

Engenharia De Software

AULA 8 - CI

Inatel

Conteúdo da aula

- O que é CI ?
- Travis
- Como configurar o Travis?
- GitHub Actions
- Como configurar o GitHub Actions?
- Outras ferramentas

O que é CI ?

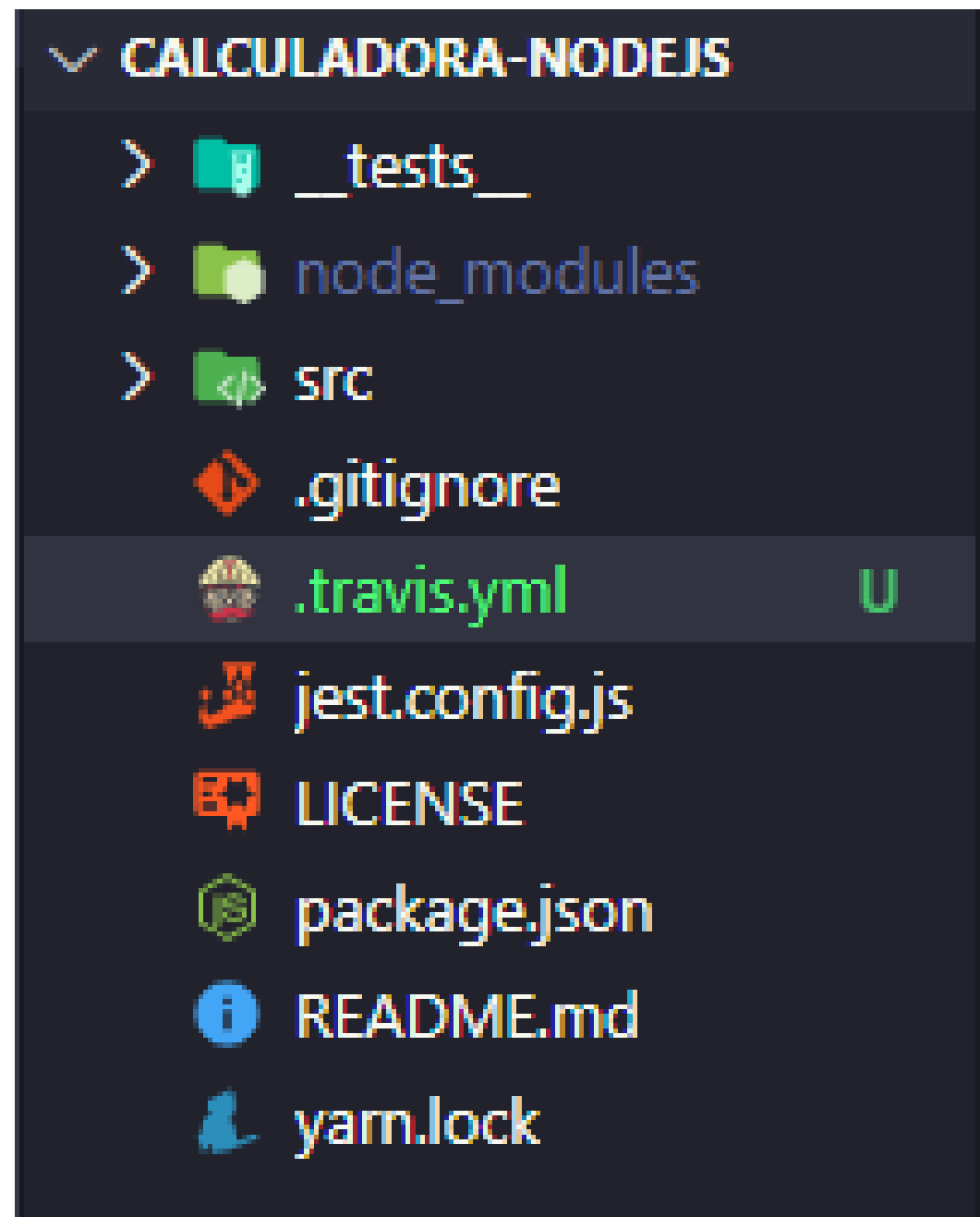
"Integração Contínua é uma metodologia moderna de desenvolvimento, em que os desenvolvedores envolvidos em um projeto integram seus trabalhos continuamente. Cada integração é consolidada por uma ferramenta chamada de automatização de tarefas, que inclusive pode executar diversos testes para identificar erros de digitação de códigos, incompatibilidades entre comandos dados por desenvolvedores diferentes etc."

Travis

- Travis CI é uma plataforma/serviço de Integração Contínua, que é gratuito para todos os projetos open source hospedados no GitHub
- O Travis-CI é uma ferramenta que integramos com o repositório central para que toda vez que ocorrer uma atualização o próprio Travis-CI irá executar o script configurado.
- **ATENÇÃO: Seu repositório tem que ser PUBLIC, para usar o Travis sem pagar e se limitações !**

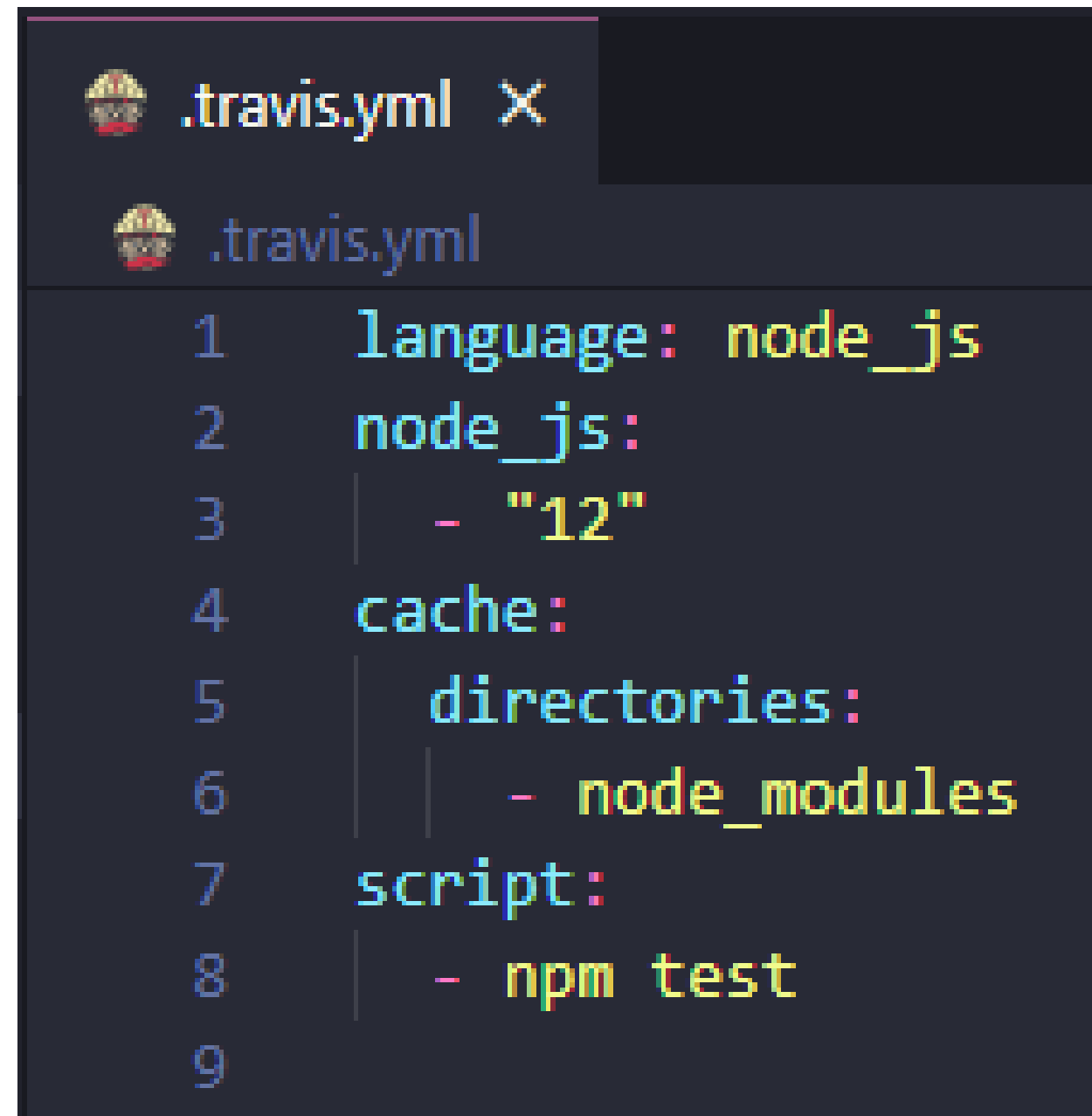
Como configurar o Travis?

- Adicionamos o arquivo **.travis.yml** no projeto



Como configurar o Travis?

- Configurar o arquivo **.travis.yml** de acordo com a linguagem utilizada no projeto

A screenshot of a code editor window with a dark theme. The title bar shows a file named ".travis.yml" with a close button (X). The editor content shows a YAML configuration for Travis CI. The configuration is as follows:

```
1 language: node_js
2 node_js:
3   - "12"
4 cache:
5   directories:
6     - node_modules
7 script:
8   - npm test
9
```

Como configurar o Travis?

- Se o arquivo **yarn.lock** existir no projeto, por padrão o comando test vai ser **yarn test** ao invés de **npm test**
- Mesmo que no arquivo **.travis.yml**, esteja configurado com o script **npm**.
- O **.travis.yml** deve ser configurado de acordo com a linguagem/tecnologia utilizada no projeto.
- Documentação: [Travis CI](#)

Como configurar o Travis?

- Vamos subir essa atualização para o repositório central.

```
MINGW64:/e/Desktop/calculadora-nodejs


Vanessa Swerts@Swerts96 MINGW64 /e/Desktop/calculadora-nodejs (main)
$ git add .travis.yml












Vanessa Swerts@Swerts96 MINGW64 /e/Desktop/calculadora-nodejs (main)
$ git commit -m "Adicionando configs do Travis"
[main 1cc5683] Adicionando configs do Travis
1 file changed, 12 insertions(+)
create mode 100644 .travis.yml

Vanessa Swerts@Swerts96 MINGW64 /e/Desktop/calculadora-nodejs (main)
$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 368 bytes | 184.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/VanessaSwerts/teste.git
5d449cc..1cc5683  main -> main
```

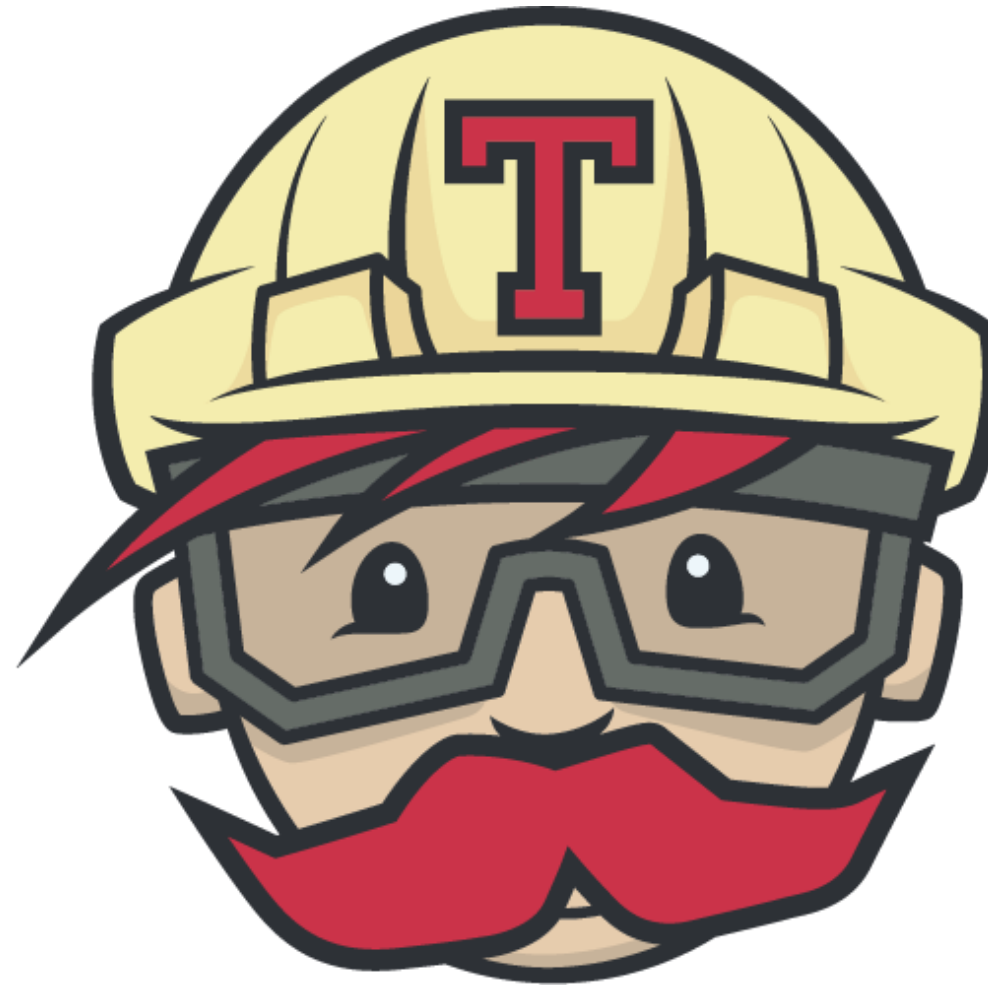

Como configurar o Travis?

- Vamos subir essa atualização para o repositório central.



 VanessaSwerts	Adicionando configs do Travis	1cc5683 1 minute ago	 7 commits
 __tests__/unit	Aula 06 - Calculadora Testes	28 days ago	
 src	Aula 06 - Calculadora Testes	28 days ago	
 .gitignore	Initial commit	28 days ago	
 .travis.yml	Adicionando configs do Travis	1 minute ago	
 LICENSE	Initial commit	28 days ago	
 README.md	Update README.md	11 days ago	
 jest.config.js	Aula 06 - Calculadora Testes	28 days ago	
 package.json	Aula 06 - Calculadora Testes	28 days ago	
 yarn.lock	Aula 06 - Calculadora Testes	28 days ago	

Como configurar o Travis?



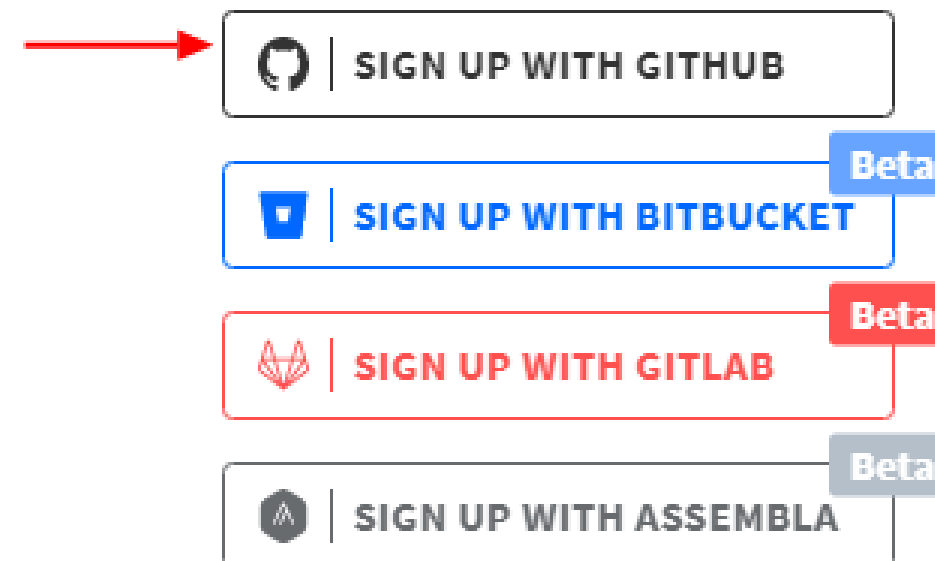
<https://travis-ci.com>

Como configurar o Travis?

- Cria e entre no Travis com a sua conta do GitHub

Sign up for Travis CI

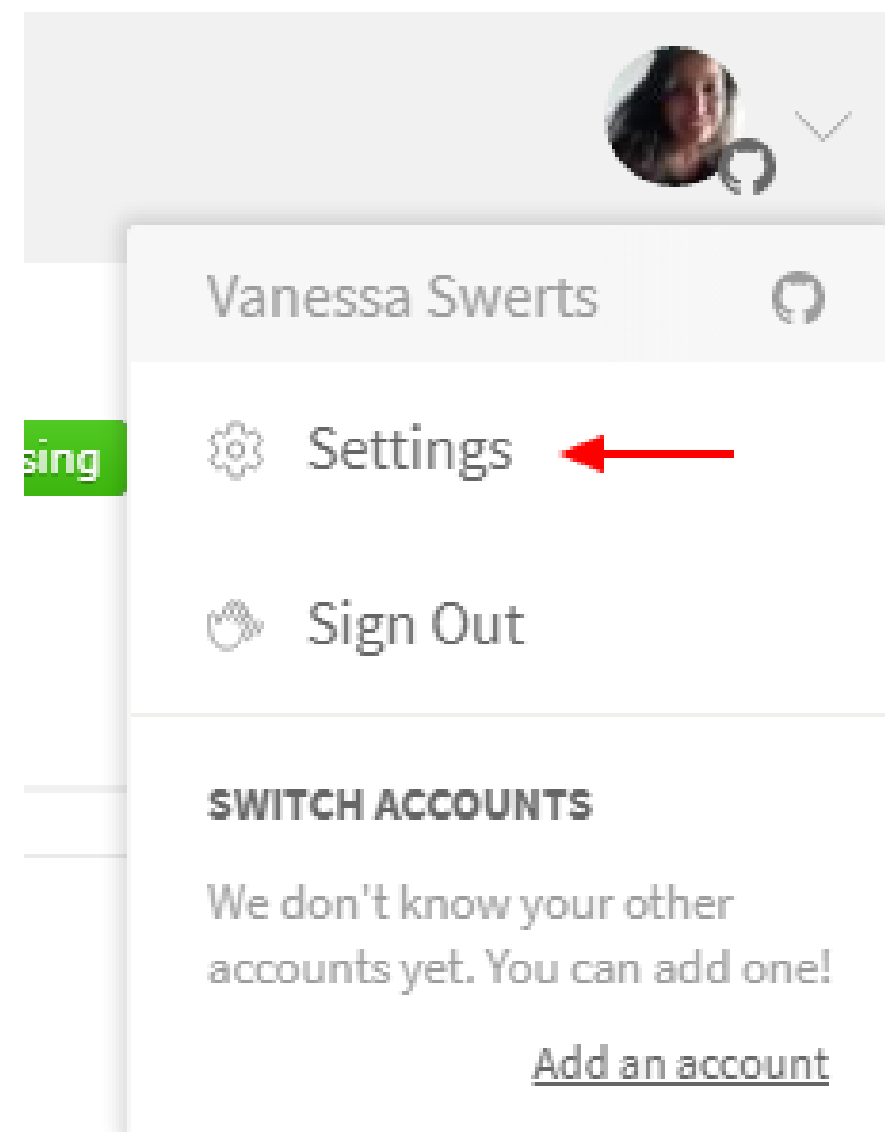
Set up your first project in just one minute.



Already have an account? [Sign in](#)

Como configurar o Travis?

- Após sincronizar com seu GitHub, entre em configurações.



Como configurar o Travis?

- Selecione "migrate" e clique no botão para ativar os repositórios.



@VanessaSwerts EDUCATION

Repositories Settings Plan Migrate Plan usage

Bring your public repositories here

Below you can migrate all your repositories to build on travis-ci.com and view all of your builds in one place.

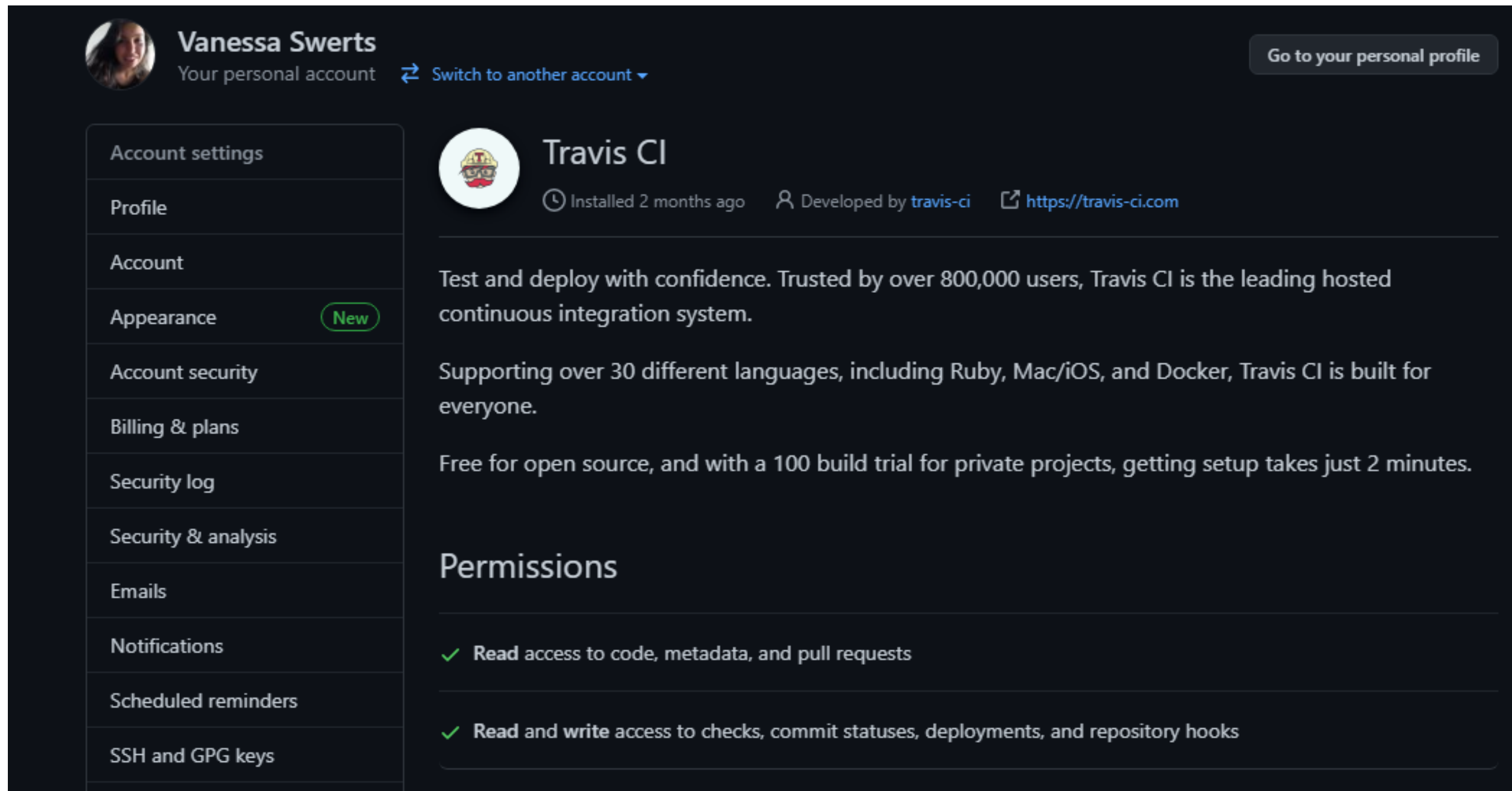
The first step is activating your repositories on GitHub Apps to later migrate them here.

 Activate all repositories using GitHub Apps

**Keep in mind that you can also select the specific repositories you'd like to migrate.*

Como configurar o Travis?

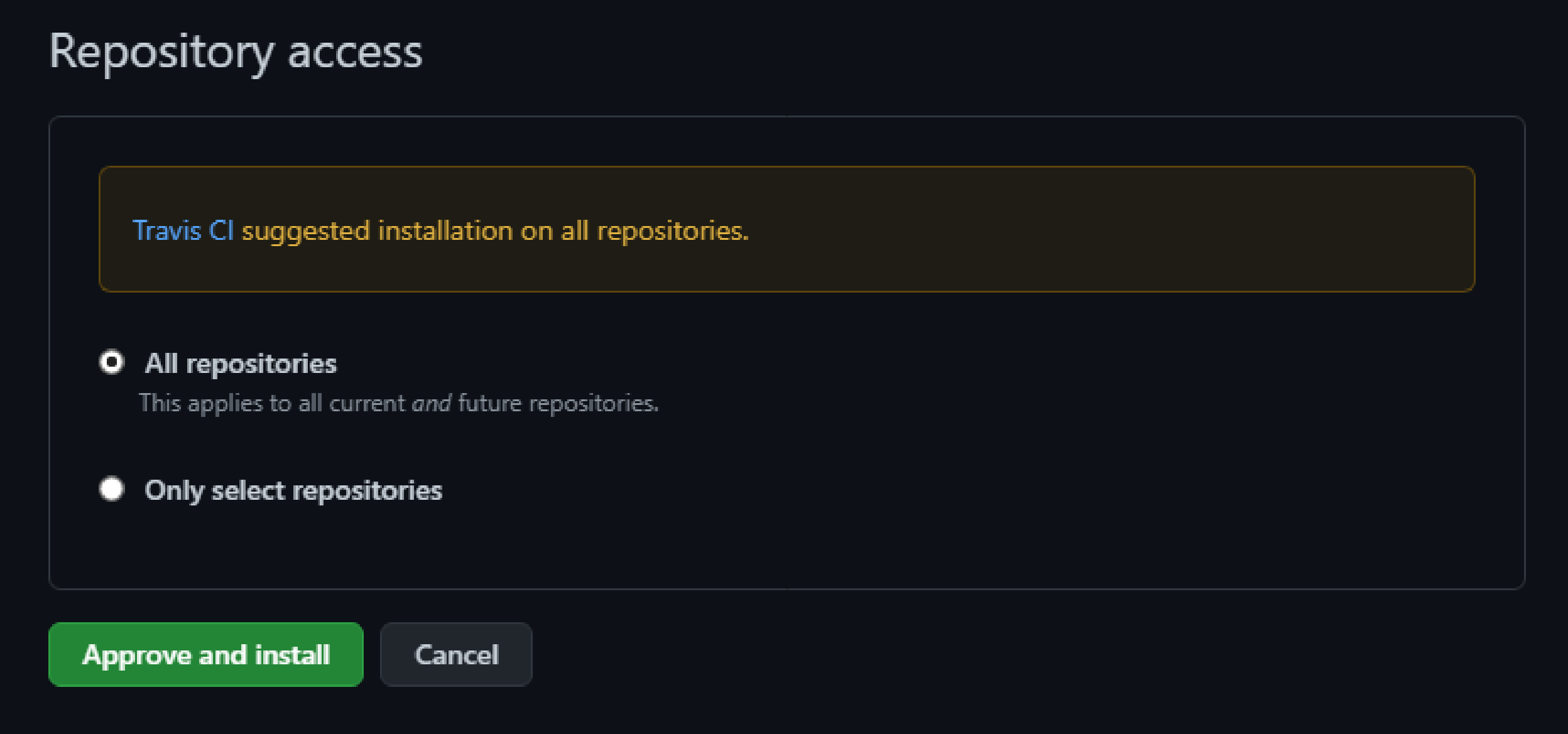
- Você vai ser redirecionado para o GitHub



The screenshot shows the Travis CI repository page on GitHub. At the top, the user's profile is visible: Vanessa Swerts, with a link to 'Go to your personal profile'. Below this is a sidebar menu with options: Account settings, Profile, Account, Appearance (marked 'New'), Account security, Billing & plans, Security log, Security & analysis, Emails, Notifications, Scheduled reminders, and SSH and GPG keys. The main content area displays the Travis CI repository, including its profile picture, name, installation date (2 months ago), developer (travis-ci), and website (https://travis-ci.com). The description states: 'Test and deploy with confidence. Trusted by over 800,000 users, Travis CI is the leading hosted continuous integration system. Supporting over 30 different languages, including Ruby, Mac/iOS, and Docker, Travis CI is built for everyone. Free for open source, and with a 100 build trial for private projects, getting setup takes just 2 minutes.' Below this is a 'Permissions' section with two entries: 'Read access to code, metadata, and pull requests' and 'Read and write access to checks, commit statuses, deployments, and repository hooks', both marked with green checkmarks.

Como configurar o Travis?

- Procure por "Repository access"



The screenshot shows a dark-themed dialog box titled "Repository access". Inside, there is a light gray box with the text "Travis CI suggested installation on all repositories." Below this, there are two radio button options. The first option, "All repositories", is selected and includes the subtext "This applies to all current *and* future repositories." The second option is "Only select repositories". At the bottom of the dialog, there are two buttons: a green "Approve and install" button and a gray "Cancel" button.

Repository access

Travis CI suggested installation on all repositories.

☒ All repositories
This applies to all current *and* future repositories.

☐ Only select repositories

Approve and install Cancel

Como configurar o Travis?

- Você pode liberar o acesso a todos os seus repositórios, ou apenas selecionar qual você deseja

Repository access

Travis CI suggested installation on all repositories.

☒ All repositories
This applies to all current *and* future repositories.

☐ Only select repositories

Select repositories ▾

Selected 2 repositories.

VanessaSwerts/react-tests-bytebank	×
VanessaSwerts/calc-travis	×

Após configurar, clica aqui.

Approve and install Cancel

Selezione o repositório que você quer configurar com o Travis


Repositórios já selecionados.

Como configurar o Travis?

- Você será redirecionado para o Travis e os repositórios escolhidos será listado aqui.

The screenshot displays the Travis CI user interface for a user named Vanessa Swerts. On the left, the 'MY ACCOUNT' section shows a profile card with a 'Sync account' button. Below this, the 'ORGANIZATIONS' section states that the user is not currently a member of any organization, and a 'MISSING AN ORGANIZATION?' section provides a link to review and add authorized organizations. The main area on the right is titled 'Vanessa Swerts' with the handle '@VanessaSwerts' and a badge for 'EDUCATION'. It features a navigation bar with 'Repositories', 'Settings', 'Plan', 'Migrate', and 'Plan usage'. The 'Repositories' tab is active, showing 'GitHub Apps Integration' with a 'Manage repositories on GitHub' button. A search bar labeled 'Filter GitHub repositories' is present. Below, two repositories are listed: 'calc-travis' and 'react-tests-bytebank', each with a 'Settings' button.

MY ACCOUNT

 Vanessa Swerts

[Sync account](#)

ORGANIZATIONS

You are not currently a member of any organization.

MISSING AN ORGANIZATION?


[Review and add your authorized organizations.](#)


Vanessa Swerts
@VanessaSwerts **EDUCATION**

[Repositories](#) [Settings](#) [Plan](#) [Migrate](#) [Plan usage](#)

GitHub Apps Integration [Manage repositories on GitHub](#)

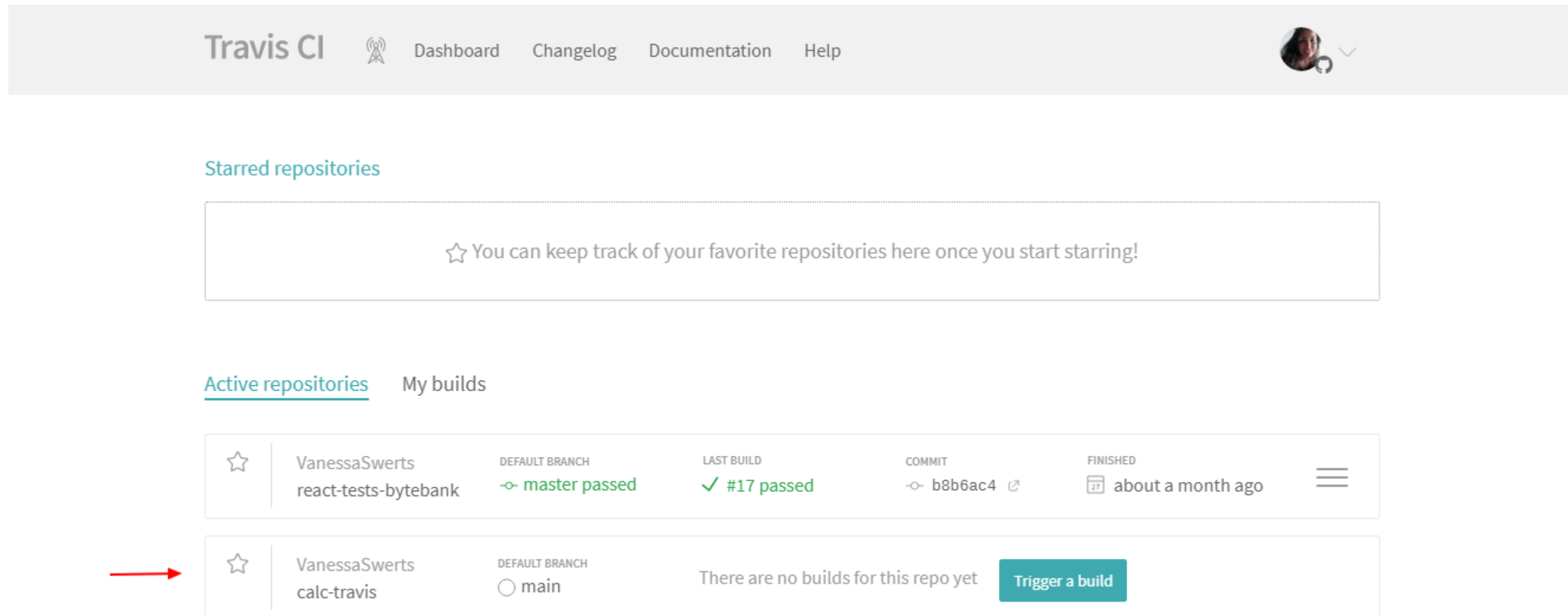
[Filter GitHub repositories](#)

 calc-travis [Settings](#)

 react-tests-bytebank [Settings](#)

Como configurar o Travis?

- Para "acionar" o novo repositório, é necessário dar um "Push"








The screenshot shows the Travis CI dashboard. At the top, there's a navigation bar with 'Travis CI' logo, a signal icon, and links for 'Dashboard', 'Changelog', 'Documentation', and 'Help'. A user profile picture is on the right. Below the navigation bar, there's a section for 'Starred repositories' with a message: '☆ You can keep track of your favorite repositories here once you start starring!'. Underneath, there are two tabs: 'Active repositories' (selected) and 'My builds'. The 'Active repositories' tab shows a list of repositories. The first repository is 'VanessaSwerts/react-tests-bytebank', which has a default branch 'master' that passed its last build (#17). The second repository is 'VanessaSwerts/calc-travis', which has a default branch 'main' and no builds yet. A red arrow points to the 'calc-travis' repository. A 'Trigger a build' button is visible next to the 'calc-travis' repository.


	VanessaSwerts	DEFAULT BRANCH	LAST BUILD	COMMIT	FINISHED	
☆	react-tests-bytebank	→ master passed	✓ #17 passed	b8b6ac4 ↗	about a month ago	≡
→ ☆	calc-travis	○ main	There are no builds for this repo yet		Trigger a build	




Como configurar o Travis?

- Após o push, o CI começará a executar o script configurado.

	 calc-travis	LAST BUILD # 1	DEFAULT BRANCH main	COMMIT 49a4f6f	FINISHED Created -
---	---	-------------------	------------------------	-------------------	-----------------------

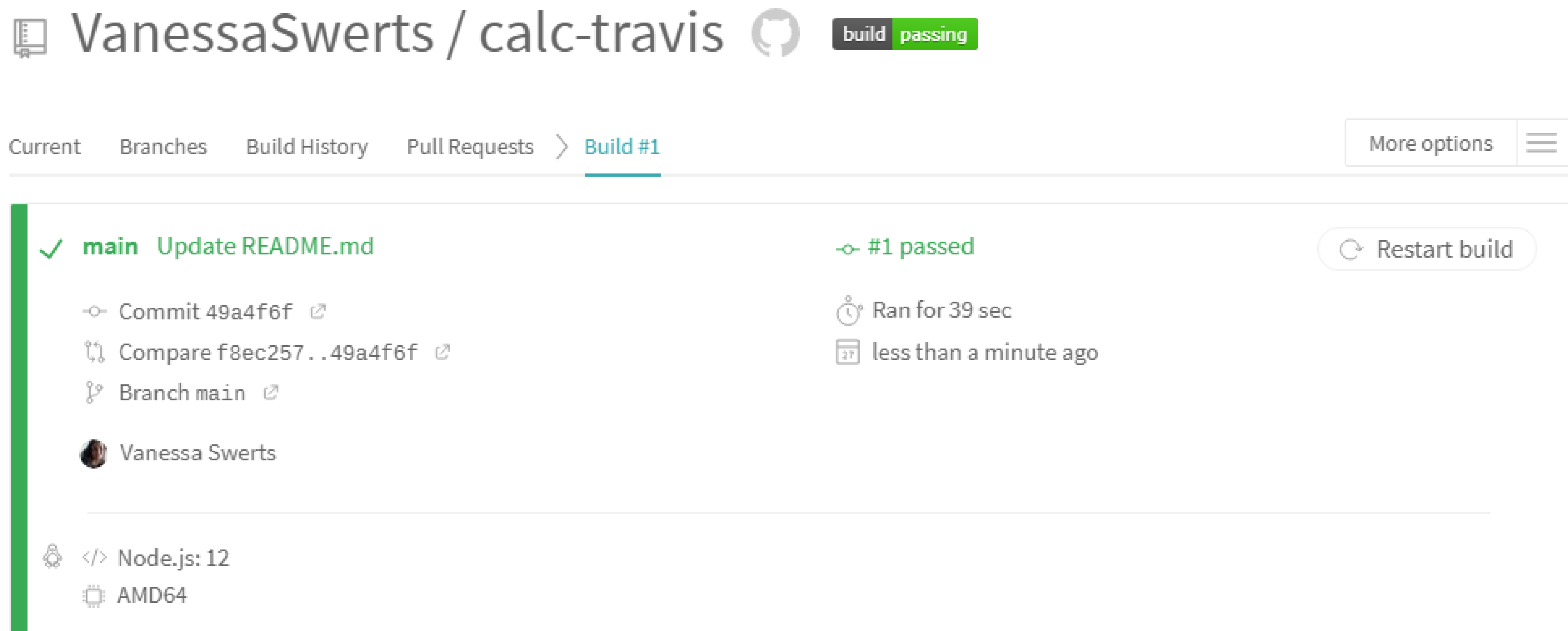
 main  1 branch  0 tags

Go to file Add file  Code


 VanessaSwerts Update README.md  49a4f6f 4 minutes ago  10 commits

Como configurar o Travis?

- E depois aparecerá a resposta, se a build passou ou não ...




The screenshot shows the Travis CI interface for the repository 'VanessaSwerts / calc-travis'. The build status is 'build passing'. The navigation bar includes 'Current', 'Branches', 'Build History', 'Pull Requests', and 'Build #1' (which is selected). A 'More options' button is visible on the right. The main content area shows a successful build on the 'main' branch for the commit 'Update README.md'. It includes details such as the commit hash '49a4f6f', a comparison link, the branch name 'main', the author 'Vanessa Swerts', and the build environment 'Node.js: 12' on 'AMD64' architecture. The build duration is '39 sec' and it was completed 'less than a minute ago'. A 'Restart build' button is located in the top right corner of the build details section.



VanessaSwerts / calc-travis  build passing



Current Branches Build History Pull Requests > Build #1 More options

✓ main Update README.md #1 passed Restart build

Commit 49a4f6f [↗](#)
Compare f8ec257..49a4f6f [↗](#)
Branch main [↗](#)

 Vanessa Swerts

 </> Node.js: 12
 AMD64

 Ran for 39 sec
 less than a minute ago

Como configurar o Travis?

- Mas como adicionar o Bagde ao README ?
- Clique no Bagde que aparece no Travis



Como configurar o Travis?

- **Selecione o formato desejado e copie o resultado ...**

×

Status Image

BRANCH

main

FORMAT ←

Markdown

RESULT ←

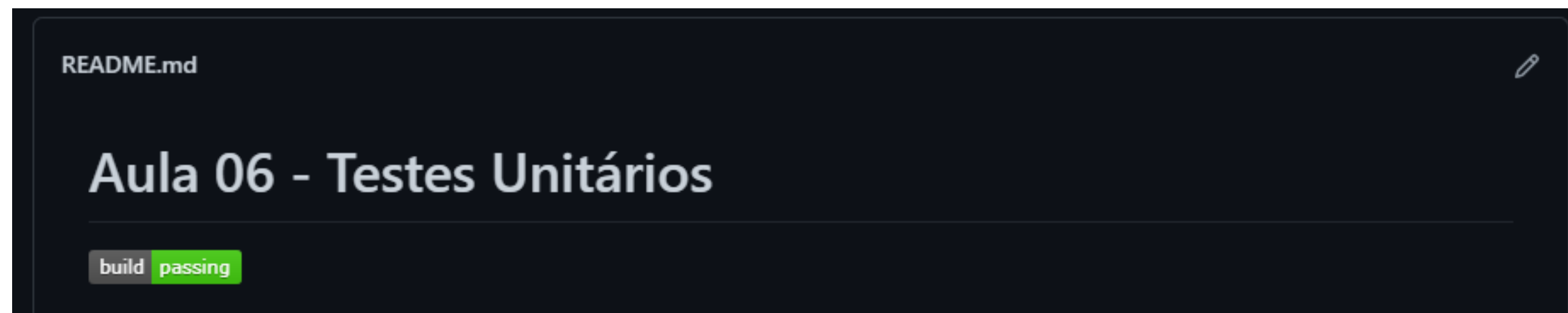
[![Build Status](https://travis-ci.com/VanessaSwerts/calc-travis.svg?branch=main)](https://travis-ci.com/VanessaSwerts/calc-travis)

Como configurar o Travis?

- Depois cole o resultado copiado no README



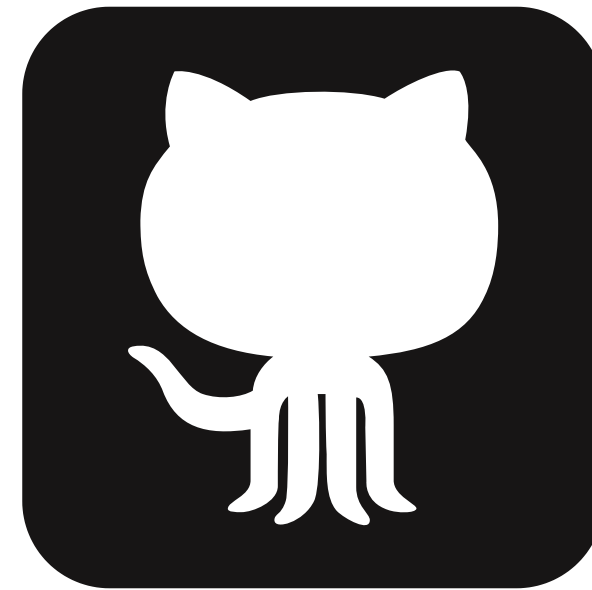
```
calc-travis / README.md Cancel
<> Edit file Preview changes Spaces 1 Soft wrap
1 # Aula 06 - Testes Unitários
2
3 [![Build Status](https://travis-ci.com/VanessaSwerts/calc-travis.svg?branch=main)](https://travis-ci.com/VanessaSwerts/calc-travis)
4
5 ## ✨ Conceitos abordados:
```



GitHub Actions

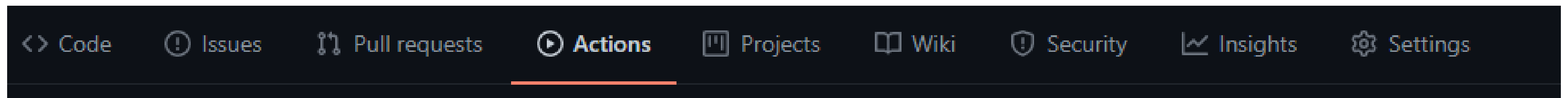
- GitHub Actions ajuda você a automatizar tarefas dentro de seu ciclo de vida de desenvolvimento de software.
- GitHub Actions são orientados por eventos, o que significa que você pode executar uma série de comandos após um evento especificado ocorrer.
- A CI que usa GitHub Actions oferece fluxos de trabalho que podem criar o código no seu repositório e executar os seus testes.
- O fluxo de trabalho é um procedimento automatizado que você adiciona ao seu repositório. Pode ser usado para criar, testar, empacotar, publicar ou implantar um projeto em GitHub
- Um evento é uma atividade específica que aciona um fluxo de trabalho

Como configurar o GitHub Actions?



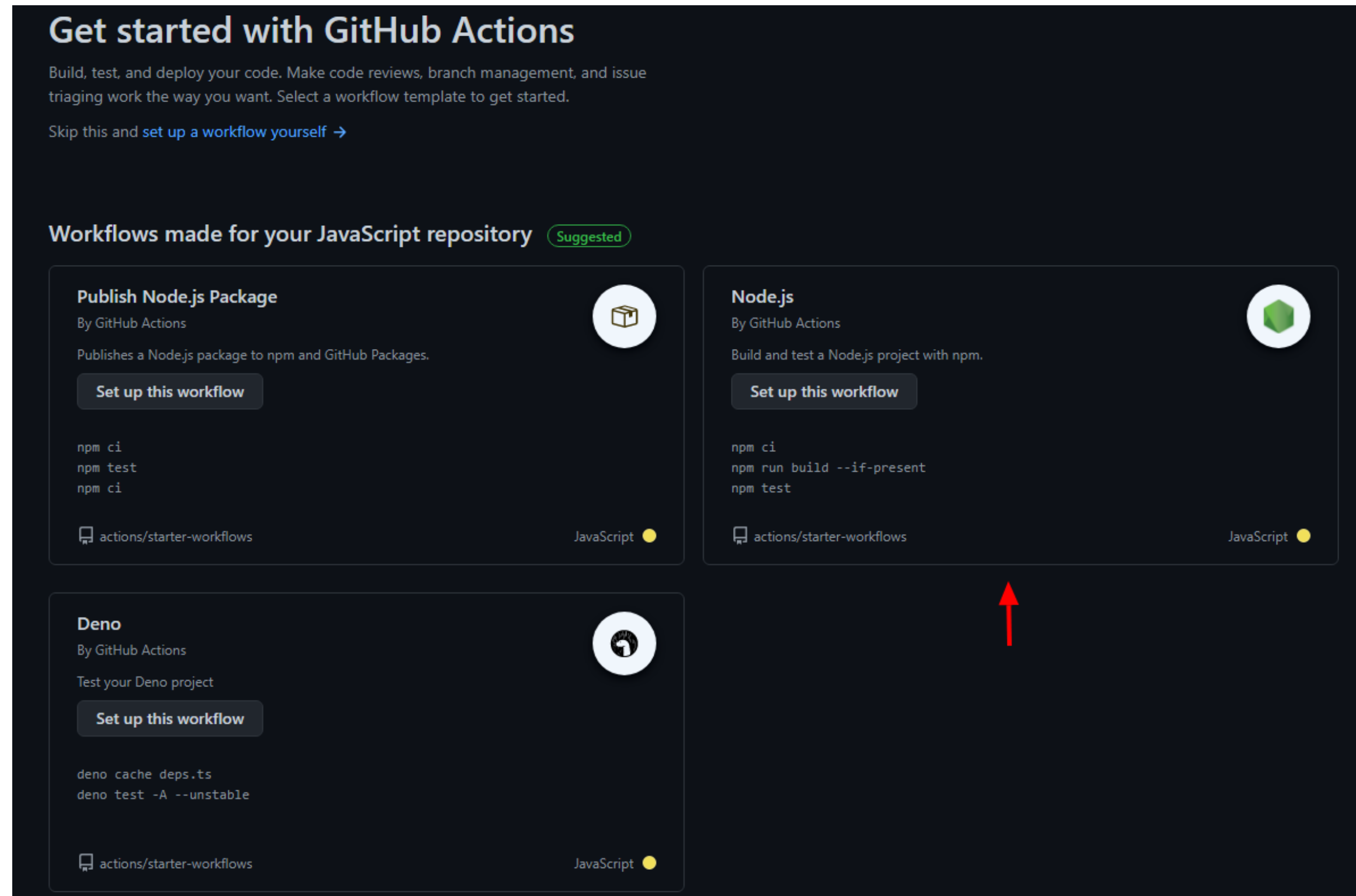
<https://github.com/monitoria-C214/calculadora-nodejs>

- **Com o repositório aberto, vamos na área de Actions**



Como configurar o GitHub Actions?

- Vamos escolher um Fluxo de Trabalho



Get started with GitHub Actions

Build, test, and deploy your code. Make code reviews, branch management, and issue triaging work the way you want. Select a workflow template to get started.

Skip this and [set up a workflow yourself](#) →


Workflows made for your JavaScript repository Suggested


Publish Node.js Package
By GitHub Actions

Publishes a Node.js package to npm and GitHub Packages.

[Set up this workflow](#)

```
npm ci
npm test
npm ci
```

 actions/starter-workflows


JavaScript 


Node.js
By GitHub Actions

Build and test a Node.js project with npm.

[Set up this workflow](#)

```
npm ci
npm run build --if-present
npm test
```

 actions/starter-workflows


JavaScript 


Deno
By GitHub Actions

Test your Deno project

[Set up this workflow](#)

```
deno cache deps.ts
deno test -A --unstable
```

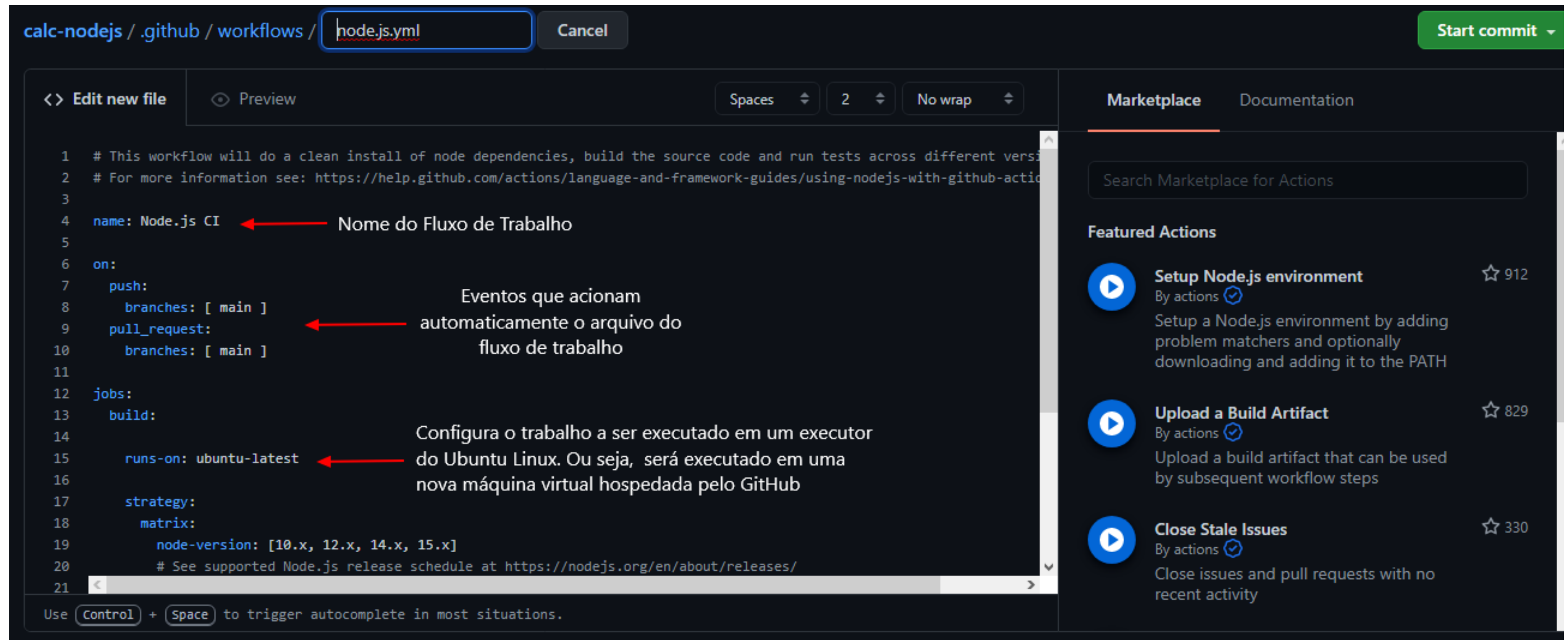
 actions/starter-workflows

JavaScript 

A red arrow points to the 'Node.js' workflow card.

Como configurar o GitHub Actions?

- Configuramos o nosso Fluxo de Trabalho no arquivo .yml



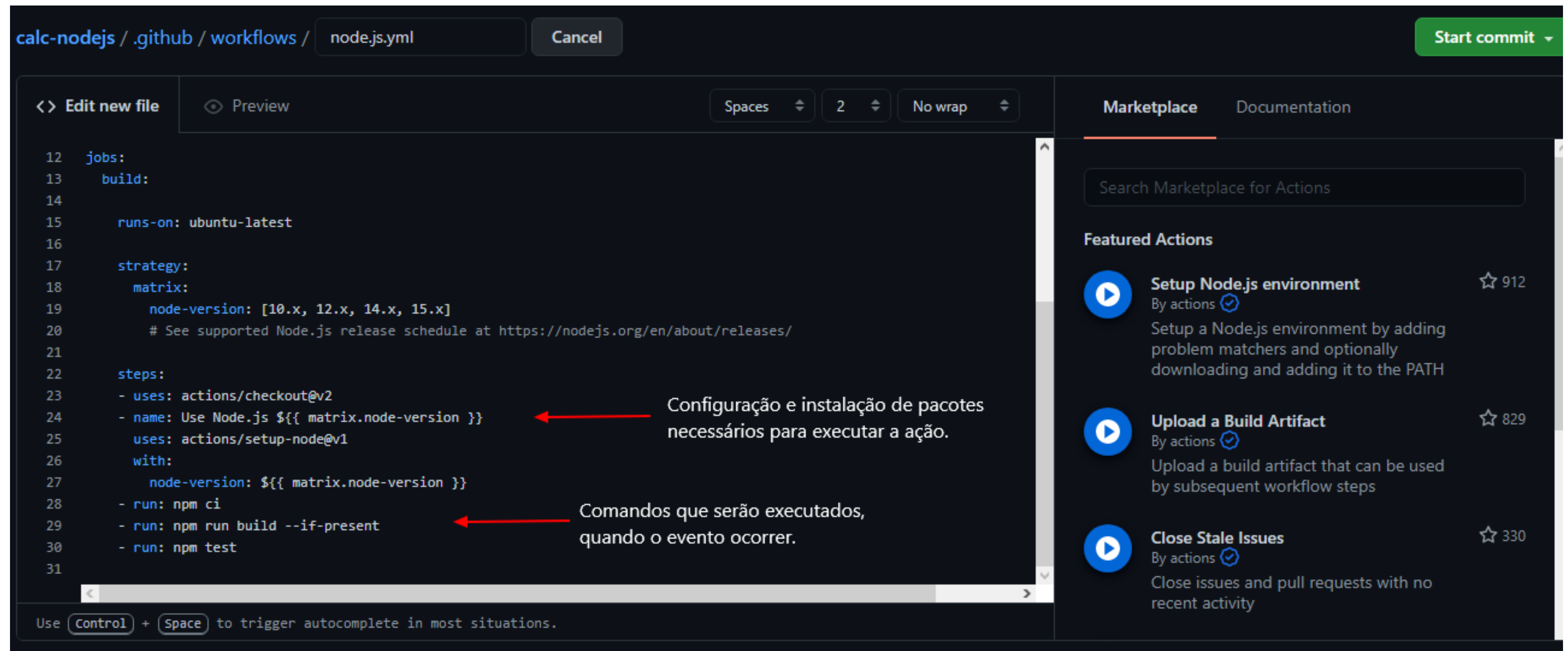
The screenshot shows the GitHub Actions workflow editor interface. The file path is `calc-nodejs / .github / workflows / node.js.yml`. The editor displays a workflow configuration with several annotations in Portuguese:

- name: Node.js CI** is annotated with "Nome do Fluxo de Trabalho" (Workflow Name).
- on:** is annotated with "Eventos que acionam automaticamente o arquivo do fluxo de trabalho" (Events that automatically trigger the workflow file).
- runs-on: ubuntu-latest** is annotated with "Configura o trabalho a ser executado em um executor do Ubuntu Linux. Ou seja, será executado em uma nova máquina virtual hospedada pelo GitHub" (Configures the job to be executed on a Ubuntu Linux executor. That is, it will be executed on a new virtual machine hosted by GitHub).

The workflow configuration includes comments about clean installation of dependencies and a link to GitHub documentation. The right sidebar shows the "Marketplace" with a search bar and featured actions like "Setup Node.js environment", "Upload a Build Artifact", and "Close Stale Issues".

Como configurar o GitHub Actions?

- Para rodar com NPM



The screenshot shows the GitHub Actions workflow editor for a file named `node.js.yml`. The editor is in the "Edit new file" mode. The workflow is configured to run on `ubuntu-latest` and uses a strategy matrix to test different Node.js versions (10.x, 12.x, 14.x, 15.x). The workflow consists of three steps: checkout, setup Node.js, and a build/test step.

```
12 jobs:
13   build:
14
15     runs-on: ubuntu-latest
16
17     strategy:
18       matrix:
19         node-version: [10.x, 12.x, 14.x, 15.x]
20         # See supported Node.js release schedule at https://nodejs.org/en/about/releases/
21
22     steps:
23     - uses: actions/checkout@v2
24     - name: Use Node.js ${{ matrix.node-version }}
25       uses: actions/setup-node@v1
26       with:
27         node-version: ${{ matrix.node-version }}
28     - run: npm ci
29     - run: npm run build --if-present
30     - run: npm test
31
```

Annotations in the image:

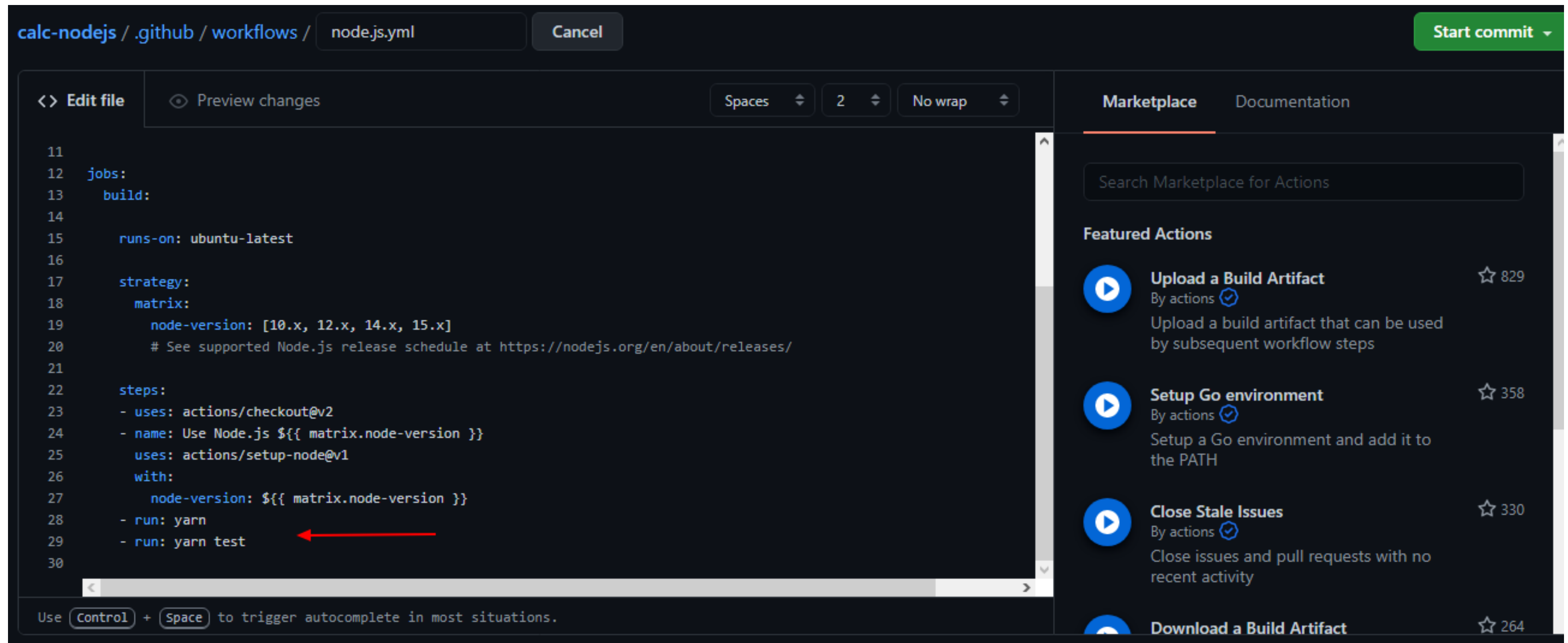
- A red arrow points to the `uses: actions/setup-node@v1` line, with the text: "Configuração e instalação de pacotes necessários para executar a ação."
- A red arrow points to the `run: npm ci` line, with the text: "Comandos que serão executados, quando o evento ocorrer."

The right sidebar shows the "Marketplace" tab with a search bar and a list of featured actions:

- Setup Node.js environment** (912 stars): Setup a Node.js environment by adding problem matchers and optionally downloading and adding it to the PATH.
- Upload a Build Artifact** (829 stars): Upload a build artifact that can be used by subsequent workflow steps.
- Close Stale Issues** (330 stars): Close issues and pull requests with no recent activity.

Como configurar o GitHub Actions?

- Para rodar com YARN



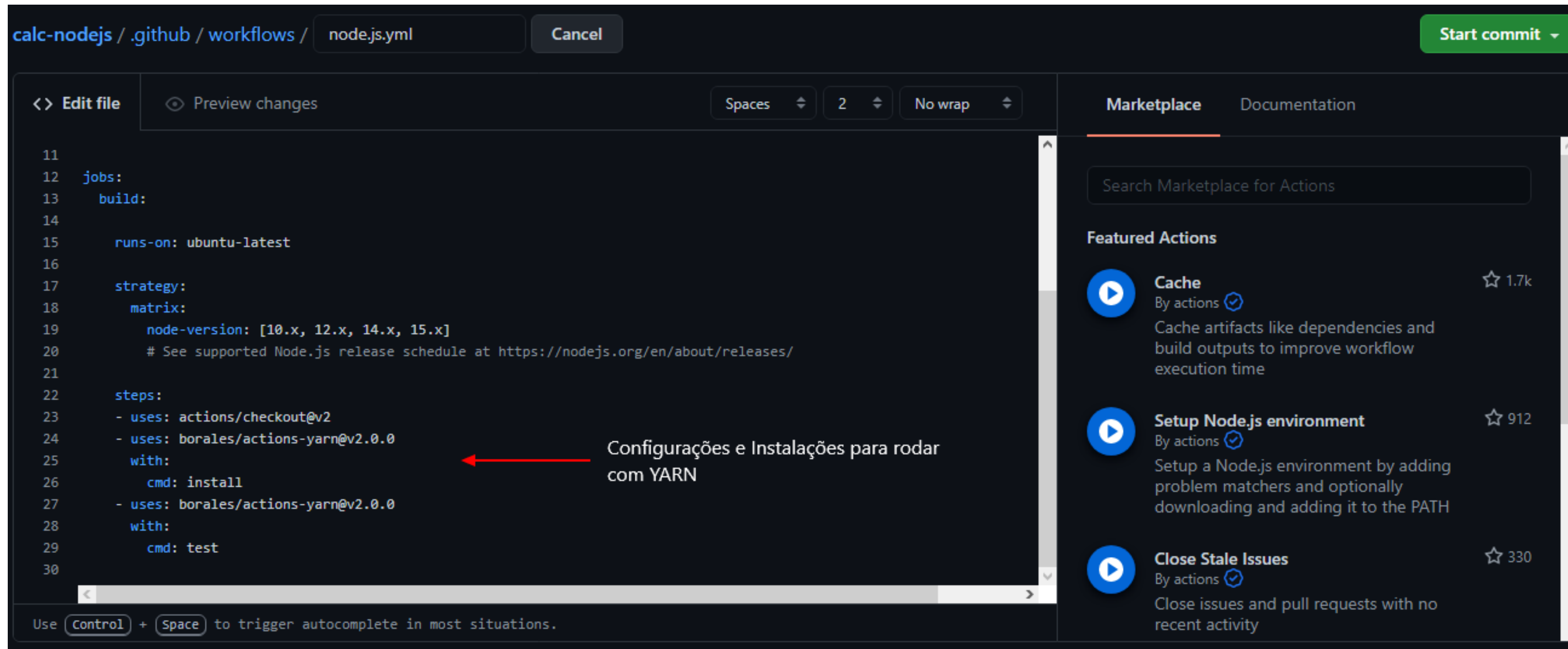
The screenshot shows the GitHub Actions workflow editor interface. The top bar indicates the file path `calc-nodejs / .github / workflows / node.js.yml` and includes a `Cancel` button and a `Start commit` button. The main editor area is split into two tabs: `Edit file` and `Preview changes`. The `Edit file` tab is active, showing a YAML workflow file. The workflow is configured to run on `ubuntu-latest` and uses a matrix strategy to test different Node.js versions (10.x, 12.x, 14.x, 15.x). The steps include checking out the code, setting up Node.js, and running `yarn` and `yarn test`. A red arrow points to the `run: yarn test` step. The right sidebar shows the `Marketplace` tab with a search bar and a list of featured actions, including `Upload a Build Artifact`, `Setup Go environment`, `Close Stale Issues`, and `Download a Build Artifact`.

```
11
12 jobs:
13   build:
14
15     runs-on: ubuntu-latest
16
17     strategy:
18       matrix:
19         node-version: [10.x, 12.x, 14.x, 15.x]
20         # See supported Node.js release schedule at https://nodejs.org/en/about/releases/
21
22     steps:
23     - uses: actions/checkout@v2
24     - name: Use Node.js ${ matrix.node-version }
25       uses: actions/setup-node@v1
26       with:
27         node-version: ${ matrix.node-version }
28     - run: yarn
29     - run: yarn test
30
```

Use `Control` + `Space` to trigger autocomplete in most situations.

Como configurar o GitHub Actions?

- Para rodar com YARN (outra opção)



- Documentação: [GitHub Action for Yarn](#)

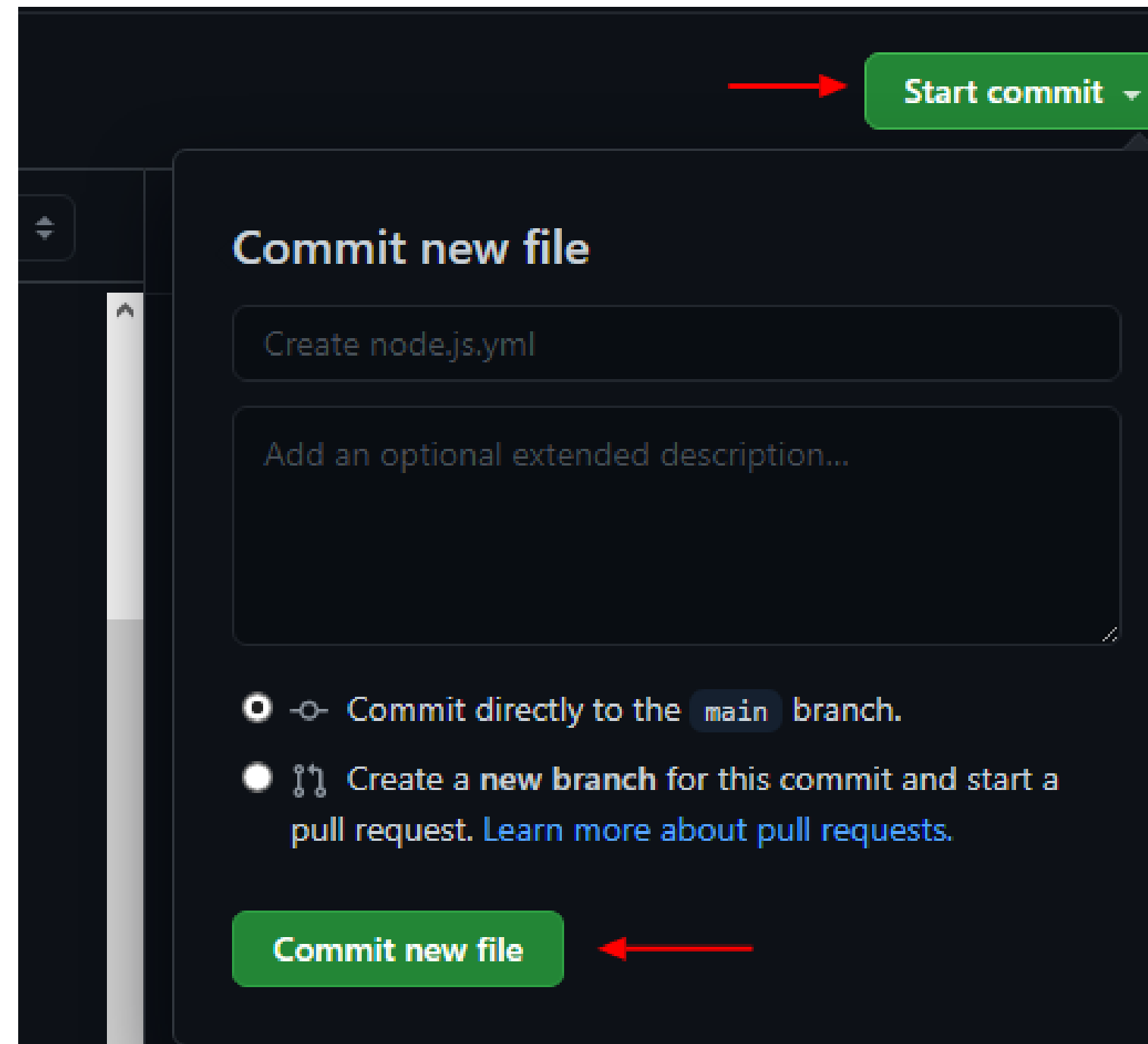
Como configurar o GitHub Actions?

- Para rodar com NPM, seu projeto precisa conter o arquivo **package-lock.json**

```
Run npm ci 1s
1 ▶ Run npm ci
4 npm ERR! cipm can only install packages with an existing package-lock.json or npm-shrinkwrap.json with lockfileVersion >= 1. Run
  an install with npm@5 or later to generate it, then try again.
5
6 npm ERR! A complete log of this run can be found in:
7 npm ERR!     /home/runner/.npm/_logs/2021-02-15T16_16_42_274Z-debug.log
8 Error: Process completed with exit code 1.
```

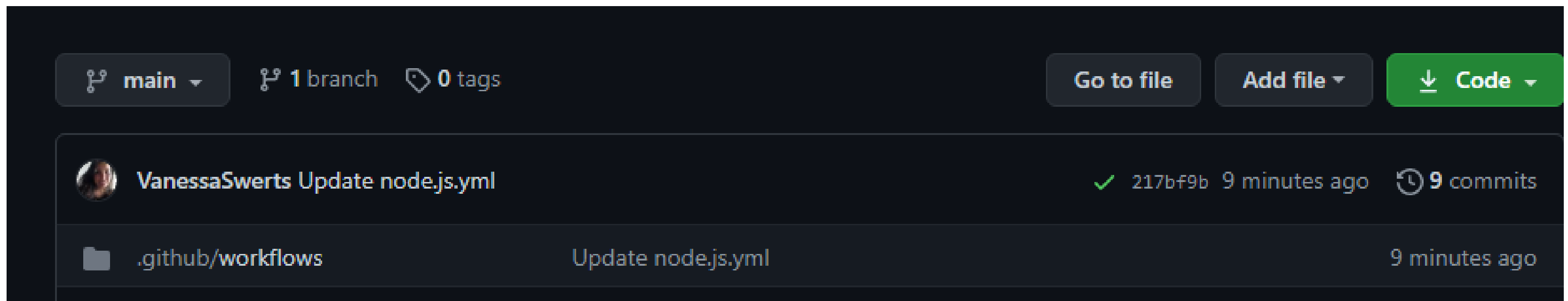
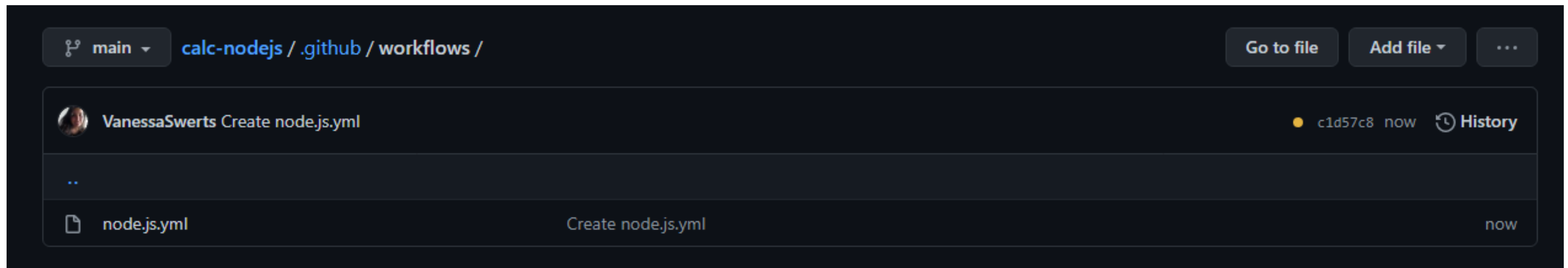

Como configurar o GitHub Actions?

- Vamos realizar o commit e adicionar o arquivo .yml no nosso projeto!



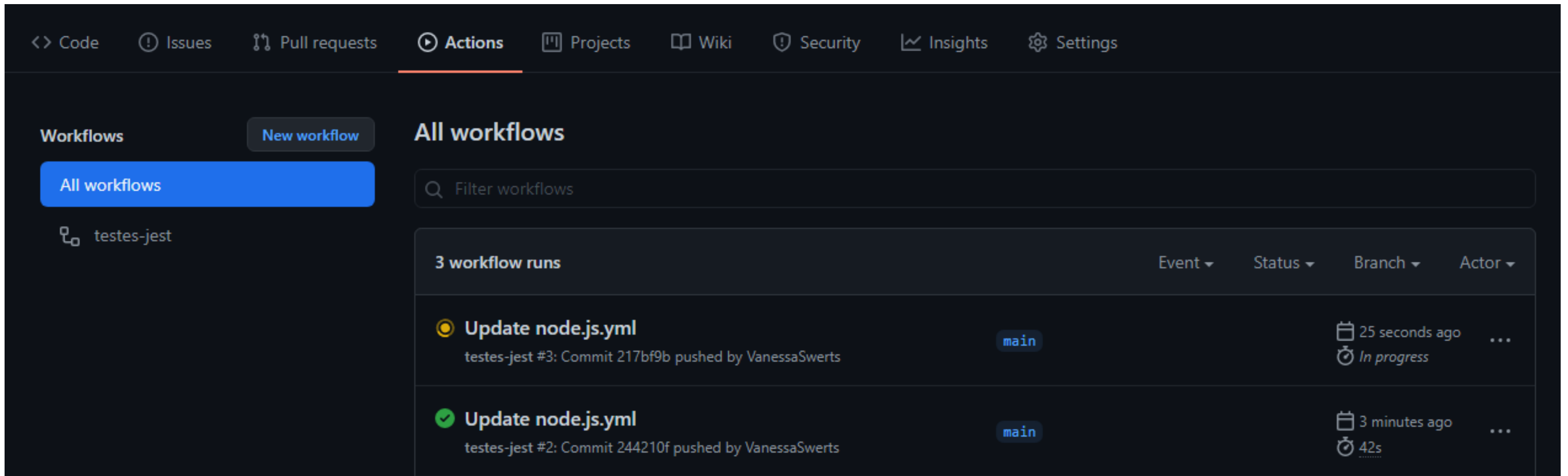
Como configurar o GitHub Actions?

- **Prontinho, o arquivo está configurado!**



Como configurar o GitHub Actions?

- Voltando ao Actions, podemos ver o nosso Fluxo de Trabalho criado.



The screenshot displays the GitHub Actions interface. The top navigation bar includes links for Code, Issues, Pull requests, Actions (highlighted), Projects, Wiki, Security, Insights, and Settings. On the left sidebar, under 'Workflows', there is a 'New workflow' button and a list of workflows, with 'testes-jest' selected. The main area, titled 'All workflows', features a search bar and a table of workflow runs. The table shows two runs for the 'Update node.js.yml' workflow on the 'main' branch, both pushed by 'VanessaSwerts'. The first run is currently 'In progress' (25 seconds ago), and the second run is completed (3 minutes ago, 42s duration).

3 workflow runs		Event ▾	Status ▾	Branch ▾	Actor ▾
🟡	Update node.js.yml testes-jest #3: Commit 217bf9b pushed by VanessaSwerts		In progress	main	25 seconds ago
✅	Update node.js.yml testes-jest #2: Commit 244210f pushed by VanessaSwerts		42s	main	3 minutes ago

Como configurar o GitHub Actions?

- **Mas como criar e adicionar o Bagde ao README ?**
 - Entrar no site: shields.io
 - Pesquise por "actions"
 - Podemos escolher qualquer uma das 3 opções, mas por padrão iremos optar por "**GitHub Workflow Status**"
 - Adicione seu username, nome do repositório e nome do fluxo de trabalho.
 - Agora é só copiar o Bagde e colar no README

Como configurar o GitHub Actions?

- Mas como criar e adicionar o Bagde ao README ?



Pixel-perfect Retina-ready Fast Consistent Hackable No tracking

actions

Love Shields? Please consider [donating](#) to sustain our activities

[Build](#)

GitHub Workflow Status:

build passing

/github/workflow/status/:user/:repo/:workflow

GitHub Workflow Status (branch):

build passing

/github/workflow/status/:user/:repo/:workflow/:branch

GitHub Workflow Status (event):

build passing

/github/workflow/status/:user/:repo/:workflow?event=push

Como configurar o GitHub Actions?

- Mas como criar e adicionar o Bagde ao README ?

Shields IO

GitHub Workflow Status

If your GitHub badge errors, it might be because you hit GitHub's rate limits. You can increase Shields.io's rate limit by [adding the Shields GitHub application](#) using your GitHub account.

user	repo	workflow
/github/workflow/status/	/	/
e.g. actions	toolkit	toolkit-unit-tests

Nome do Fluxo de Trabalho

Seu username do Github

Nome do repositório

style flat

override label	optional	
override color	optional	
named logo	optional	
override logo color	optional	

Configurações do estilo do Bagde, como cor, formato, etc

Se o repositório estiver em uma Organização, no lugar do user você coloca o nome da organização!

preview some parameters missing

Copy Badge URL

Como configurar o GitHub Actions?

- Mas como criar e adicionar o Bagde ao README ?

GitHub Workflow Status

If your GitHub badge errors, it might be because you hit GitHub's rate limits. You can increase Shields.io's rate limit by [adding the Shields GitHub application](#) using your GitHub account.

`/github/workflow/status/` `/` `/` 

e.g. actions toolkit toolkit-unit-tests

IMPORTANTE:
O seu repositório deve ser PUBLIC para que você possa configurar um Bagde.

style

override label optional

override color optional

named logo optional

override logo color optional

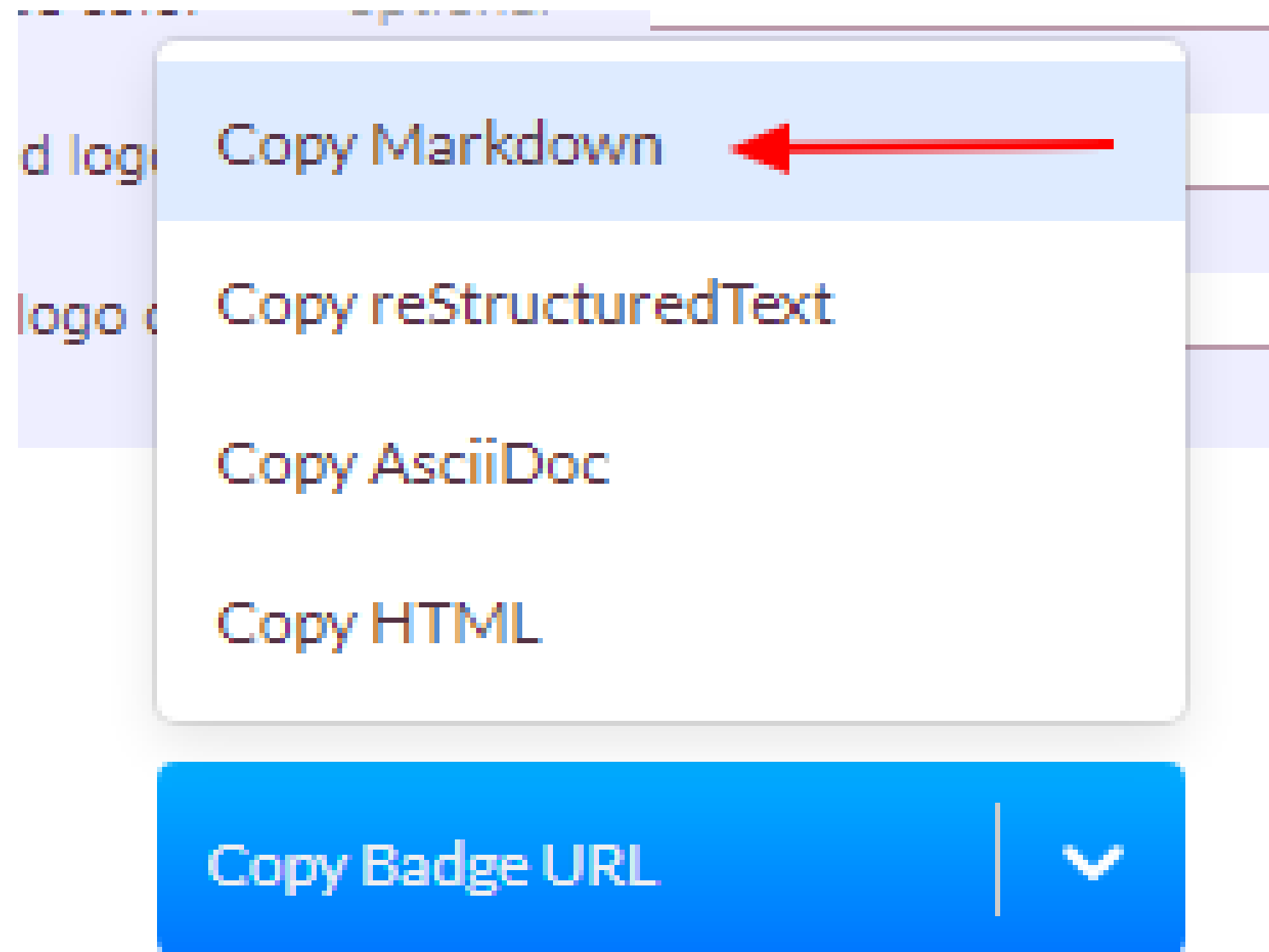
 

Copy Badge URL 

Após preencher os dados, seu Bagde aparecerá aqui com o status atual da build.

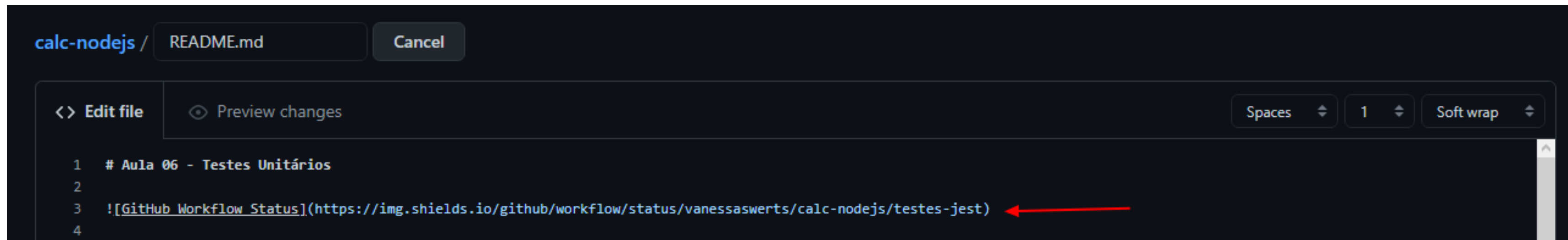
Como configurar o GitHub Actions?

- Mas como criar e adicionar o Bagde ao README ?



Como configurar o GitHub Actions?

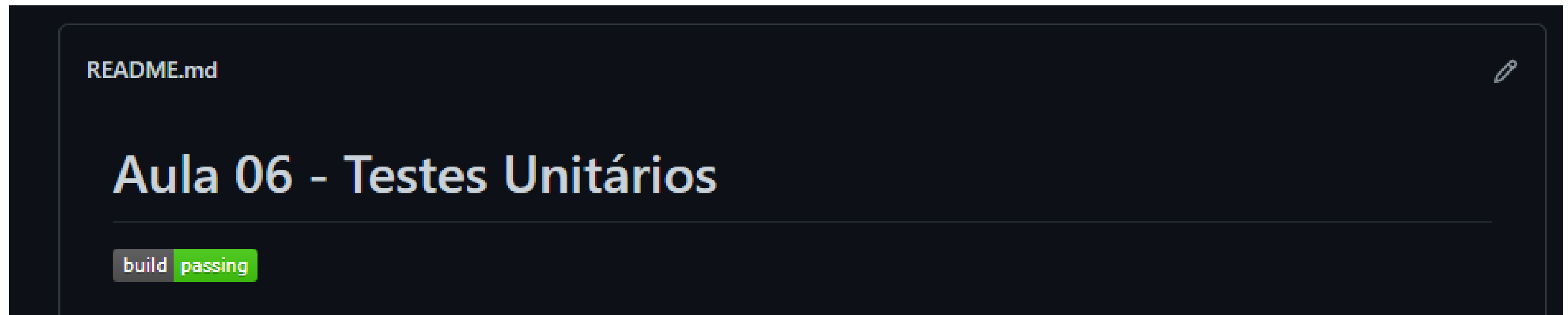
- Mas como criar e adicionar o Bagde ao README ?



```
calc-nodejs / README.md Cancel

<> Edit file Preview changes Spaces 1 Soft wrap

1 # Aula 06 - Testes Unitários
2
3 ![GitHub Workflow Status](https://img.shields.io/github/workflow/status/vanessawerts/calc-nodejs/testes-jest)
4
```



Como configurar o GitHub Actions?

- **Documentação do GitHub Actions**
 - Sobre integração contínua
 - Aprenda o GitHub Actions
 - Configurar a integração contínua usando modelos de fluxo de trabalho
 - Guias do GitHubActions

Outras ferramentas ...



Jenkins

<https://www.jenkins.io>