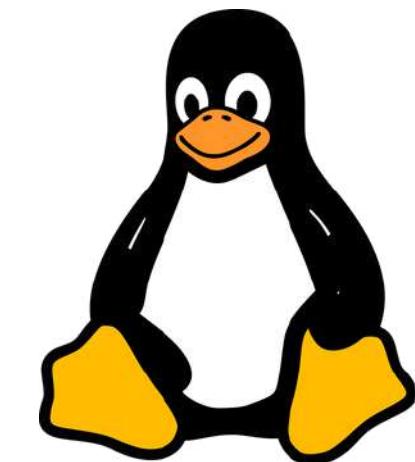
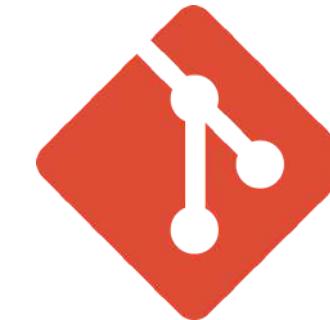
CONCEITOS

- HTTP
- REDE
- PADRÕES REST
- BANCO DE DADOS

BOAS DOCUMENTAÇÕES

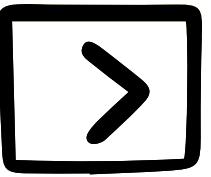
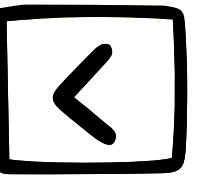
- W3SCHOOLS.COM/
- DEVELOPER.MOZILLA.ORG

FERRAMENTAS



POSTMAN





public-api-lists/public-api-lists



A collective list of free APIs for use in software and web development 🚀

8 93 Contributors 1 Issue 8k Stars 716 Forks

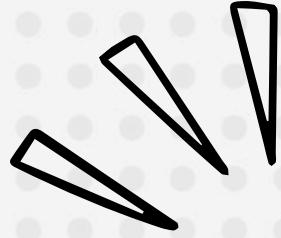
public-api-lists/public-api-lists: A collective list of free APIs for use in software and web development 🚀

A collective list of free APIs for use in software and web development
public-api-lists/public-api-lists

[GitHub](#)

The screenshot shows a Pokédex application running in a browser window titled "pokedex" at "localhost:8080". The interface features a top navigation bar with a search bar labeled "Pesquisar" and a series of colored icons. Below this is a grid of 151 Pokémons, each card containing the name, number, type(s), and a small image. The cards are arranged in a 7x21 grid. The types are color-coded: grass (green), fire (orange), water (blue), bug (yellow-green), normal (light gray), electric (yellow), ground (brown), poison (purple), flying (pink), and fairy (pink).

Name	ID	Type	Ability
BULBASAUR	#1	grass poison	
IVYSAUR	#2	grass poison	
VENUSAUR	#3	grass poison	
CHARMANDER	#4	fire	
CHARMELEON	#5	fire	
CHARIZARD	#6	fire flying	
SQUIRTLE	#7	water	
WARTORTLE	#8	water	
BLASTOISE	#9	water	
CATERPIE	#10	bug	
METAPOD	#11	bug	
BUTTERFREE	#12	bug flying	
WEEDLE	#13	bug poison	
KAKUNA	#14	bug poison	
BEEDRILL	#15	bug poison	
PIDGEY	#16	normal flying	
PIDGEOTTO	#17	normal flying	
PIDGEOT	#18	normal flying	
RATTATA	#19	normal	
RATICATE	#20	normal	
SPEAROW	#21	normal flying	
FEAROW	#22	normal flying	
EKANS	#23	poison	
ARBOK	#24	poison	
PIKACHU	#25	electric	
RAICHU	#26	electric	
SANDSHREW	#27	ground	
SANDSLASH	#28	ground	
NIDORAN-F	#29	poison	
NIDORINA	#30	poison	
NIDOQUEEN	#31	poison ground	
NIDORAN-M	#32	poison	
NIDORINO	#33	poison	
NIDOKING	#34	poison ground	
CLEFAIRY	#35	fairy	
CLEFABLE	#36	fairy	
VULPIX	#37		
NINETALES	#38		
JIGGLYPUFF	#39	normal	
WIGGLYTUFF	#40	normal	
ZUBAT	#41	poison	
GOLBAT	#42	poison	



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