

Pare de Apertar Parafuso
e vá além do Xcode

Your name

Head de Mobile no Peixe Urbano / Groupon Latam

Pai babão de 3, marido, músico & maker

Developer desde ~1994 😊

 @DanielBonates

 @bonates

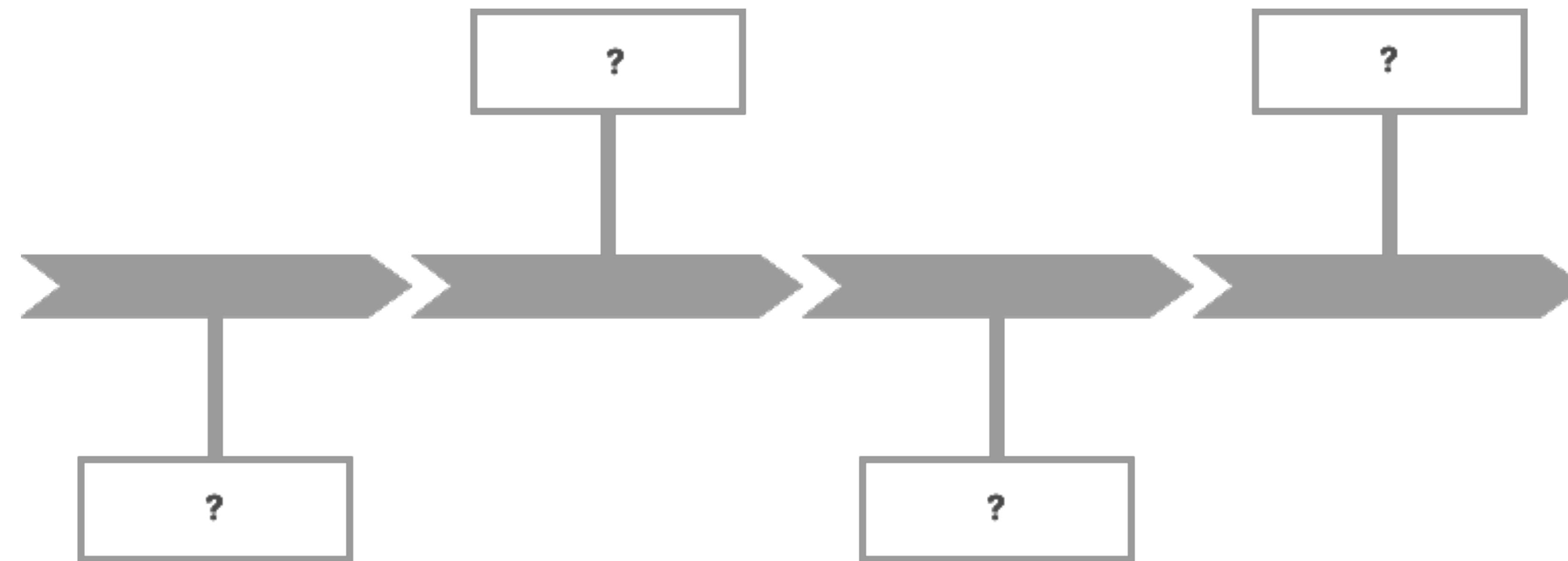
 @dbonates



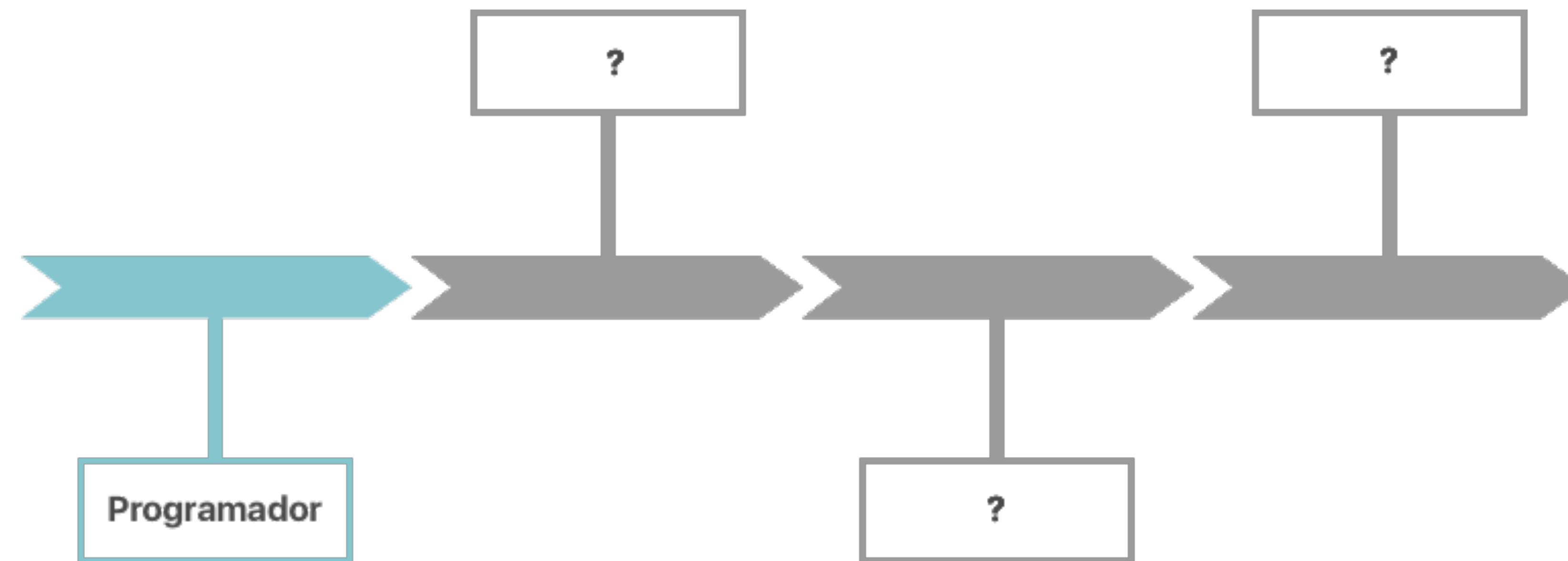
Parte 1

The last talk

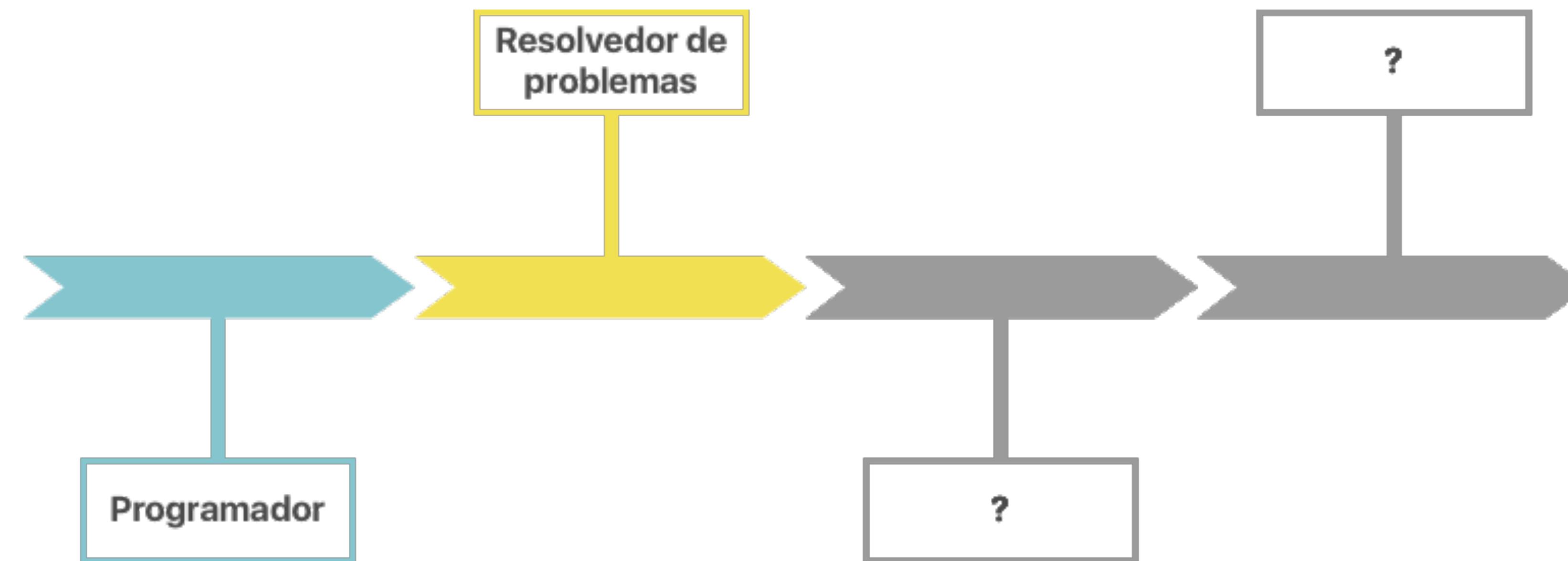
Fases da vida dev



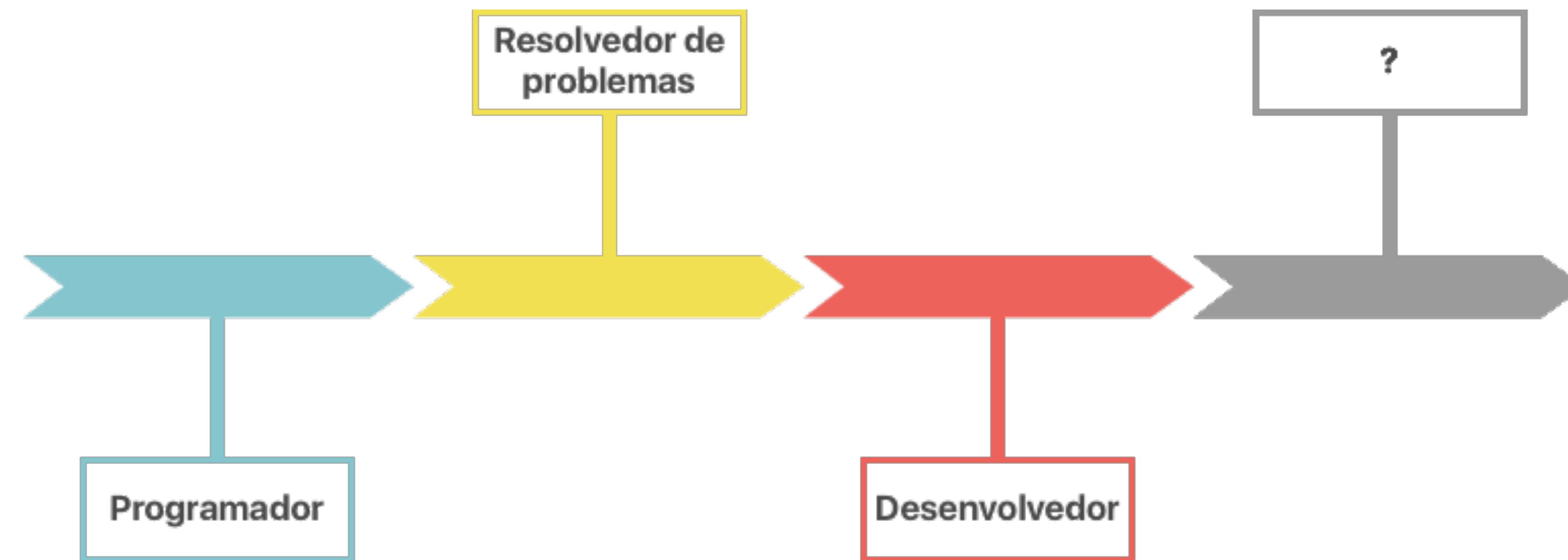
Fases da vida dev



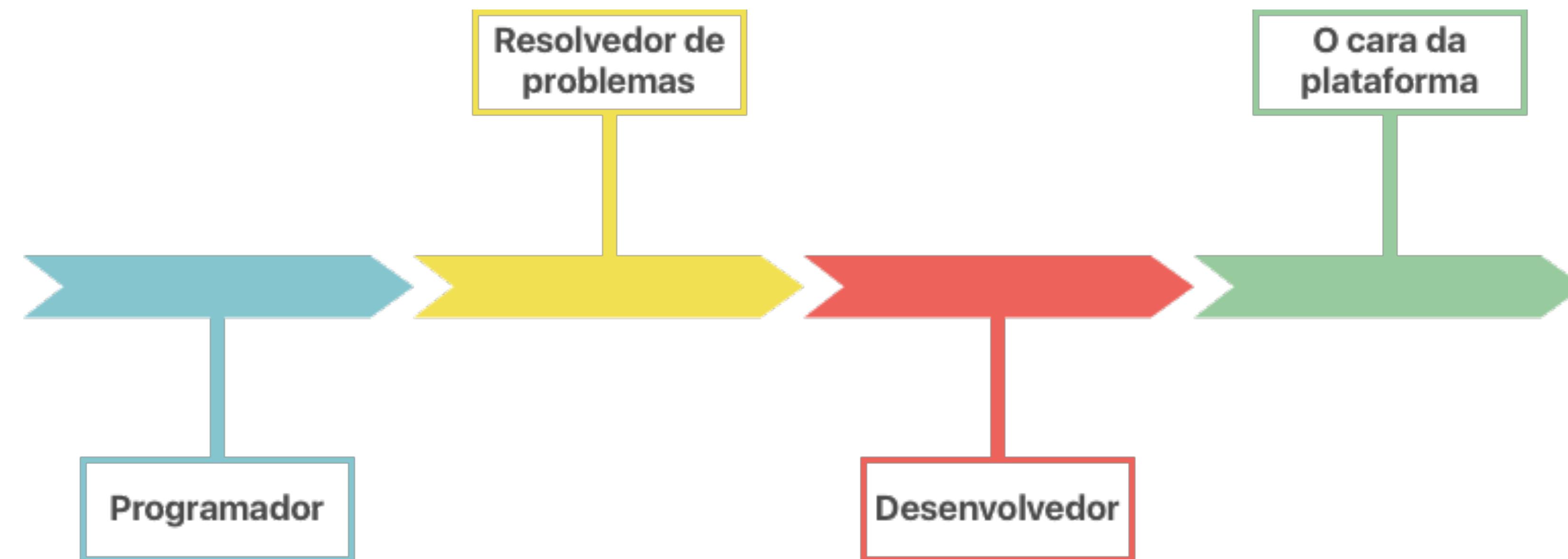
Fases da vida dev



Fases da vida dev



Fases da vida dev



Os 3 Clientes

- ✓ Usuário
- ✓ Owner
- ✓ Developers

Os 3 vão determinar o resultado!

Parte 2

Era tudo mato



Na verdade, pantano! _(ツ)_/

Desafios



- ✓ Código legado
- ✓ Implementar arquiteturas
- ✓ Modularização

Manter o roadmap e a evolução do app!

Parte 3

A era da provação 🔥

Desafios



- ✓ Código legado
- ✓ Implementar arquiteturas
- ✓ Modularização
- ✓ Manter o roadmap e a evolução do app!

Desafio +



Groupon

Desafio ++



Groupon

Latam - 5 países

Desafio +++

Groupon

Latam - 5 países



.peixe pay

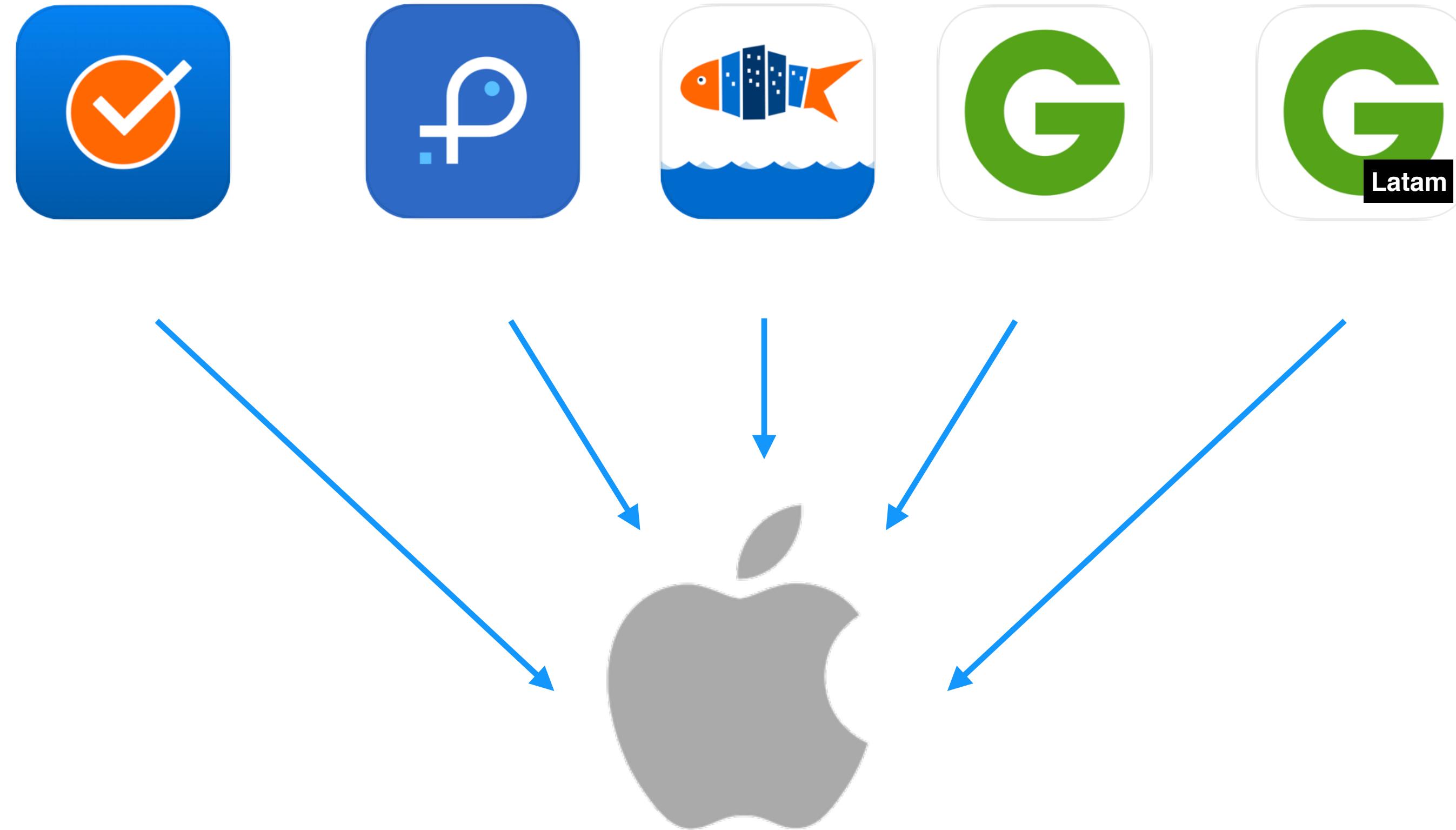
Challenge accepted



Challenge accepted



Challenge accepted 🥊



And we did it! 🏆

Parte 4

Demos e casos reais

Como resolver problemas com seu app,
rapidamente e sem passar pelo Xcode

Desafio 1 - backend

O app não responde,
loading eterno

Desafio 1 - backend

O app não responde,
loading eterno



Charles Proxy

<https://www.charlesproxy.com>

Charles Proxy

Checando endpoint



Charles Proxy

Checando endpoint



**“Charles” Would Like to Add
VPN Configurations**

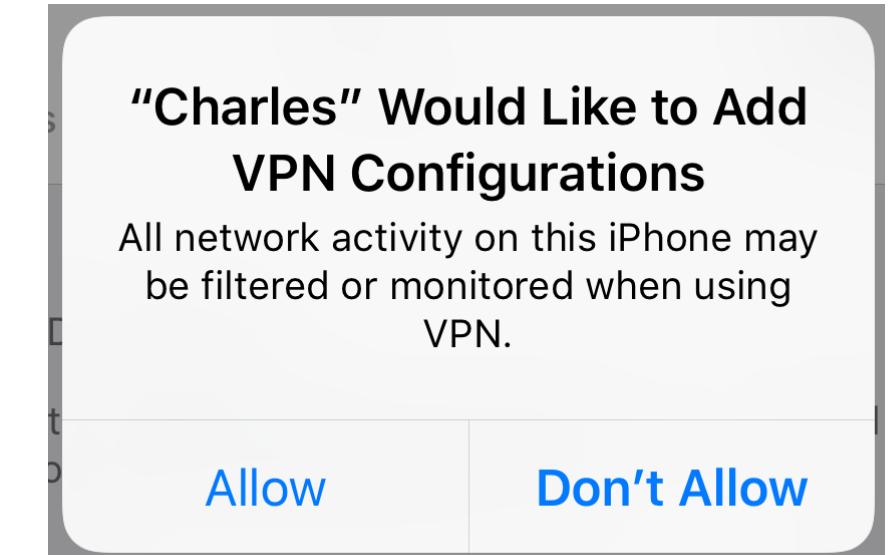
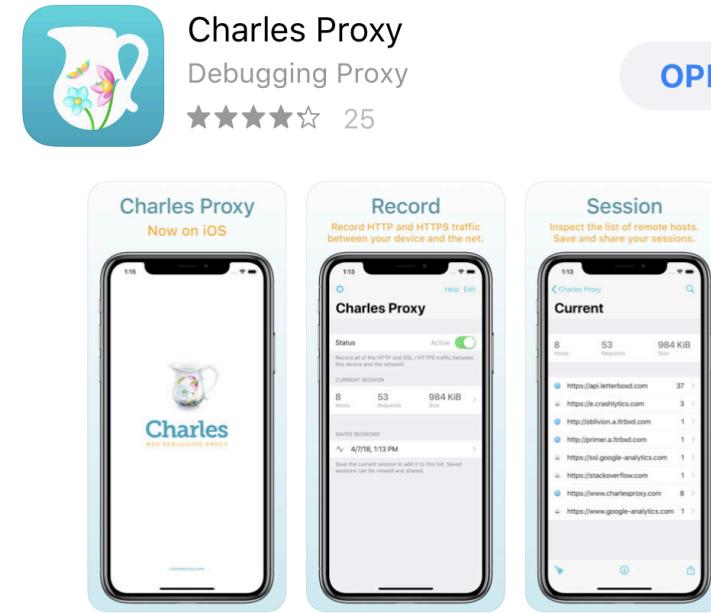
All network activity on this iPhone may
be filtered or monitored when using
VPN.

Allow

Don't Allow

Charles Proxy

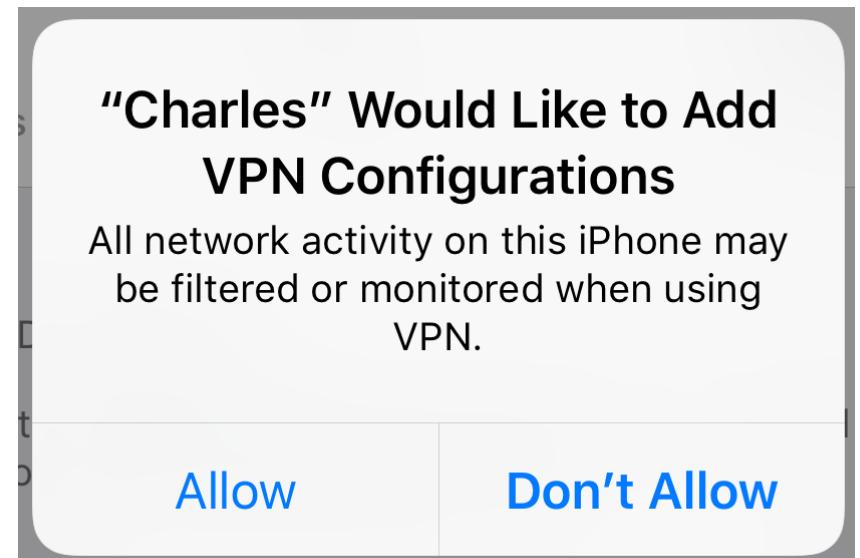
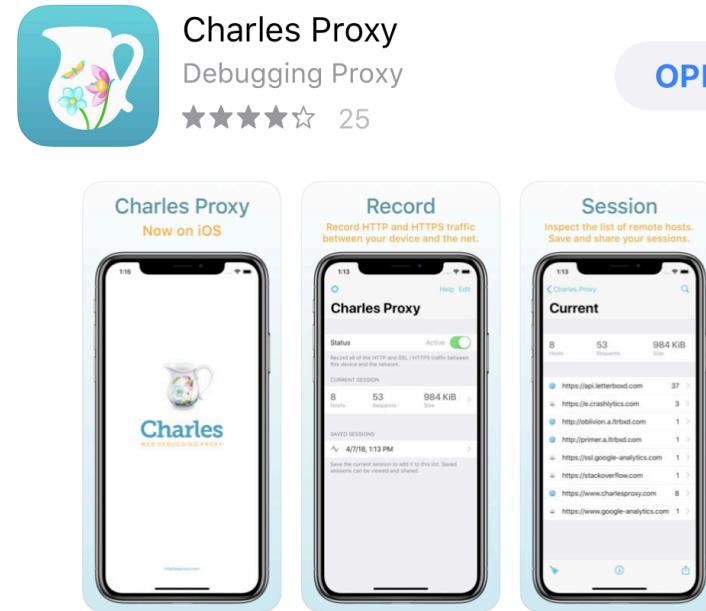
Checando endpoint



The Charles Proxy app interface on iOS. At the top, there is a gear icon, 'Help', and 'Edit' buttons. The main title is 'Charles Proxy'. Below it, there is a 'Status' section with a green 'Active' toggle switch. A descriptive text box says: 'Record all of the HTTP and SSL / HTTPS traffic between this device and the network.' Underneath is a 'CURRENT SESSION' section showing '1 Host', '1 Request', and a '20 KiB > Size' button. At the bottom, there is a 'SAVED SESSIONS' section with the text: 'Save the current session to add it to this list. Saved sessions can be viewed and shared.'

Charles Proxy

Checando endpoint



The Charles Proxy application window. At the top, there are 'Help' and 'Edit' buttons. Below that is the title 'Charles Proxy'. On the left, a 'Status' section shows 'Active' with a green toggle switch. A note below says 'Record all of the HTTP and SSL / HTTPS traffic between this device and the network.' In the center, 'CURRENT SESSION' shows 1 Host, 1 Request, and a total Size of 20 KiB. To the right is a 'SAVED SESSIONS' section with a note to save the current session. At the bottom, there is a note about viewing and sharing saved sessions.

SSL Proxying

Enabled

Include [0 >](#)

Exclude [0 >](#)

Add host names to the Include list to enable SSL Proxying for those hosts.

The Exclude list excludes host names matched by the Include list; such as if you've used a wildcard in Include and need to exclude specific hosts matched by that wildcard.

You may need to force-close and re-open an app in order for its requests to be visible after changing SSL Proxying settings.

CA CERTIFICATE

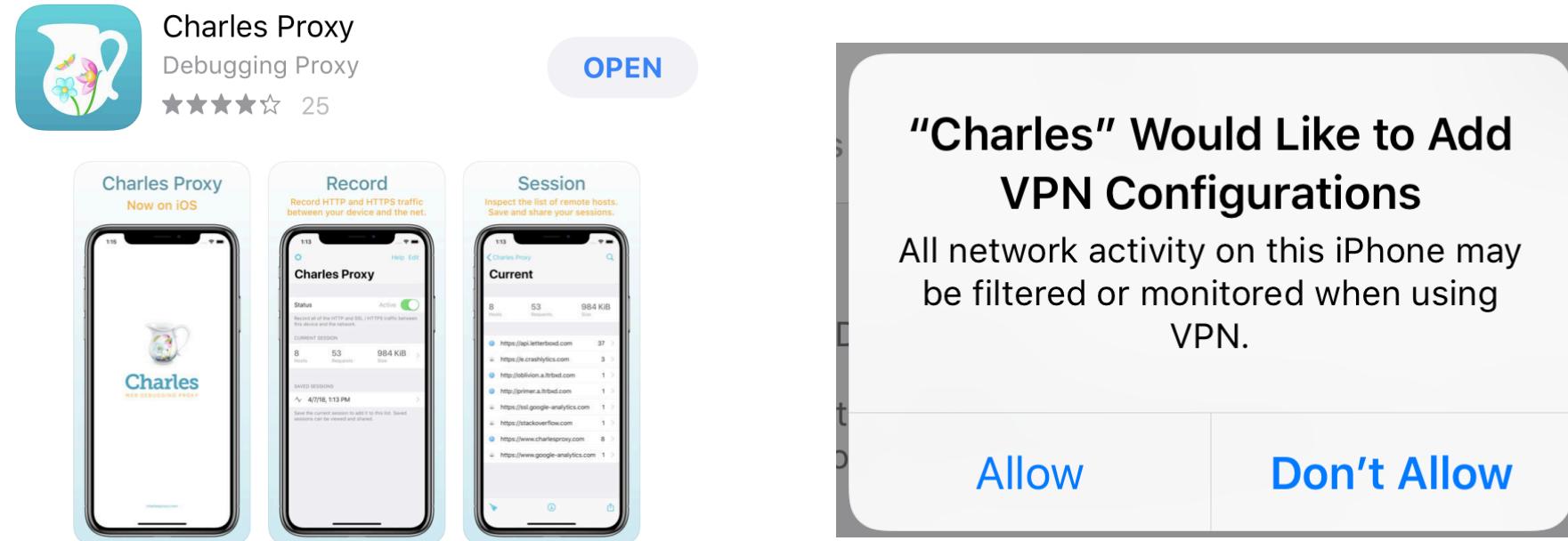
Certificate Status Not trusted

[Install SSL Certificate](#)

Charles Proxy

Checando endpoint

The Charles Proxy mobile application interface. At the top, there's a navigation bar with a gear icon, "Help", and "Edit". Below it is the main title "Charles Proxy". A "Status" section shows "Active" with a green toggle switch. A note says "Record all of the HTTP and SSL / HTTPS traffic between this device and the network." Under "CURRENT SESSION", it shows 1 Host, 1 Request, and a total size of 20 KiB. A "Size" button with a right arrow is next to the size. At the bottom, a "SAVED SESSIONS" section says "Save the current session to add it to this list. Saved sessions can be viewed and shared."



Response Body

```
{  
    "total": 16695,  
    "searchDetails": {  
        "searchParameters": {}  
    },  
    "results": [  
        {  
            "title": "Colchester Half Maratho  
n",  
            "slug": "colchester-half-marathon  
",  
            "eventUrl": "https://www.colchest  
erhalfmarathon.co.uk/",  
            "id": 17829,  
            "description": "<p>The Griffin Ch  
apman Colchester Half Marathon has become  
established as one of the biggest and bes  
t races in the region. Organised by a gro  
up of volunteers from Colchester Colne Ro  
und Table, alongside some dedicated indiv  
iduals from the Colchester community, th  
e team that bring you the race work throu  
ghout the year to ensure you have a great  
experience!</p>"  
        }  
    ]  
}
```

SSL Proxying

Enabled



Include

0 >

Exclude

0 >

Add host names to the Include list to enable SSL Proxying for those hosts.

The Exclude list excludes host names matched by the Include list; such as if you've used a wildcard in Include and need to exclude specific hosts matched by that wildcard.

You may need to force-close and re-open an app in order for its requests to be visible after changing SSL Proxying settings.

CA CERTIFICATE

Certificate Status

Not trusted

[Install SSL Certificate](#)

Desafio 2 - backend

**Testar variações de
resposta em um
endpoint.**

Desafio 2 - backend

**Testar variações de
resposta em um
endpoint.**



Charles Proxy

<https://www.charlesproxy.com>

Charles Proxy

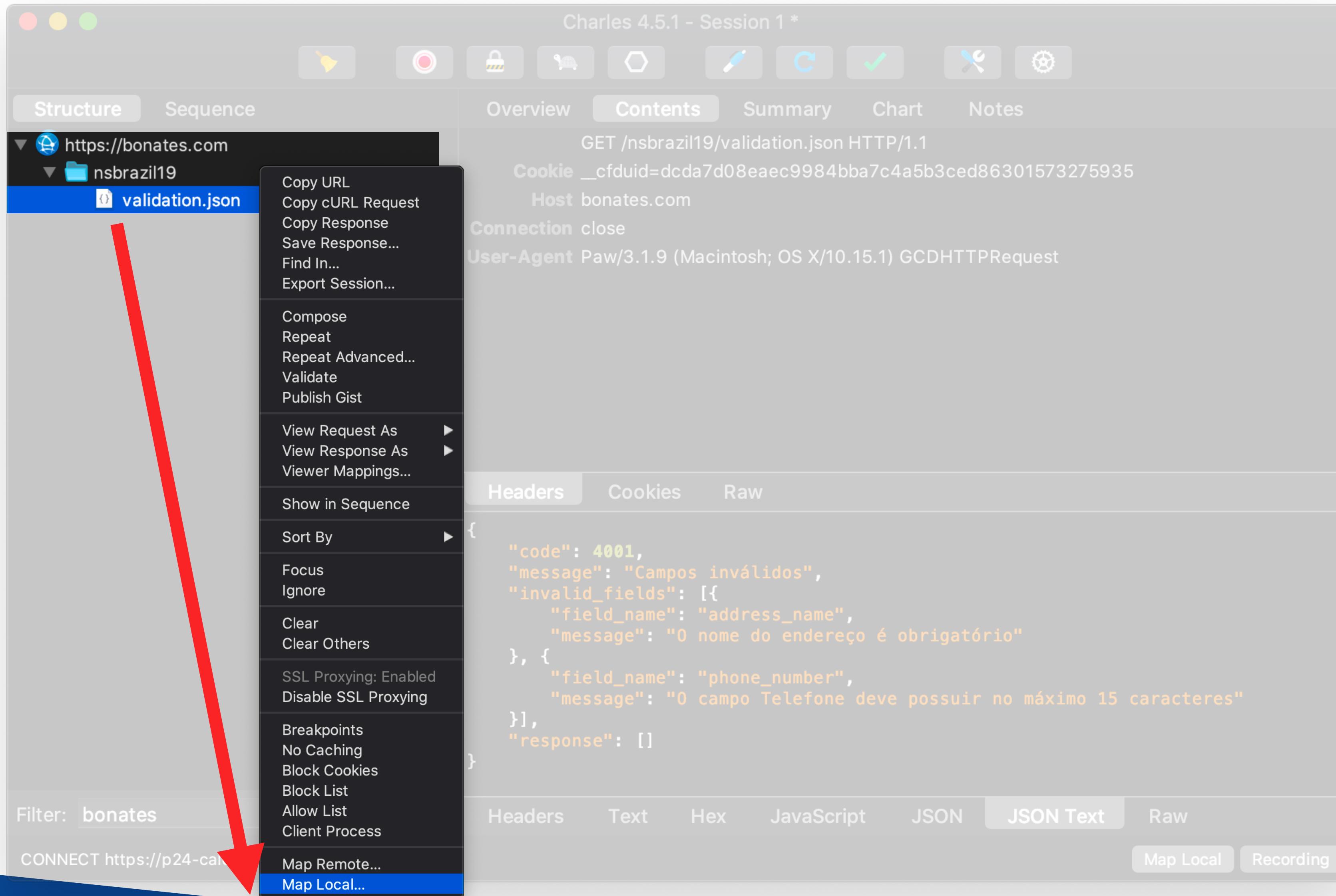
Mapear endpoint para um arquivo local

The screenshot shows the Charles 4.5.1 interface with a session named "Session 1". In the left sidebar, under "Structure", there is a tree view with "https://bonates.com" expanded, showing "nsbrazil19" and "validation.json". The "validation.json" item is selected and highlighted with a blue background. The main pane displays the details of this request: a GET request for "/nsbrazil19/validation.json" over HTTP/1.1. The "Cookie" field contains "_cfduid=dcda7d08eaec9984bba7c4a5b3ced86301573275935". The "Host" field is set to "bonates.com". The "Connection" field is "close". The "User-Agent" field is "Paw/3.1.9 (Macintosh; OS X/10.15.1) GCDHTTPRequest". Below these details, the "Headers" tab is selected, showing an empty header list. The "Cookies" tab is also visible. The "Raw" tab shows the raw JSON response body. The JSON content is as follows:

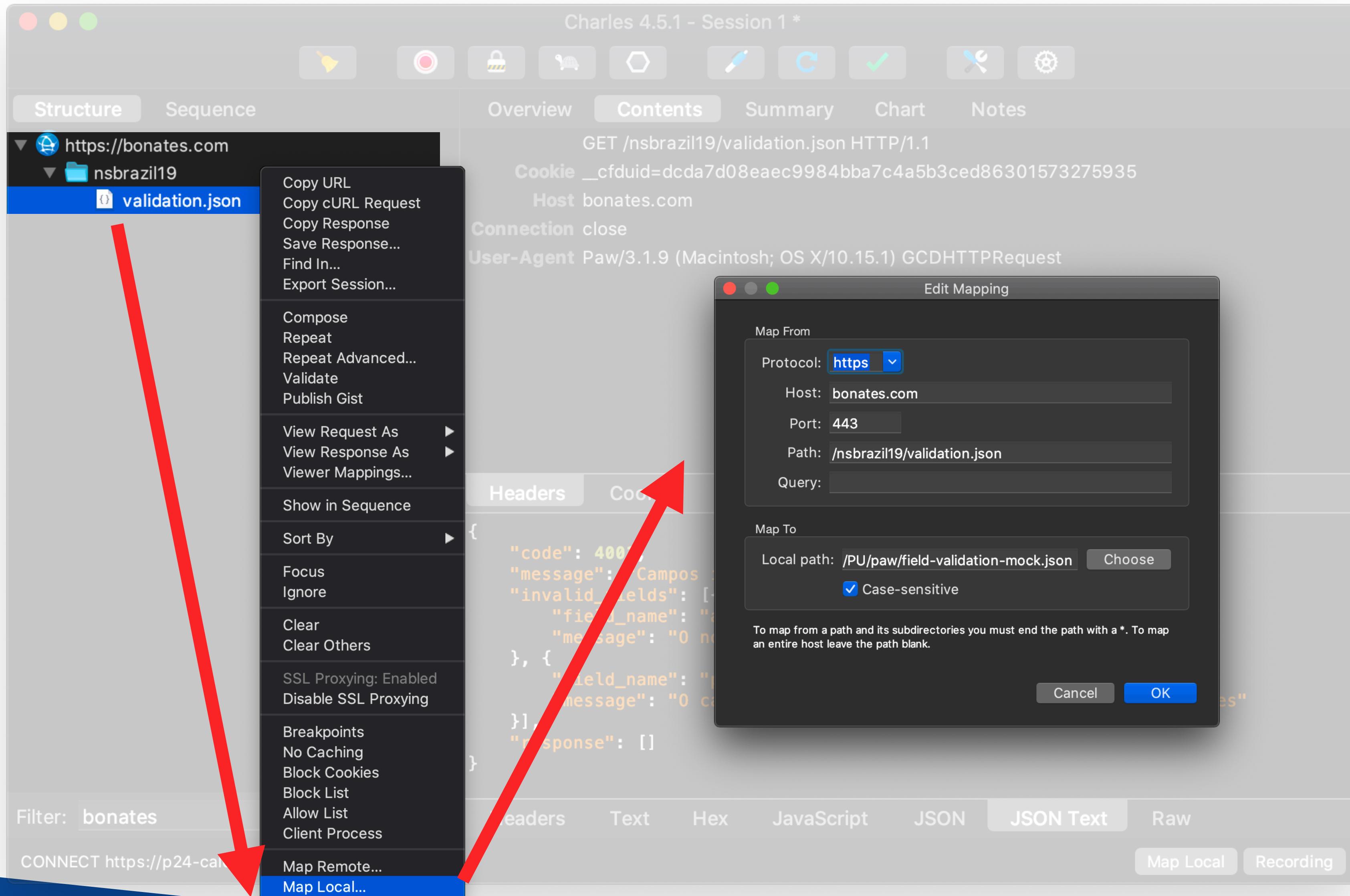
```
{  
    "code": 4001,  
    "message": "Campos inválidos",  
    "invalid_fields": [  
        {"field_name": "address_name",  
         "message": "O nome do endereço é obrigatório"},  
        {"field_name": "phone_number",  
         "message": "O campo Telefone deve possuir no máximo 15 caracteres"}],  
    "response": []}
```

At the bottom of the Charles interface, there is a "Filter" bar containing the text "bonates", and several tabs for viewing the request: Headers, Text, Hex, JavaScript, JSON, JSON Text (which is currently selected), and Raw. There are also buttons for "Map Local" and "Recording".

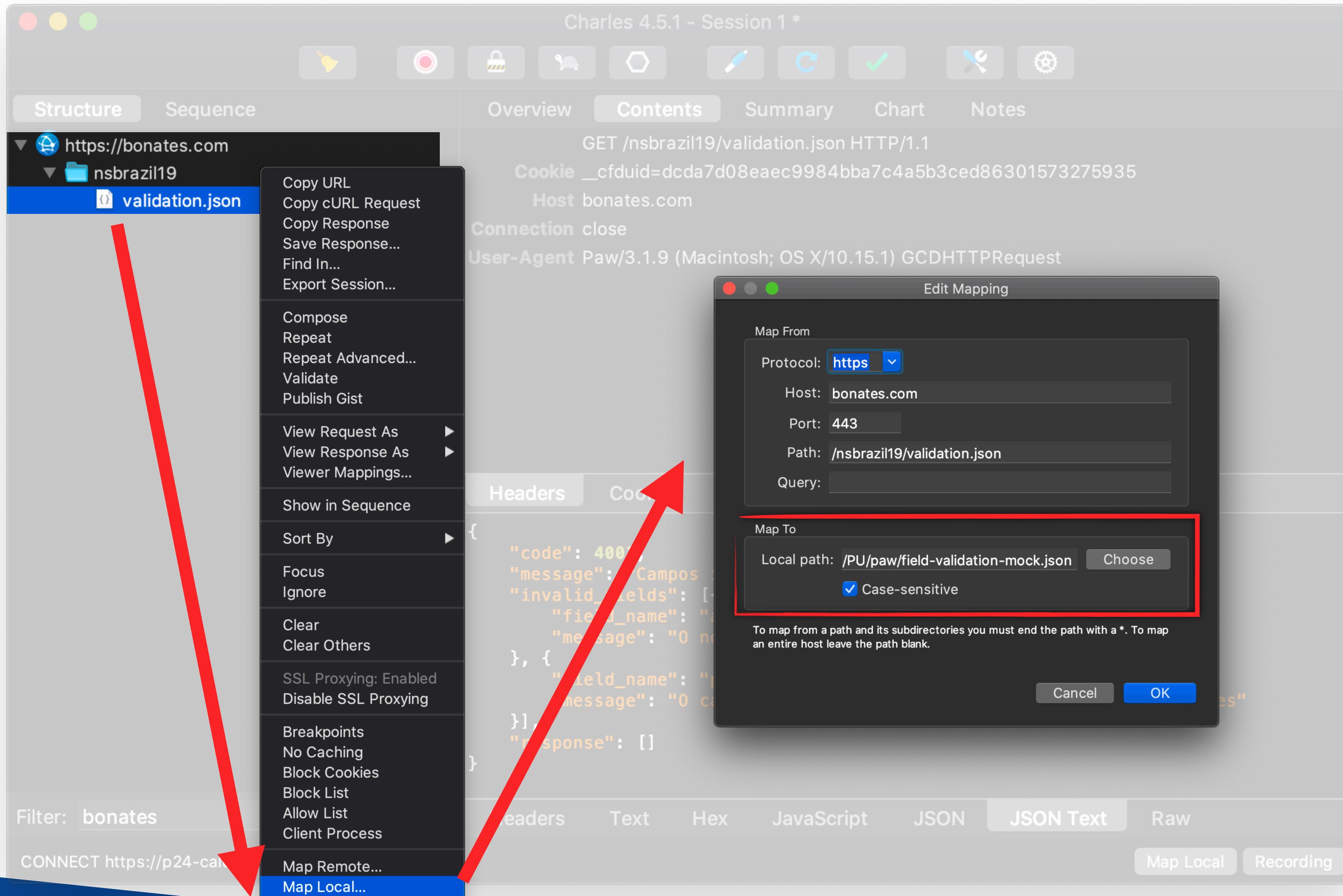
Charles Proxy Mapear endpoint para um arquivo local



Charles Proxy Mapear endpoint para um arquivo local



Charles Proxy Mapear endpoint para um arquivo local



Desafio 3 - API

**Selecionar Produtos na
tabBar não retorna
nenhuma oferta**

Desafio 3 - API

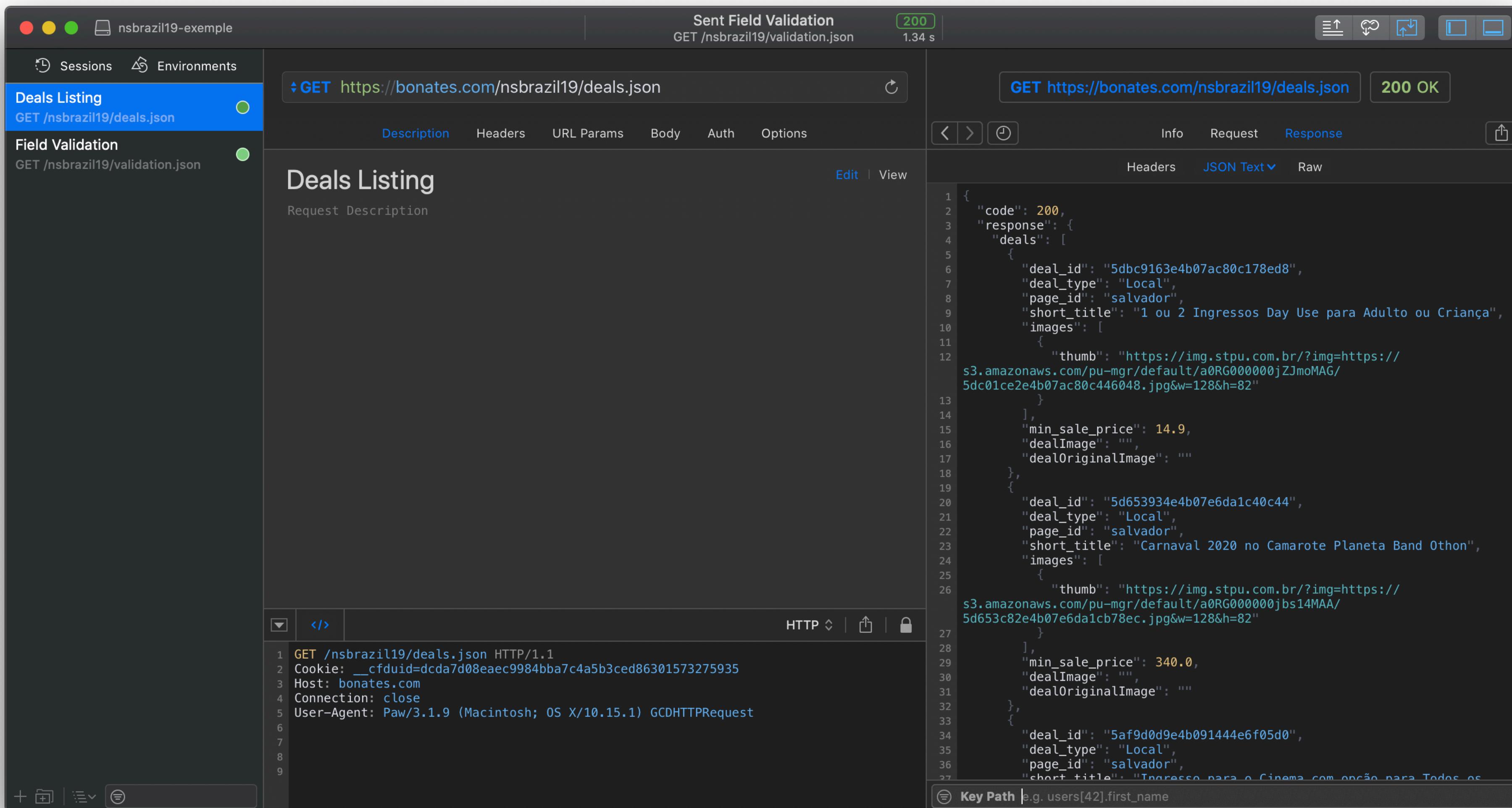
**Selecionar Produtos na
tabBar não retorna
nenhuma oferta**



Paw

<https://paw.cloud>

Paw Investigando resposta da API



Paw Investigando resposta da API

The screenshot shows the Paw application interface with two main panels. The left panel displays a session titled "Deals Listing" with a GET request to "https://bonates.com/nsbrazil19/deals.json". The right panel shows the response to a "Sent Field Validation" request with status code 200 OK. The response body is a JSON object containing deals information.

Request (Left Panel):

```
GET /nsbrazil19/deals.json
```

Response (Right Panel):

```
200 OK
1.34 s
```

```
{
  "code": 200,
  "response": {
    "deals": [
      {
        "deal_id": "5dbc9163e4b07ac80c178ed8",
        "deal_type": "Local",
        "page_id": "salvador",
        "short_title": "1 ou 2 Ingressos Day Use para Adulto ou Crian\u00e7a",
        "images": [
          {
            "thumb": "https://img.stpu.com.br/?img=https://s3.amazonaws.com/pu-mgr/default/a0RG000000jZJmoMAG/5dc01ce2e4b07ac80c446048.jpg&w=128&h=82"
          }
        ],
        "min_sale_price": 14.9,
        "dealImage": "",
        "dealOriginalImage": ""
      },
      {
        "deal_id": "5d653934e4b07e6da1c40c44",
        "deal_type": "Local",
        "page_id": "salvador",
        "short_title": "Carnaval 2020 no Camarote Planeta Band Othon",
        "images": [
          {
            "thumb": "https://img.stpu.com.br/?img=https://s3.amazonaws.com/pu-mgr/default/a0RG000000jbs14MAA/5d653c82e4b07e6da1cb78ec.jpg&w=128&h=82"
          }
        ],
        "min_sale_price": 340.0,
        "dealImage": "",
        "dealOriginalImage": ""
      },
      {
        "deal_id": "5af9d0d9e4b091444e6f05d0",
        "deal_type": "Local",
        "page_id": "salvador",
        "short_title": "Ingresso para o Cinema com op\u00e7\u00e3o para Todos os"
      }
    ]
  }
}
```

Key Path e.g. users[42].first_name

Paw Investigando resposta da API

The screenshot shows the Paw application interface with two main panels. The left panel displays a session titled 'Deals Listing' (GET /nsbrazil19/deals.json) and a 'Field Validation' request (GET /nsbrazil19/validation.json). The right panel shows the response for the 'Deals Listing' request, which is a 200 OK status with JSON data. A red arrow points from the 'Key Path' input field at the bottom to the 'deal_type' key in the JSON response.

Key Path response.deals.*.deal_type

```
1 {
2   "code": 200,
3   "response": {
4     "deals": [
5       {
6         "deal_id": "5dbc9163e4b07ac80c178ed8",
7         "deal_type": "Local",
8         "page_id": "salvador",
9         "short_title": "1 ou 2 Ingressos Day Use para Adulto ou Crian\u00e7a",
10        "images": [
11          {
12            "thumb": "https://img.stpu.com.br/?img=https://s3.amazonaws.com/pu-mgr/default/a0RG000000jZJmoMAG/5dc01ce2e4b07ac80c446048.jpg&w=128&h=82"
13          }
14        ],
15        "min_sale_price": 14.9,
16        "dealImage": "",
17        "dealOriginalImage": ""
18      },
19      {
20        "deal_id": "5d653934e4b07e6da1c40c44",
21        "deal_type": "Local",
22        "page_id": "salvador",
23        "short_title": "Carnaval 2020 no Camarote Planeta Band Othon",
24        "images": [
25          {
26            "thumb": "https://img.stpu.com.br/?img=https://s3.amazonaws.com/pu-mgr/default/a0RG000000jbs14MAA/5d653c82e4b07e6da1cb78ec.jpg&w=128&h=82"
27          }
28        ],
29        "min_sale_price": 340.0,
30        "dealImage": "",
31        "dealOriginalImage": ""
32      },
33      {
34        "deal_id": "5af9d0d9e4b091444e6f05d0",
35        "deal_type": "Local",
36        "page_id": "salvador",
37      }
38    ]
39  }
40 }
```

Key Path e.g. users[42].first_name

Paw Investigando resposta da API

The screenshot shows the Paw application interface. On the left, the sidebar lists sessions and environments. The 'Deals Listing' session is selected, showing a request to `https://bonates.com/nsbrazil19/deals.json`. The response is a JSON array of deals, all categorized as 'Local'. A red arrow points from the 'Key Path' input field at the bottom to the deal_type field in the JSON response. Another red arrow points from the JSON response area to the 'Key Path' input field.

Sent Field Validation
GET /nsbrazil19/validation.json 200 1.34 s

Deals Listing
GET /nsbrazil19/deals.json

Field Validation
GET /nsbrazil19/validation.json

Deals Listing

Request Description

Key Path `response.deals.*.deal_type`

Cookie: __cfduid=dcda7d08eaec9984bba7c4a5b3ced86301573275935
Host: bonates.com
Connection: close
User-Agent: Paw/3.1.9 (Macintosh; OS X/10.15.1) GCDHTTPRequ

200 OK

Headers JSON Text Raw

```
1 {  
2   "response": {  
3     "deals": [  
4       {  
5         "deal_type": "Local"  
6       },  
7       {  
8         "deal_type": "Local"  
9       },  
10      {  
11        "deal_type": "Local"  
12      },  
13      {  
14        "deal_type": "Local"  
15      },  
16      {  
17        "deal_type": "Local"  
18      },  
19      {  
20        "deal_type": "Local"  
21      },  
22      {  
23        "deal_type": "Local"  
24      },  
25      {  
26        "deal_type": "Local"  
27      },  
28      {  
29        "deal_type": "Local"  
30      },  
31      {  
32        "deal_type": "Local"  
33      }  
34    ]  
35  }  
36 }
```

Key Path e.g. users[42].first_name

Desafio 4 - Produto

Melhorando o report
com imagens

Desafio 4 - Produto

Melhorando o report
com imagens



<https://www.ffmpeg.org/>

brew install ffmpeg

FFMpeg

Fazendo mágica no tamanho dos videos



= 13MB

Olá, Daniel
Florianópolis

GUACAMOLE Cocina Mexicana

Cocina Mexicana

Guacamole

peixe pay Saldo R\$ 76,25 >

Descontos Cashback Fidelidade Usar Agora

Lugares próximos a você

Churrascaria 100Tenario
Restaurante • \$\$\$\$\$

O Açougueiro
Restaurante • \$\$\$\$\$

Início Explorar Pagar Carteira Conta

FFMpeg

Fazendo mágica no tamanho dos videos

🔗 link para o script no GitHub

```
# Compress video files while keep their quality
# Usage: compress video_file
# requires: ffmpeg
# tip: put this function on your ~/.profile file
compress() {
    sourcefile=$(basename "$1")
    filename="${sourcefile%.*}"
    ffmpeg -i ${sourcefile} -c:v libx264 -crf 24 -b:v 1M -c:a aac -strict -2 "${filename}"_compressed.mp4
}
```

FFMpeg

Fazendo mágica no tamanho dos videos

🔗 link para o script no GitHub

```
# Compress video files while keep their quality
# Usage: compress video_file
# requires: ffmpeg
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    filename="${sourcefile%.*}"
    ffmpeg -i ${sourcefile} -c:v libx264 -crf 24 -b:v 1M -c:a aac -strict -2 "${filename}"_compressed.mp4
}
```

13MB

ppay-scan-demo.mov

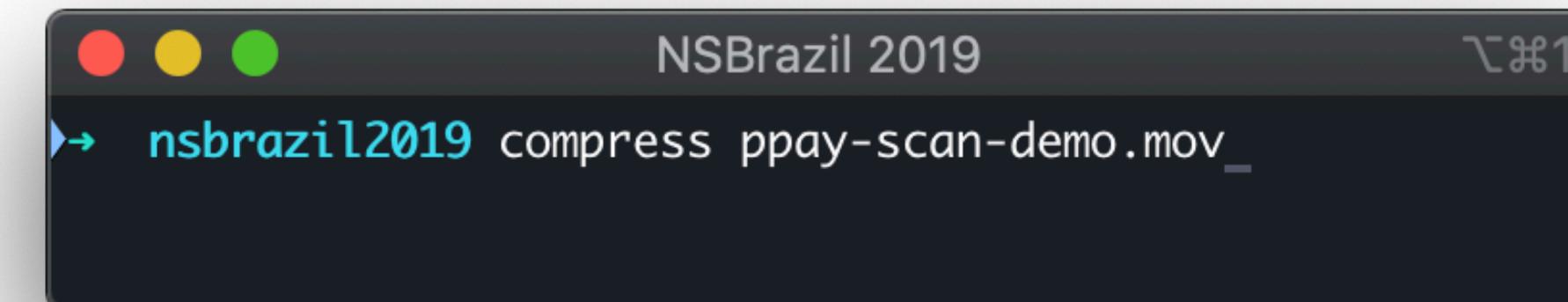
FFMpeg

Fazendo mágica no tamanho dos videos

🔗 link para o script no GitHub

```
# Compress video files while keep their quality
# Usage: compress video_file
# requires: ffmpeg
# tip: put this function on your ~/.profile file
compress() {
    sourcefile=$(basename "$1")
    filename="${sourcefile%.*}"
    ffmpeg -i ${sourcefile} -c:v libx264 -crf 24 -b:v 1M -c:a aac -strict -2 "${filename}"_compressed.mp4
}
```

13MB →



ppay-scan-demo.mov

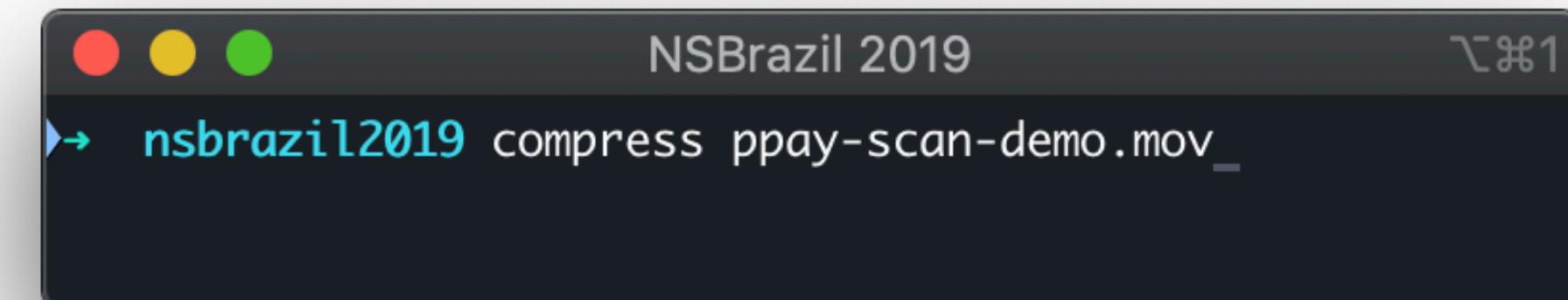
FFMpeg

Fazendo mágica no tamanho dos videos

🔗 link para o script no GitHub

```
# Compress video files while keep their quality
# Usage: compress video_file
# requires: ffmpeg
# tip: put this function on your ~/.profile file
compress() {
    sourcefile=$(basename "$1")
    filename="${sourcefile%.*}"
    ffmpeg -i ${sourcefile} -c:v libx264 -crf 24 -b:v 1M -c:a aac -strict -2 "${filename}"_compressed.mp4
}
```

13MB →



ppay-scan-demo.mov

→ 1.2 MB

ppay-scan-demo_compressed.mp4

FFMpeg

Demos e provas em Gifs

🔗 link para o script no GitHub

```
# Convert video to gif file.
# Usage: video2gif video_file (scale) (fps)
# requires: ffmpeg
# tip: put this function on your ~/.profile file
video2gif() {
    sourcefile=$(basename "$1")
    filename="${sourcefile%.*}"
    ffmpeg -y -i "${1}" -vf fps=${3:-10},scale=${2:-320}:-1:flags=lanczos,
    palettegen "${filename}.png"
    ffmpeg -i "${1}" -i "${filename}.png" -filter_complex "fps=${3:-10},scale=$
    ${2:-320}:-1:flags=lanczos[x];[x][1:v]paletteuse" "${filename}".gif
    rm "${filename}.png"
}
```

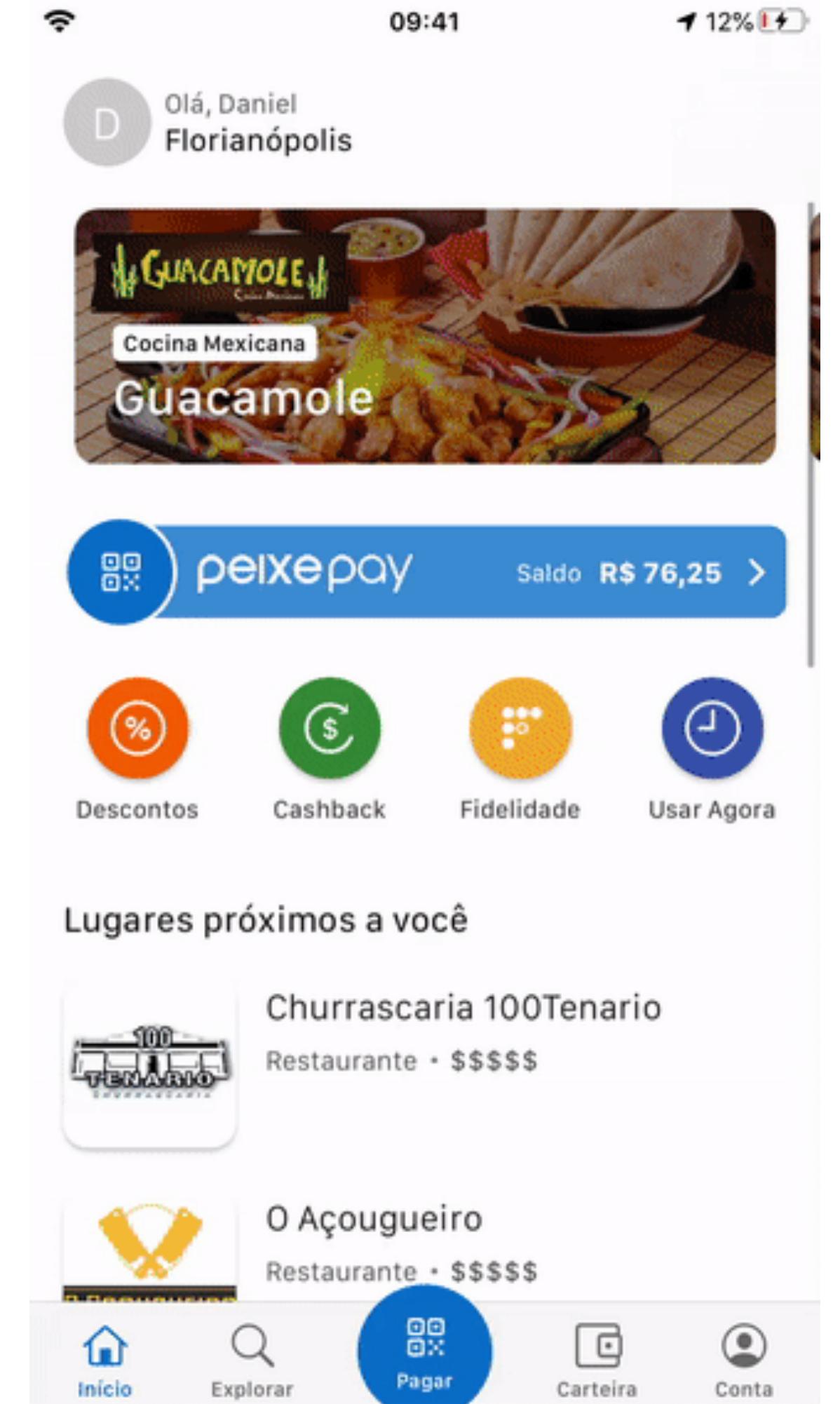
FFMpeg

Demos e provas em Gifs

🔗 link para o script no GitHub

```
# Convert video to gif file.  
# Usage: video2gif video_file (scale) (fps)  
# requires: ffmpeg  
# tip: put this function on your ~/.profile file  
video2gif() {  
    sourcefile=$(basename "$1")  
    filename="${sourcefile%.*}"  
    ffmpeg -y -i "${1}" -vf fps=${3:-10},scale=${2:-320}:-1:flags=lanczos,  
    palettegen "${filename}.png"  
    ffmpeg -i "${1}" -i "${filename}.png" -filter_complex "fps=${3:-10},scale=${2:-320}:-1:flags=lanczos[x];[x][1:v]paletteuse" "${filename}.gif"  
    rm "${filename}.png"  
}
```

1.9 MB
ppay-scan-demo_compressed.gif



Desafio 5 - Find a bug

Usando o Git para
encontrar a origem de
um bug

Desafio 5 - Find a bug

Usando o Git para
encontrar a origem de
um bug

git bisect



Desafio 5 - Find a bug

git bisect

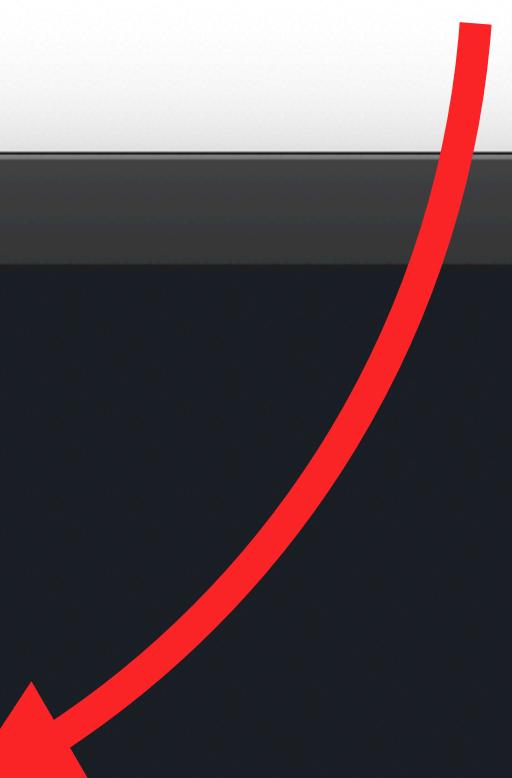


Uso básico

```
git bisect start  
git bisect bad HEAD  
git bisect good cb79160
```

Git bisect

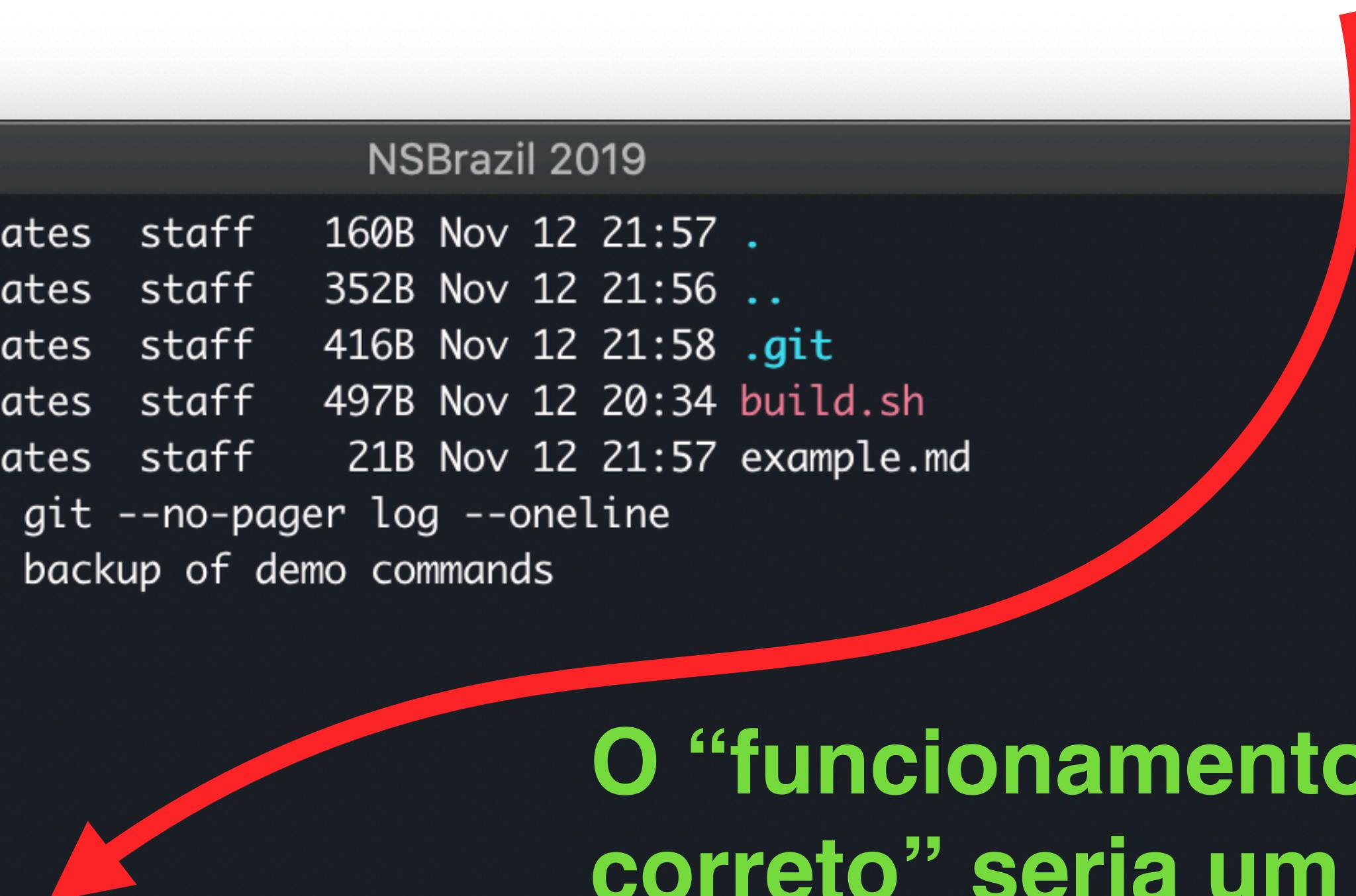
Esses são os arquivos do projeto



```
git-demo git:(master) l
total 16
drwxr-xr-x  5 danielbonates  staff  160B Nov 12 21:57 .
drwxr-xr-x 11 danielbonates  staff  352B Nov 12 21:56 ..
drwxr-xr-x 13 danielbonates  staff  416B Nov 12 21:58 .git
-rwxr-xr-x@  1 danielbonates  staff  497B Nov 12 20:34 build.sh
-rw-r--r--  1 danielbonates  staff   21B Nov 12 21:57 example.md
git-demo git:(master)
```

Git bisect

Listando os últimos commits

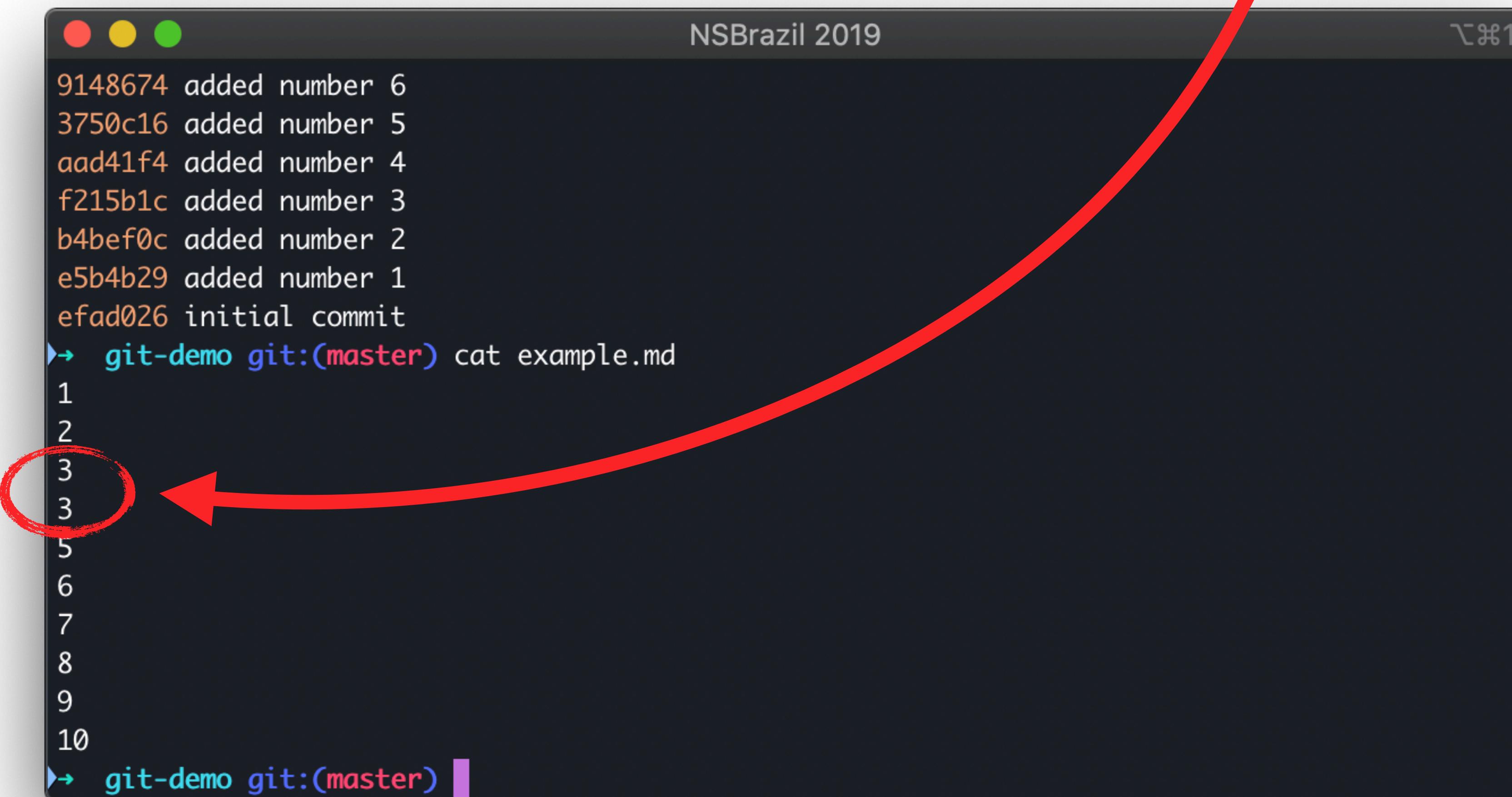


```
drwxr-xr-x  5 danielbonates  staff  160B Nov 12 21:57 .
drwxr-xr-x 11 danielbonates  staff  352B Nov 12 21:56 ..
drwxr-xr-x 13 danielbonates  staff  416B Nov 12 21:58 .git
-rw-rxr-x@  1 danielbonates  staff  497B Nov 12 20:34 build.sh
-rw-r--r--  1 danielbonates  staff   21B Nov 12 21:57 example.md
→ git-demo git:(master) git --no-pager log --oneline
17c7315 (HEAD -> master) backup of demo commands
069d1fb added number 10
8063830 added number 9
99533d5 added number 8
e30105f added number 7
9148674 added number 6
3750c16 added number 5
aad41f4 added number 4
f215b1c added number 3
b4bef0c added number 2
e5b4b29 added number 1
efad026 initial commit
→ git-demo git:(master)
```

O “funcionamento correto” seria um arquivo com números sequenciais de 1 a 10.

Git bisect

Examinando o arquivo **example.md**, encontramos um bug: o conteúdo repete o **3**.



```
NSBrazil 2019
```

```
9148674 added number 6
3750c16 added number 5
aad41f4 added number 4
f215b1c added number 3
b4bef0c added number 2
e5b4b29 added number 1
efad026 initial commit
git-demo git:(master) cat example.md
1
2
3
3
5
6
7
8
9
10
git-demo git:(master)
```

Git bisect

Examinando o arquivo `example.md`, encontramos um bug: o conteúdo repete o 3. Pense nisso como uma funcionalidade “quebrada”.

```
NSBrazil 2019
```

```
9148674 added number 6
3750c16 added number 5
aad41f4 added number 4
f215b1c added number 3
b4bef0c added number 2
e5b4b29 added number 1
efad026 initial commit
→ git-demo git:(master) cat example.md
1
2
3
3
5
6
7
8
9
10
→ git-demo git:(master)
```

Vamos descobrir qual commit introduziu o erro e examina-lo?

Git bisect



NSBrazil 2019

```
3750c16 added number 5
aad41f4 added number 4
f215b1c added number 3
b4bef0c added number 2
e5b4b29 added number 1
efad026 initial commit
→ git-demo git:(master) cat example.md
1
2
3
3
5
6
7
8
9
10
→ git-demo git:(master) git bisect start ←
→ git-demo git:(master)
```

**Passo 1:
iniciar a caça
ao bug!**

Git bisect

The terminal window shows the following content:

```
aad41f4 added number 4
f215b1c added number 3
b4bef0c added number 2
e5b4b29 added number 1
efad026 initial commit
→ git-demo git:(master) cat example.md
1
2
3
3
5
6
7
8
9
10
→ git-demo git:(master) git bisect start
→ git-demo git:(master) git bisect bad HEAD
```

A red arrow points from the text "Passo 2:" to the command "git bisect start". A red circle highlights the number "3" in the log output, and another red arrow points from this circle to the word "HEAD" in the last command.

Passo 2:
Dizer pro git, qual
commit é possível
reproduzir o erro

Git bisect

```
b4bef0c added number 2  
e5b4b29 added number 1  
efad026 initial commit  
→ git-demo git:(master) cat example.md  
1  
2  
3  
3  
5  
6  
7  
8  
9  
10  
→ git-demo git:(master) git bisect start  
→ git-demo git:(master) git bisect bad HEAD  
→ git-demo git:(master) git bisect good e5b4b29  
Bisecting: 4 revisions left to test after this (roughly 2 steps)
```

Passo 3:
Dizer pro git,
onde o erro não
existe ainda.

Git bisect

A partir daí, o git vai te mover na timeline de commits, buscando o commit assassino!

The screenshot shows a terminal window titled "NSBrazil 2019". The terminal output is as follows:

```
5
6
7
8
9
10
→ git-demo git:(master) git bisect start
→ git-demo git:(master) git bisect bad HEAD
→ git-demo git:(master) git bisect good e5b4b29
Bisection: 4 revisions left to test after this (roughly 2 steps)
[91486742273521fe85016488c7162e6deeb68521] added number 6
→ git-demo git:(9148674) cat example.md
1
2
3
3
5
6
→ git-demo git:(9148674)
```

Annotations in red:

- A red circle highlights the number "3" in the first column of the terminal output.
- A large red arrow points from the circled "3" up towards the text "Estimativa de quantos passos ainda restam para encontrar o bug".
- A red box highlights the text "roughly 2 steps". A red arrow points from this box to the same text in the annotation.
- A red arrow points from the text "Teste o código e verifique se o erro está presente nesse commit. Nesse caso, ainda sim 😊" down towards the circled "3".

Estimativa de quantos passos ainda restam para encontrar o bug

Teste o código e verifique se o erro está presente nesse commit. Nesse caso, ainda sim 😊

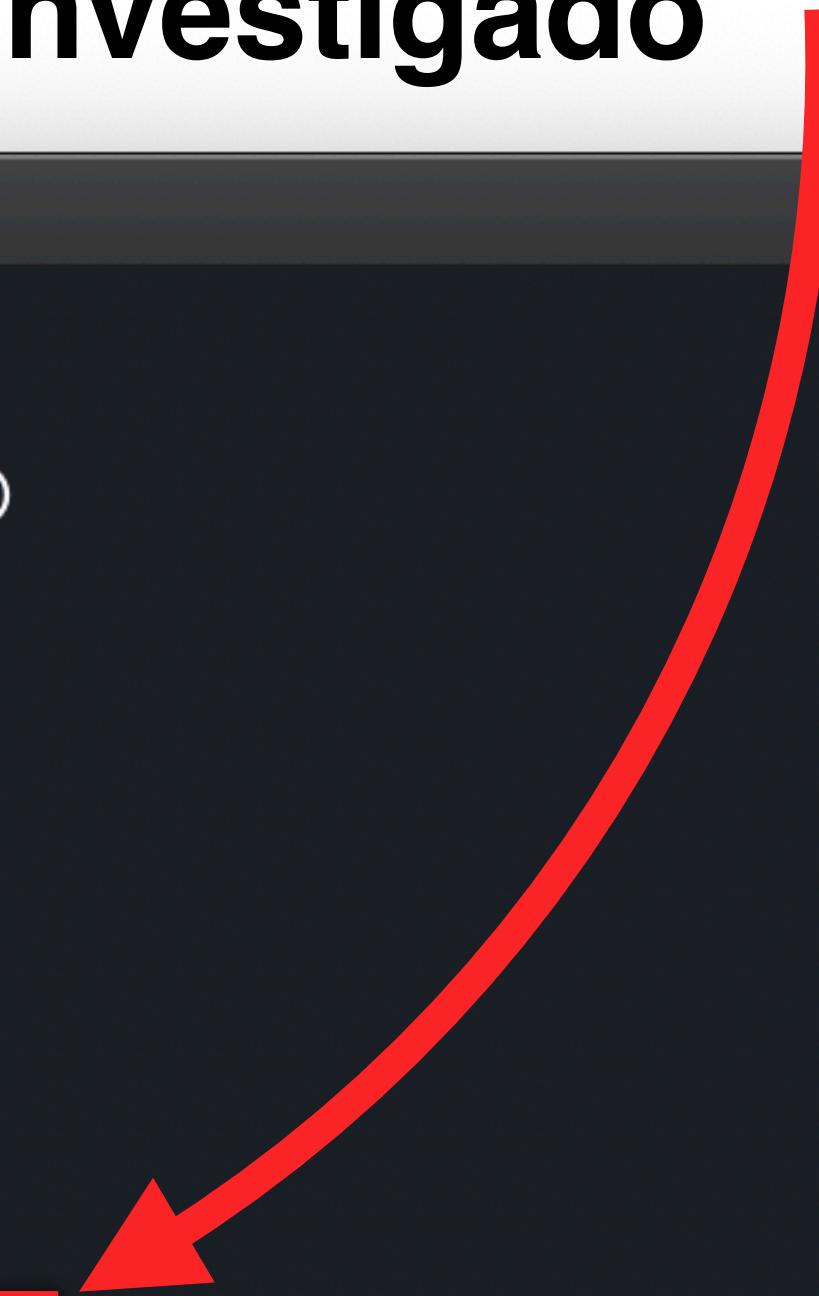
Git bisect

Testamos o commit (1) verificamos que o erro existe (2), marcamos esse passo como **bad** (3).

```
7
8
9
10
→ git-demo git:(master) git bisect start
→ git-demo git:(master) git bisect bad HEAD
→ git-demo git:(master) git bisect good e5b4b29
Bisecting: 4 revisions left to test after this (roughly 2 steps)
[91486742273521fe85016488c7162e6deeb68521] added number 6
→ git-demo git:(9148674) cat example.md
1
2
3
3
5
6
→ git-demo git:(9148674) git bisect bad
Bisecting: 2 revisions left to test after this (roughly 1 step)
```

Git bisect

O Git vai seguir a busca e te mover pro próximo commit a ser investigado



```
git-demo git:(master) git bisect bad HEAD
git-demo git:(master) git bisect good e5b4b29
Bisecting: 4 revisions left to test after this (roughly 2 steps)
[91486742273521fe85016488c7162e6deeb68521] added number 6
git-demo git:(9148674) cat example.md
1
2
3
3
5
6
git-demo git:(9148674) git bisect bad
Bisecting: 2 revisions left to test after this (roughly 1 step)
[f215b1c79aa23aed36bfa7c1de6ac704d55105b4] added number 3
git-demo git:(f215b1c) cat example.md
1
2
3
git-demo git:(f215b1c)
```

Git bisect

Nesse commit, ao testar o código (1) verificamos que o erro não ocorre (2), marcamos ele como **good** (3)!

```
Bisecting: 4 revisions left to test after this (roughly 2 steps)
[91486742273521fe85016488c7162e6deeb68521] added number 6
↳ git-demo git:(9148674) cat example.md
1
2
3
3
5
6

↳ git-demo git:(9148674) git bisect bad
Bisecting: 2 revisions left to test after this (roughly 1 step)
[f215b1c79aa23aed36bfa7c1de6ac704d55105b4] added number 3
↳ git-demo git:(f215b1c) cat example.md
1
2
3
3
5
6

git-demo git:(f215b1c) git bisect good
Bisecting: 0 revisions left to test after this (roughly 0 steps)
[8f6825329b775f12e72f40a6185ee42c497b0a57] added number 4
```

Git bisect

Pronto! Praticamente apenas digitando bad e good, chegamos no commit com problema. Nele podemos conferir com mais detalhes as mudanças que introduziram o bug.



```
commit 8f6825329b775f12e72f40a6185ee42c497b0a57 (HEAD)
Author: Daniel Bonates <daniel@bonates.com>
Date:   Tue Nov 12 23:35:16 2019 -0300

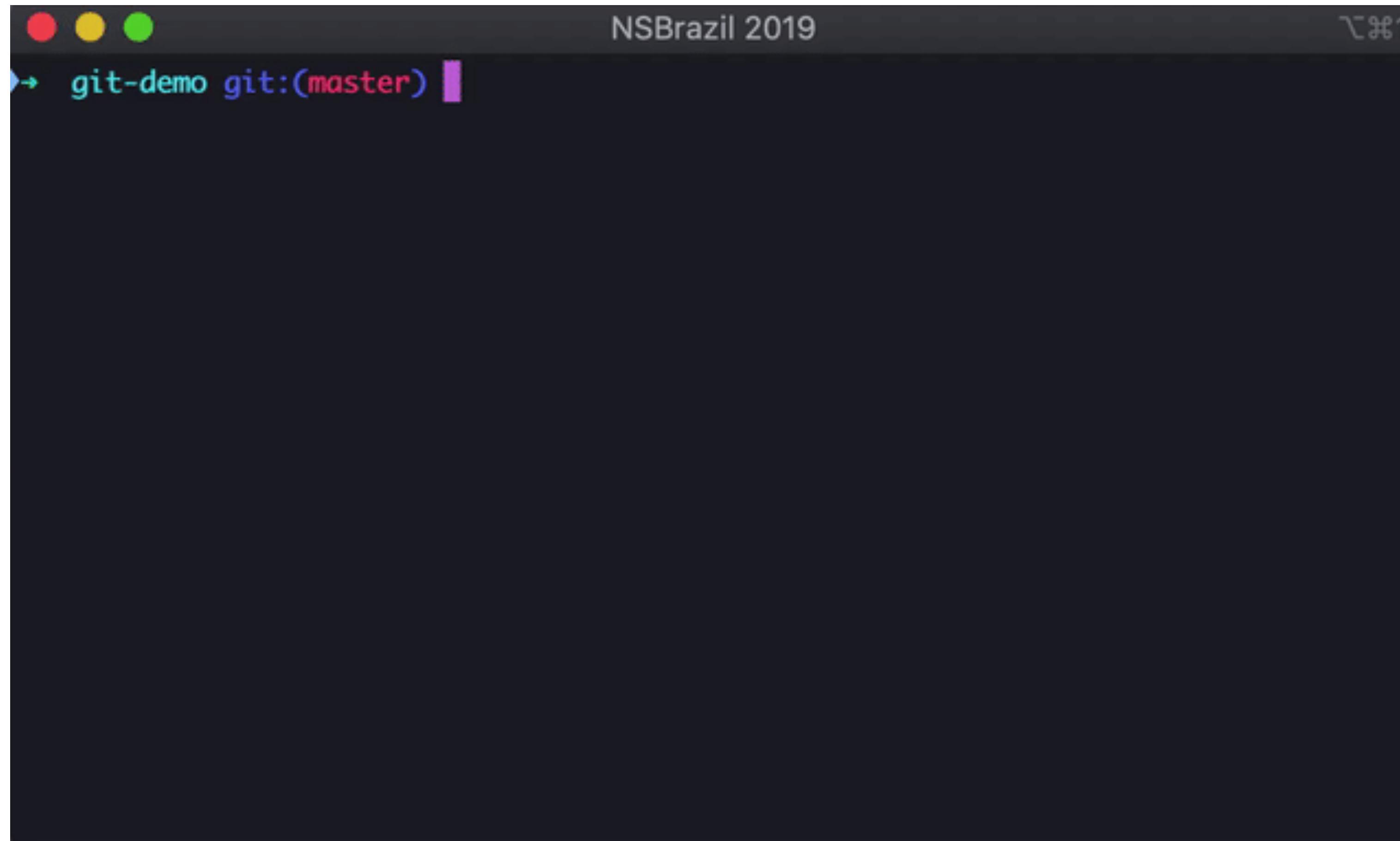
    added number 4

diff --git a/example.md b/example.md
index 01e79c3..7d8164b 100644
--- a/example.md
+++ b/example.md
@@ -1,3 +1,4 @@
1
2
3
+3
(END)
```

O comando
git show
pode cair bem aqui!

Git bisect

Demo do fluxo completo



visualizar no browser



@DanielBonates



@bonates



@dbonates



#vem-pro-peixe