

# Modifying a repo structure

GITHUB CONCEPTS



**George Boorman**

Curriculum Manager, DataCamp

# Creating a new file

The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The repository is public and has 1 branch and 0 tags. The 'Code' tab is selected. On the right, there's a navigation bar with 'Go to file', 'Add file ▾' (which is highlighted with a yellow box), 'Code ▾', and 'About'. A dropdown menu from 'Add file ▾' shows 'Create new file' and 'Upload files'. The 'About' section indicates no description, website, or topics provided, with 3 commits, 4 days ago. It also shows 0 stars, 1 watching, and 0 forks. The 'Releases' and 'Packages' sections show no releases or packages published.

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags

george-boorman Update README.md

.gitignore Create .gitignore 4 days ago

README.md Update README.md 4 days ago

README.md

**soccer\_analysis**

Add file ▾

Create new file  
Upload files

3 commits  
4 days ago

About

No description, website, or topics provided.

Readme  
0 stars  
1 watching  
0 forks

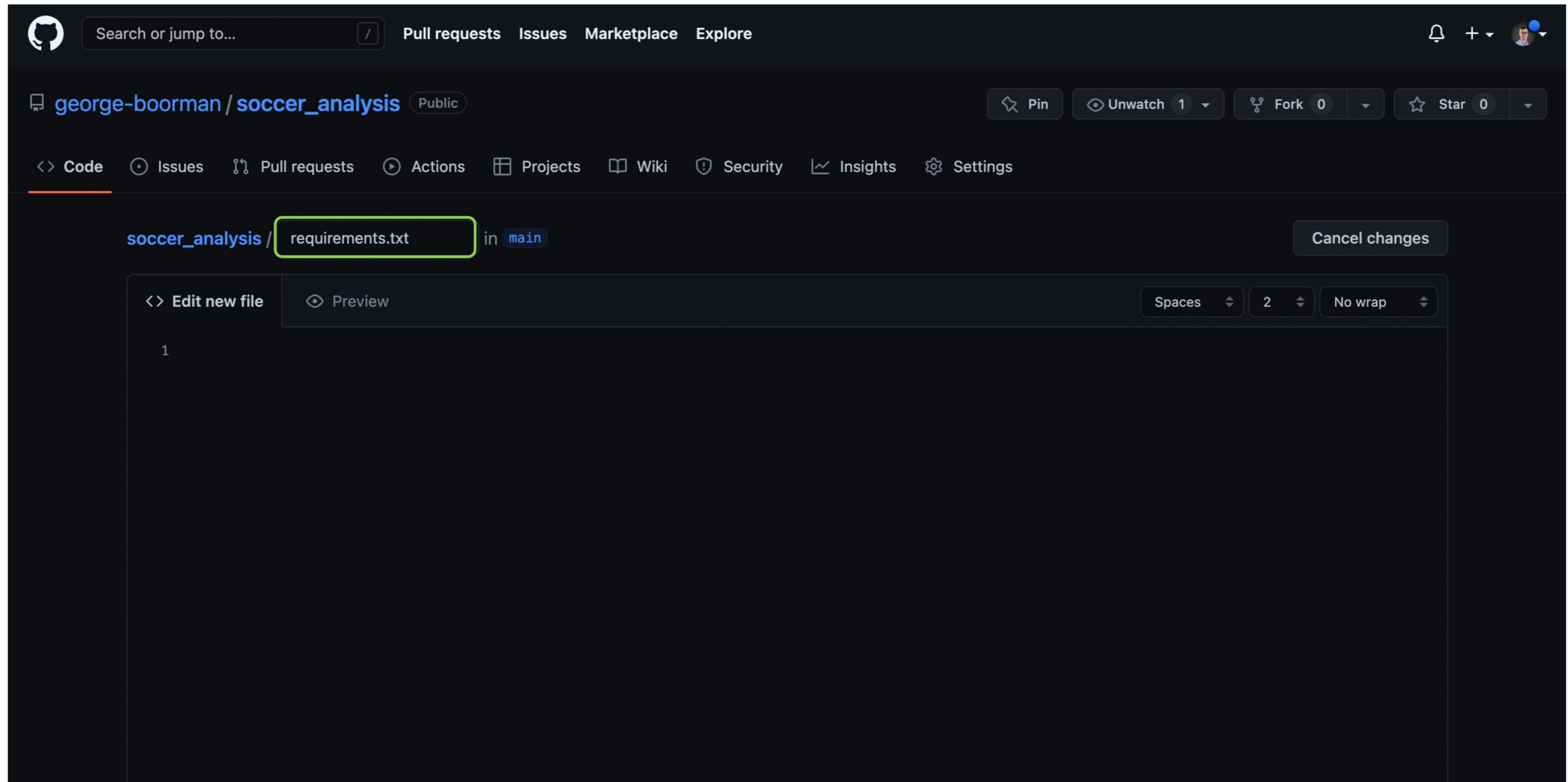
Releases

No releases published  
Create a new release

Packages

No packages published  
Publish your first package

# Naming the file



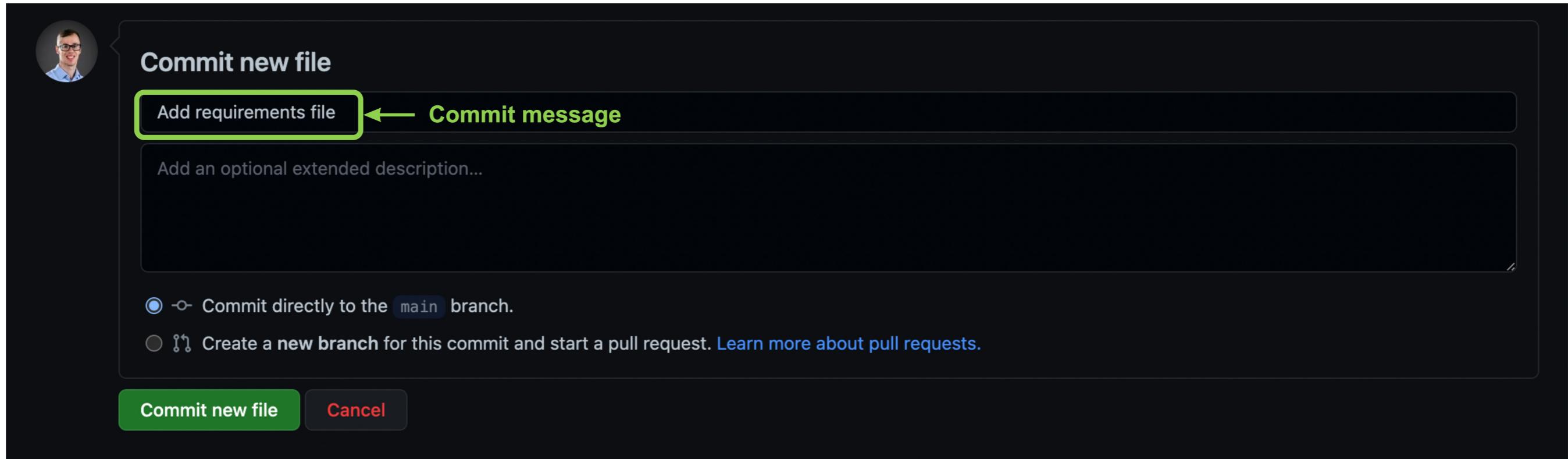
# Editing the new file

The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The 'Code' tab is selected. A modal window is open for editing the file 'requirements.txt' in the 'main' branch. The modal has a green border around the 'Edit new file' tab. Inside, there are tabs for 'Edit new file' (selected) and 'Preview'. The code content is:

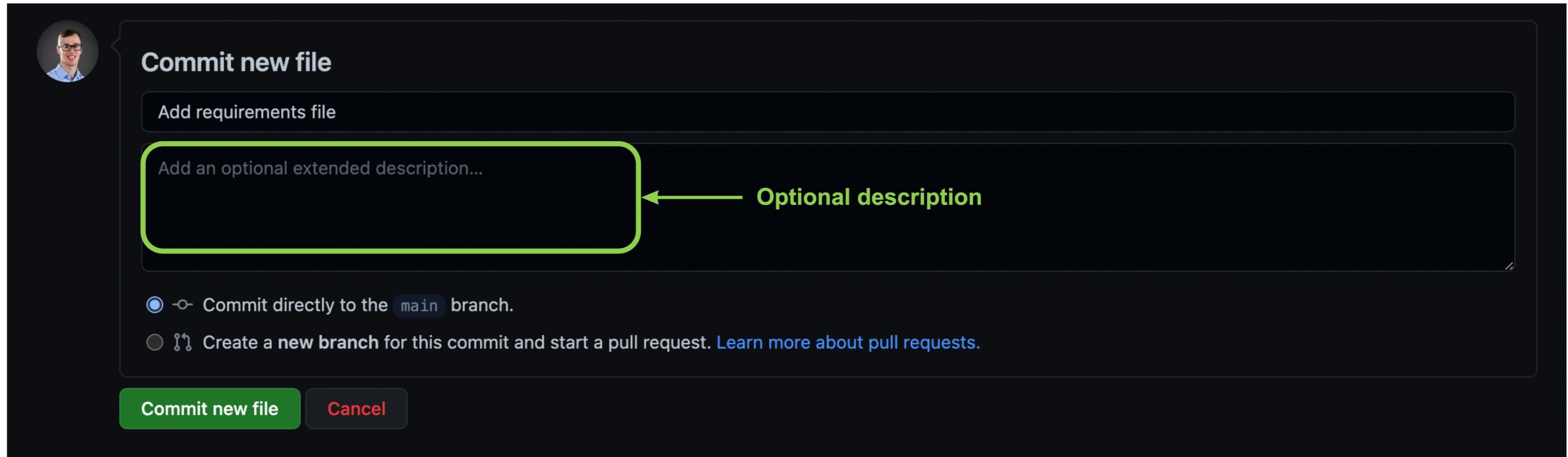
```
1 numpy==1.19.5
2 pandas==1.4.0
3 matplotlib==3.5.0
```

At the top of the modal, there are buttons for 'Cancel changes' and 'Commit changes'. Below the code editor, there are settings for 'Spaces' (set to 2), '2' (dropdown), and 'No wrap' (dropdown).

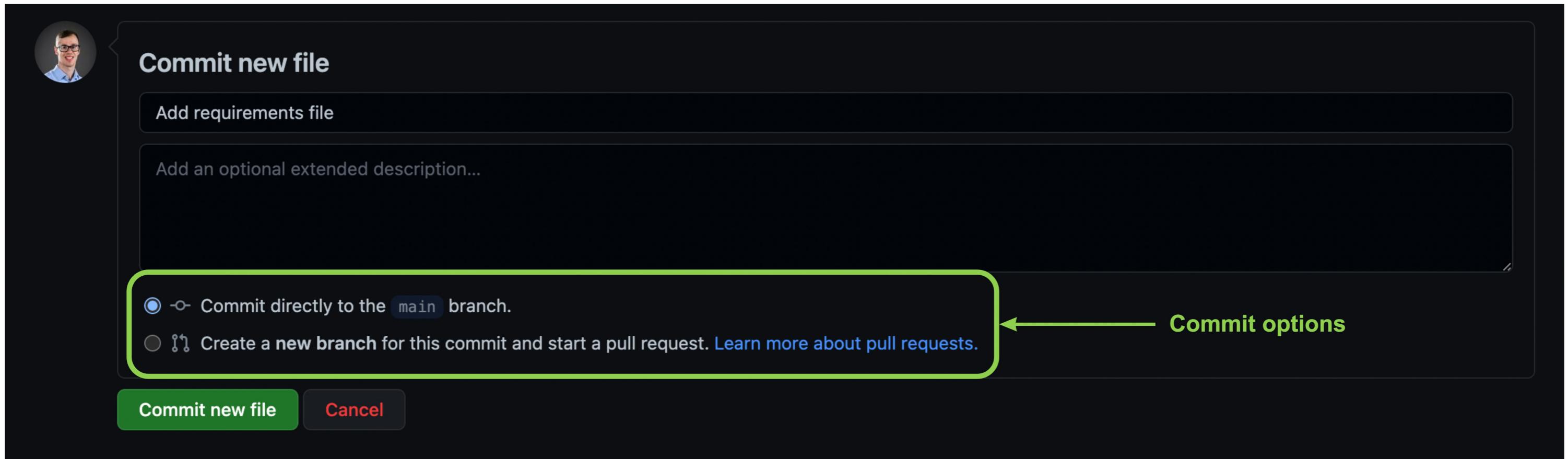
# Committing the new file



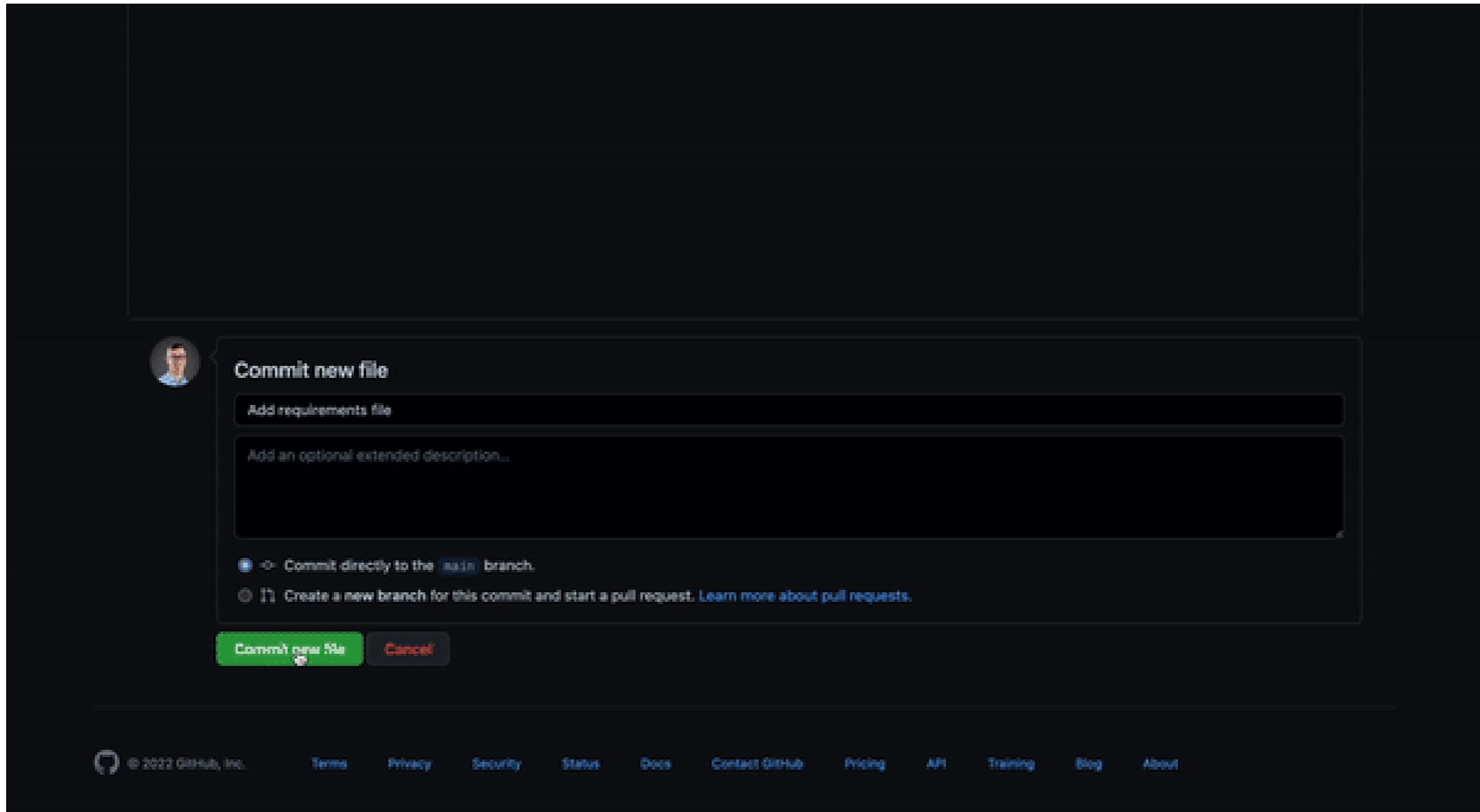
# Committing the new file



# Committing the new file



# Committing the new file



# Uploading a file

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The repository is public and has 1 branch and 0 tags. The `Code` tab is selected. A context menu is open over the repository header, with the `Upload files` option highlighted and surrounded by a green oval.

**Code** tab selected.

Repository stats: 1 branch, 0 tags.

Recent commits:

- george-boorman Add requirements file (4 days ago)
- Create .gitignore (4 days ago)
- Update README.md (4 days ago)
- Add requirements file (8 minutes ago)

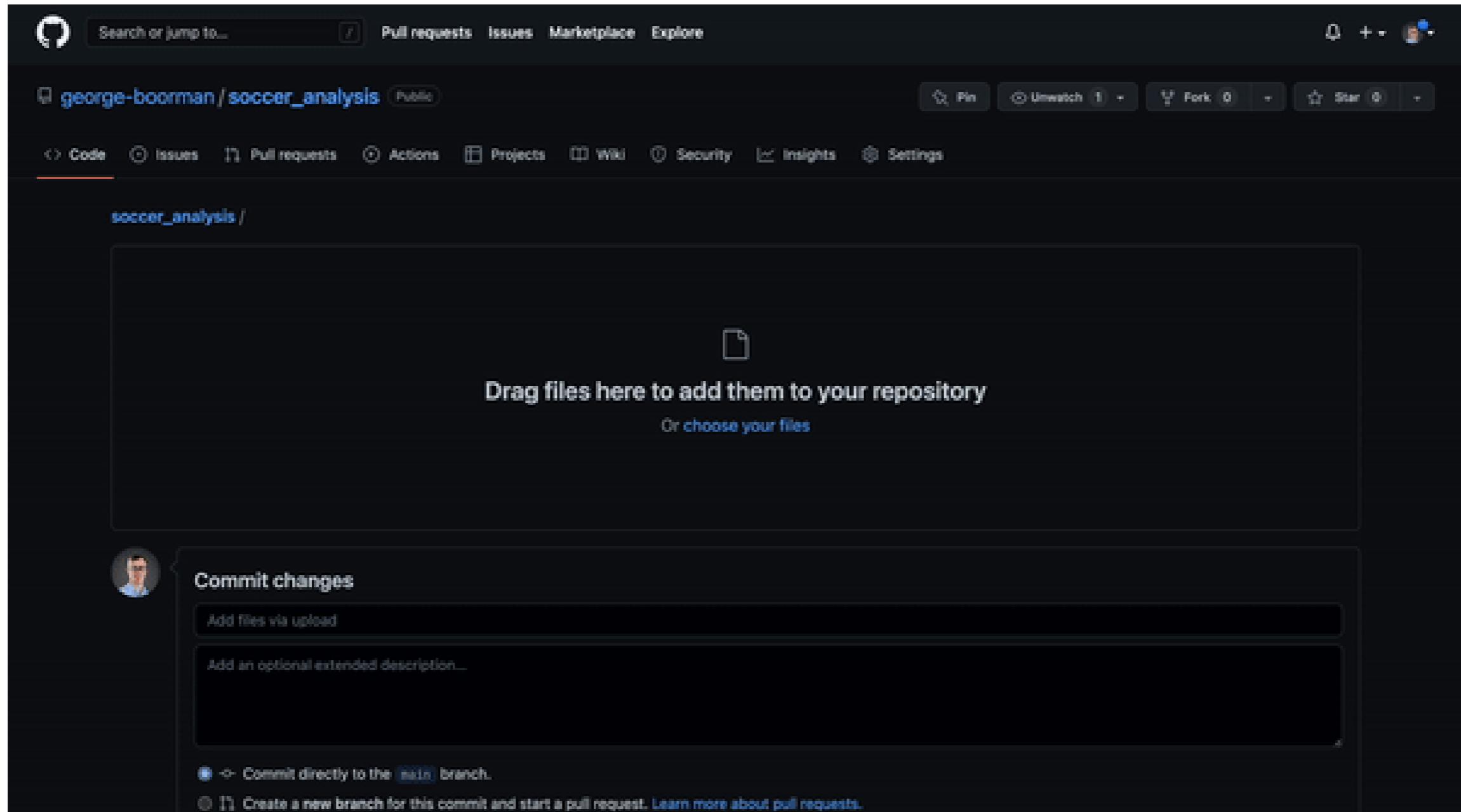
**About**: No description, website, or topics provided.

**Readme**: README.md

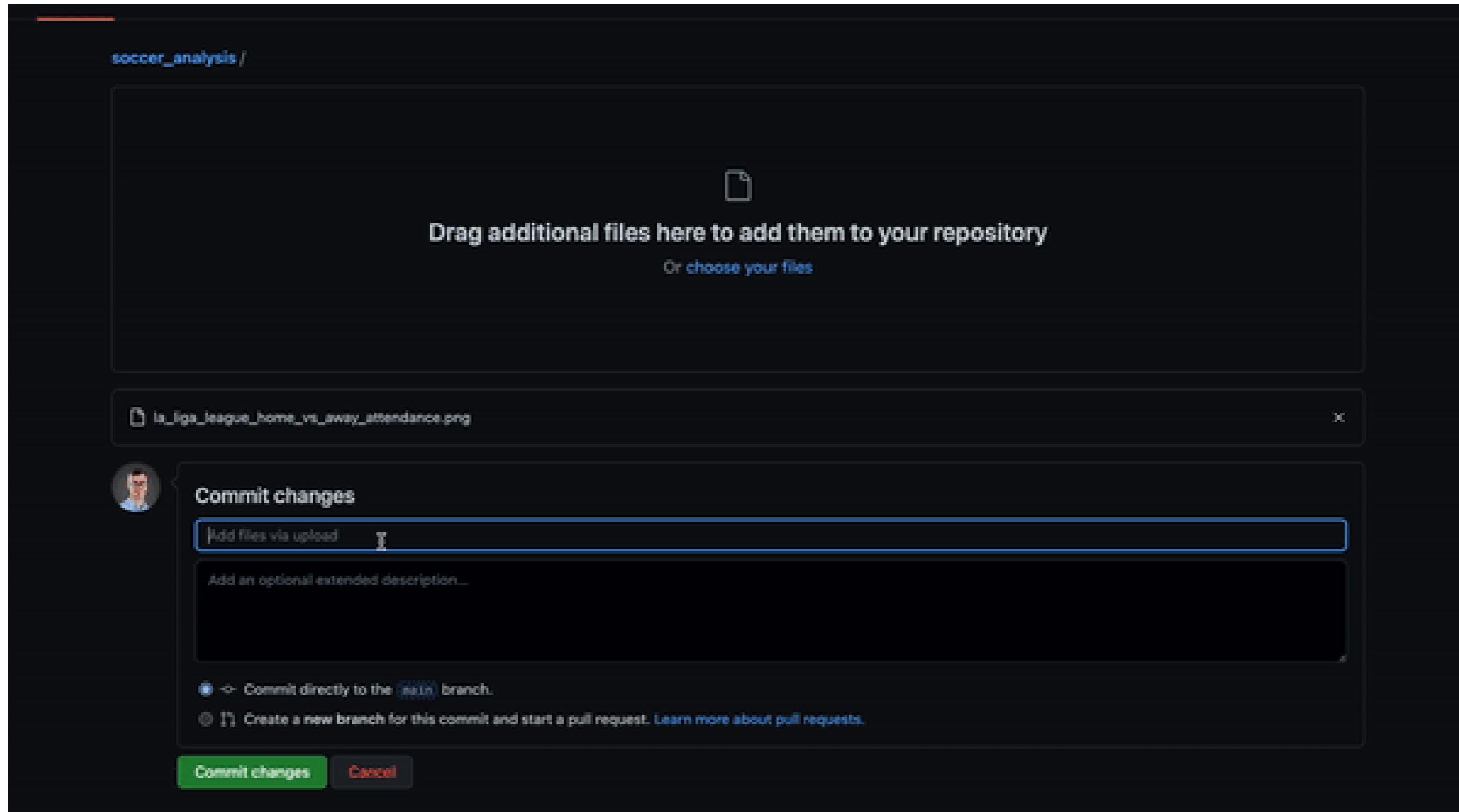
**Releases**: No releases published. Create a new release.

**Packages**: No packages published. Publish your first package.

# Uploading a file



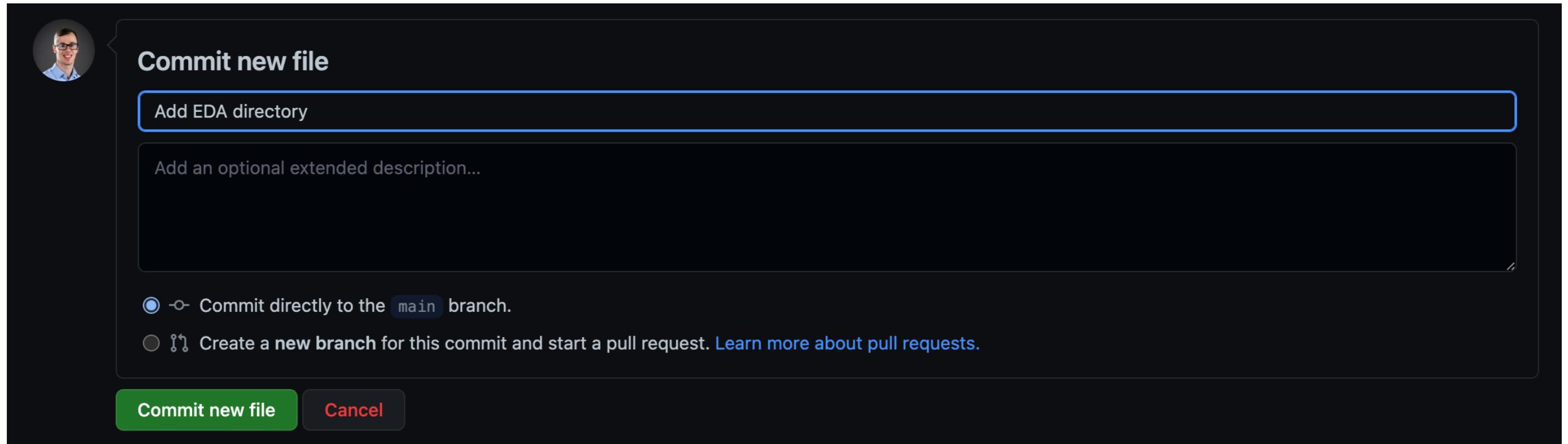
# Uploading a file



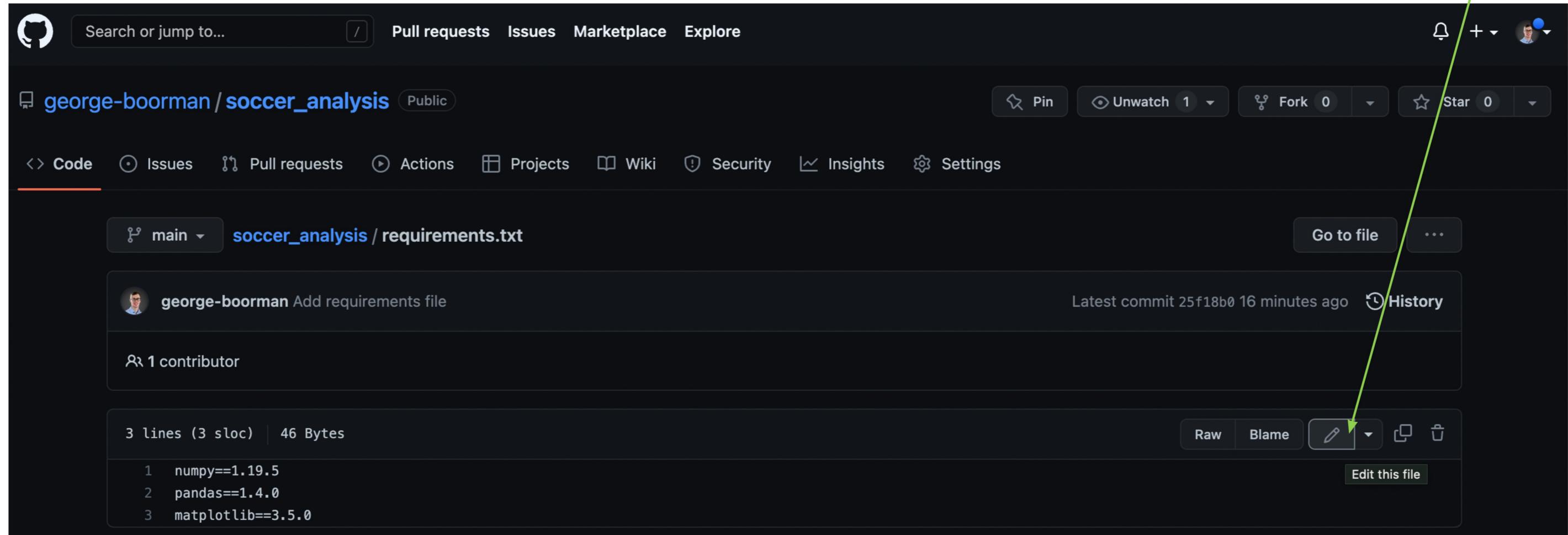
# Creating a new directory

The screenshot shows a GitHub repository page for 'george-boorman/soccer\_analysis'. The 'Code' tab is selected. A modal window is open, prompting the user to 'Name your file...'. The input field contains 'soccer\_analysis.py'. Below the input field are two buttons: 'Edit new file' and 'Preview'. To the right of the input field are settings for 'Spaces' (0), 'Line wrap' (off), and 'No wrap' (on). The main repository page background shows tabs for Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings.

# Creating a new directory



# Modifying a file



A screenshot of a GitHub repository page for `george-boorman / soccer_analysis`. The repository is public. The main navigation bar includes links for Pull requests, Issues, Marketplace, Explore, Pin, Unwatch (1), Fork (0), and Star (0). Below the navigation bar, there are links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The 'Code' link is underlined, indicating it is the active tab. In the center, the file `soccer_analysis / requirements.txt` is displayed. The file was last committed by `george-boorman` 16 minutes ago. It has 1 contributor. The file content shows three lines of code: `numpy==1.19.5`, `pandas==1.4.0`, and `matplotlib==3.5.0`. At the bottom right of the file preview, there are buttons for Raw, Blame, Edit (with a dropdown arrow), Copy, and Delete. A green arrow points to the 'Edit' button.

# Modifying a file

The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The repository is public. The 'Code' tab is selected. A modal window is open over the code editor, showing the 'requirements.txt' file content:

```
1 numpy==1.19.5
2 pandas==1.4.0
3 matplotlib==3.5.0
4 seaborn==0.11.2
```

The modal includes buttons for 'Edit file' (selected), 'Preview changes', and 'Cancel changes'. It also has settings for 'Spaces' (2), '2', and 'Soft wrap'.

# Deleting a file

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The repository is public and has 1 branch and 0 tags. The `Code` tab is selected. A commit by `george-boorman` titled "Add EDA directory" is visible, which includes adding an `EDA` directory, creating a `.gitignore`, updating `README.md`, adding a plot for La Liga attendance, and adding `seaborn` to `requirements.txt`. The commit was made 1 minute ago with 9 commits. On the right side, there's an "About" section with a note: "No description, website, or topics provided." It also shows statistics: 0 stars, 1 watching, and 0 forks. Below that is a "Releases" section with a note: "No releases published" and a link to "Create a new release". At the bottom, there's a "Packages" section with a note: "No packages published" and a link to "Publish your first package".

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code About

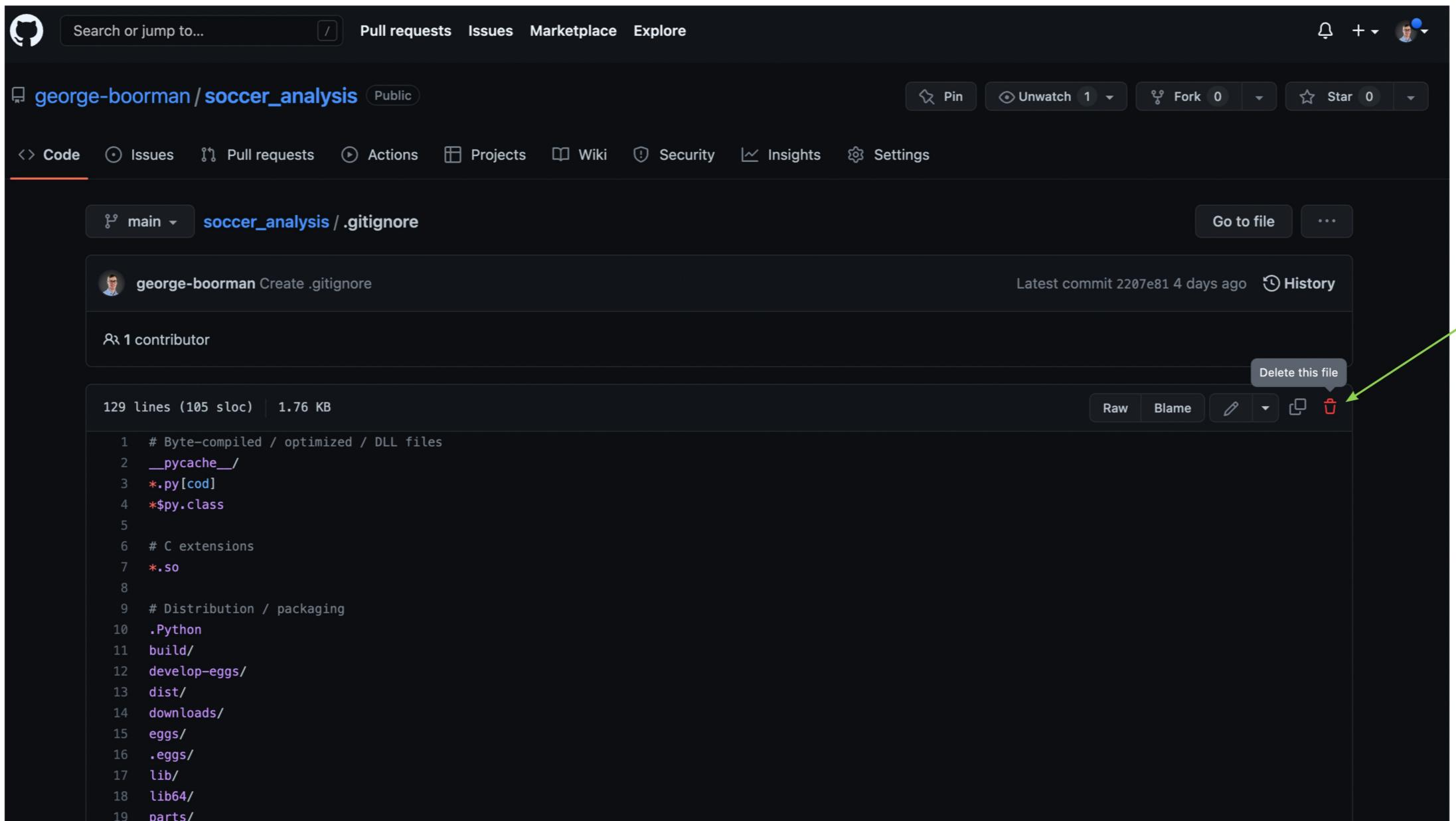
No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Releases

Packages

# Deleting a file



# Deleting a file

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The `Code` tab is selected. In the code listing, a file named `.gitignore` is shown with a redacted content. A message indicates that the file was deleted. A modal dialog titled `Commit changes` is open, containing the following options:

- Commit directly to the `main` branch.
- Create a new branch for this commit and start a pull request. [Learn more about pull requests](#).

At the bottom of the dialog are `Commit changes` and `Cancel` buttons.

# **Let's practice!**

**GITHUB CONCEPTS**

# Working with branches

GITHUB CONCEPTS

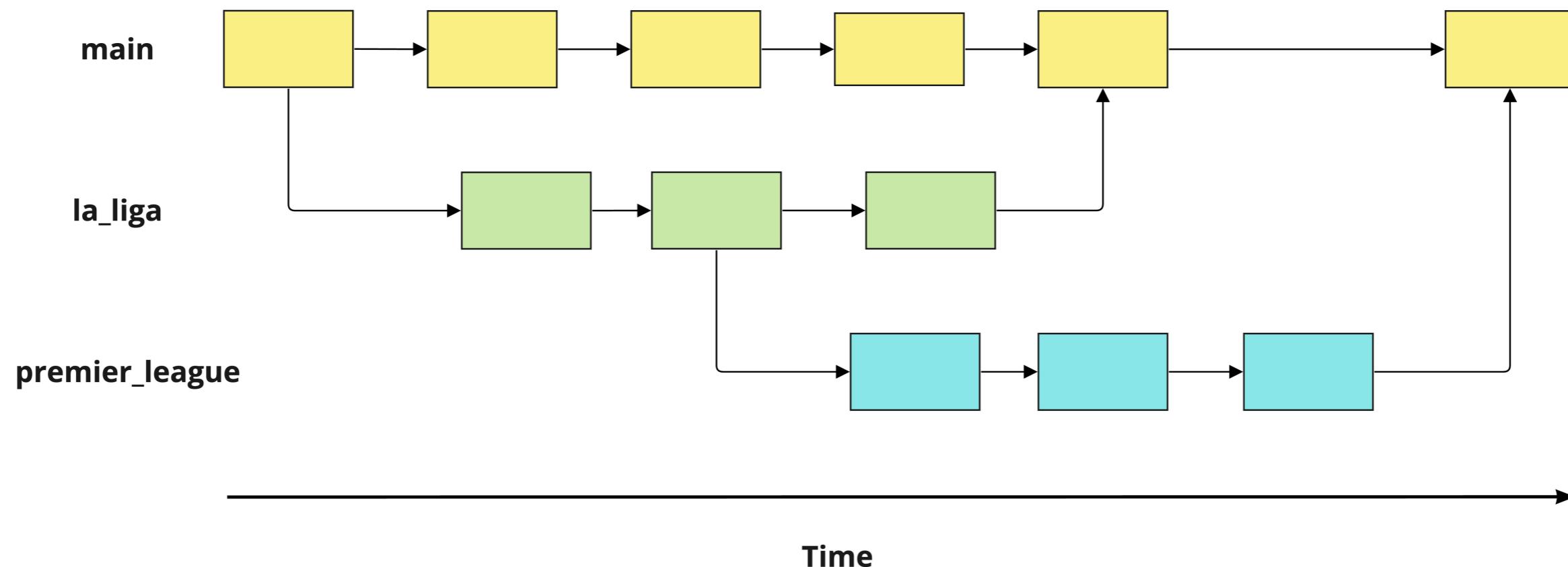


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# Branches

- Enable concurrent work on different parts of a project
- Help reduce the risk of conflicting file versions



# Main branch

The screenshot shows a GitHub repository page for the user 'george-boorman' with the repository name 'soccer\_analysis'. The repository is public. The main navigation bar includes links for Pull requests, Issues, Marketplace, and Explore. On the right side, there are buttons for Pin, Unwatch (1), Fork (0), and Star (0). Below the navigation, there are tabs for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The 'Code' tab is selected. A dropdown menu for the 'main' branch is open, showing options like 'main' (selected), 'Create branch', 'Create tag', 'Delete branch', and 'Revert'. To the right of the dropdown, it says '1 branch' and '0 tags'. The repository has 10 commits from 'george-boorman' (b45ce89) made 1 hour ago. The commits are:

- Delete .gitignore
- Add EDA directory
- Update README.md
- Add la\_liga\_league\_home\_vs\_away\_att...
- Add seaborn to requirements.txt

On the right side of the page, there's an 'About' section with the message 'No description, website, or topics provided.' It also shows statistics: 0 stars, 1 watching, and 0 forks. Below that is a 'Releases' section stating 'No releases published' and a 'Packages' section stating 'No packages published'.

# How many branches?

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The main navigation bar includes links for Pull requests, Issues, Marketplace, and Explore. On the right, there are buttons for Pin, Unwatch (1), Fork (0), and Star (0). Below the navigation, there are tabs for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The Code tab is selected. A dropdown menu shows the current branch as `main` and indicates 1 branch and 0 tags. The main content area displays a list of recent commits:

Author	Commit Message	Date	Commits
george-boorman	Delete .gitignore	b45ce89 1 hour ago	10 commits
	EDA	Add EDA directory	1 hour ago
	README.md	Update README.md	4 days ago
	la_liga_league_home_vs_away_att...	Add la liga attendance plot	1 hour ago
	requirements.txt	Add seaborn to requirements.txt	1 hour ago

Below the commit list, there is a preview of the `README.md` file, which contains the text `soccer_analysis`.

**About**

No description, website, or topics provided.

**Readme**

0 stars

1 watching

0 forks

**Releases**

No releases published

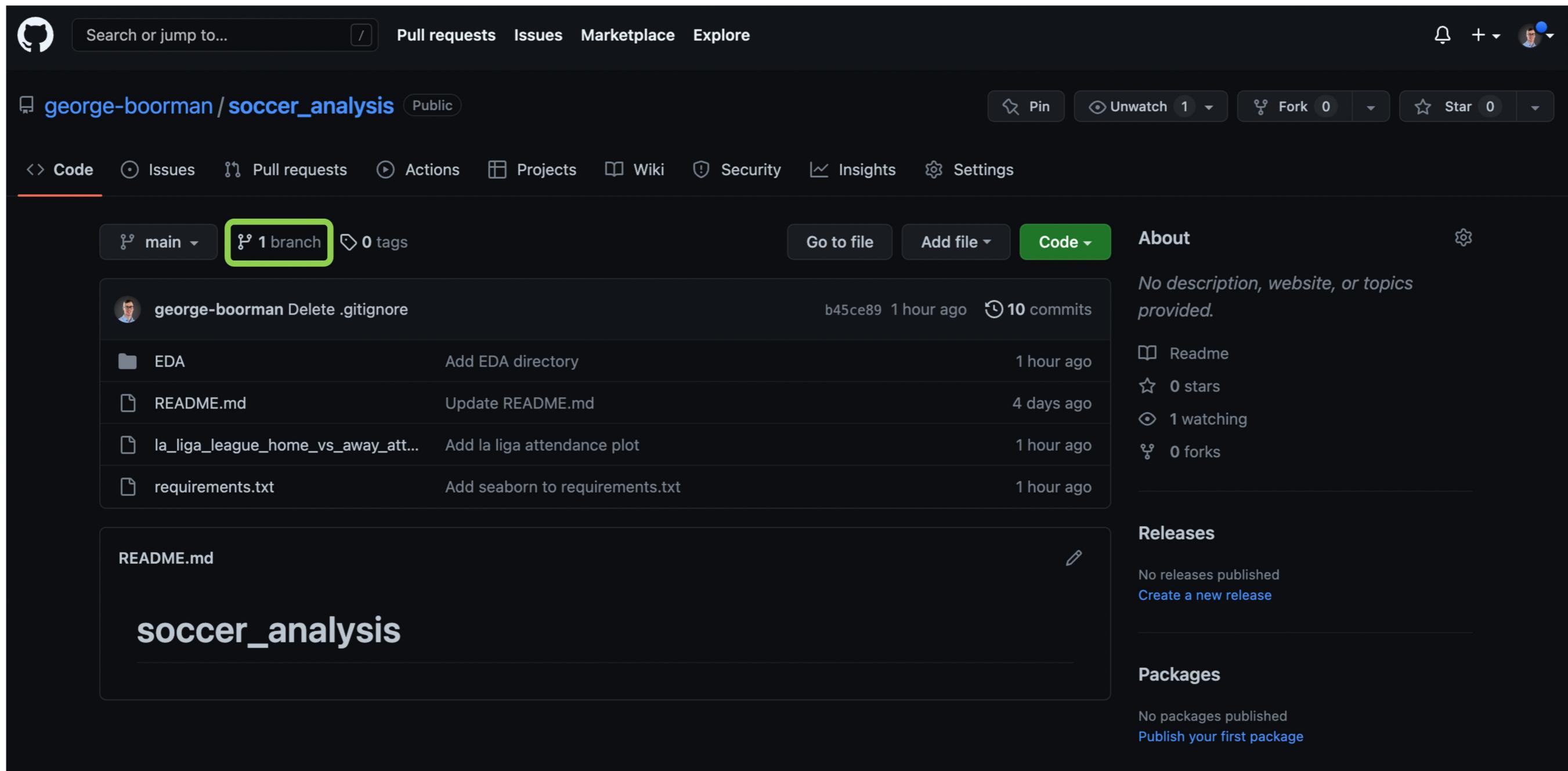
Create a new release

**Packages**

No packages published

Publish your first package

# Creating a new branch



The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The 'Code' tab is selected. A green box highlights the '1 branch' button, which is currently active. Other tabs visible include Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The repository has 1 branch and 0 tags. The main content area displays a list of recent commits:

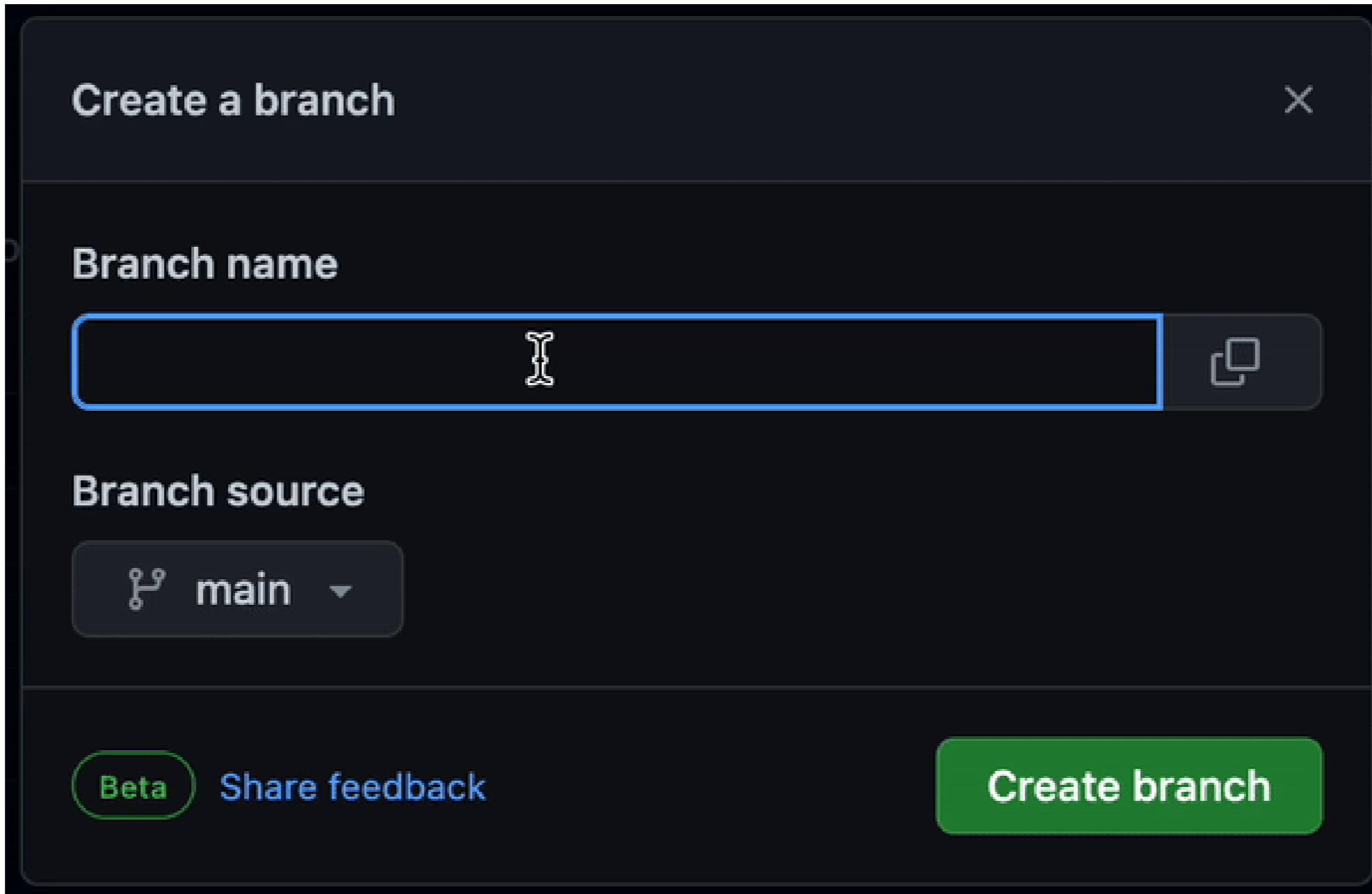
Author	Commit Message	Date	Commits
george-boorman	Delete .gitignore	b45ce89 1 hour ago	10 commits
	EDA	Add EDA directory	1 hour ago
	README.md	Update README.md	4 days ago
	la_liga_league_home_vs_away_att...	Add la liga attendance plot	1 hour ago
	requirements.txt	Add seaborn to requirements.txt	1 hour ago

The 'About' section indicates no description, website, or topics provided. It also shows 0 stars, 1 watching, and 0 forks. The 'Releases' section shows no releases published, and the 'Packages' section shows no packages published.

# Creating a new branch

The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The 'Code' tab is selected. In the top navigation bar, there is a 'New branch' button highlighted with a green box. The repository details include the owner 'george-boorman', the name 'soccer\_analysis', and the status 'Public'. There are also 'Pin', 'Unwatch', 'Fork', and 'Star' buttons. Below the navigation bar, there are links for 'Issues', 'Pull requests', 'Actions', 'Projects', 'Wiki', 'Security', 'Insights', and 'Settings'. A search bar for branches is present, along with tabs for 'Overview', 'Yours', 'Active', 'Stale', 'All branches', and the highlighted 'New branch'. A single branch named 'main' is listed as the 'Default branch', updated 1 hour ago by 'george-boorman'. At the bottom, there is a footer with links to GitHub's terms, privacy, security, status, docs, contact, pricing, API, training, blog, and about pages.

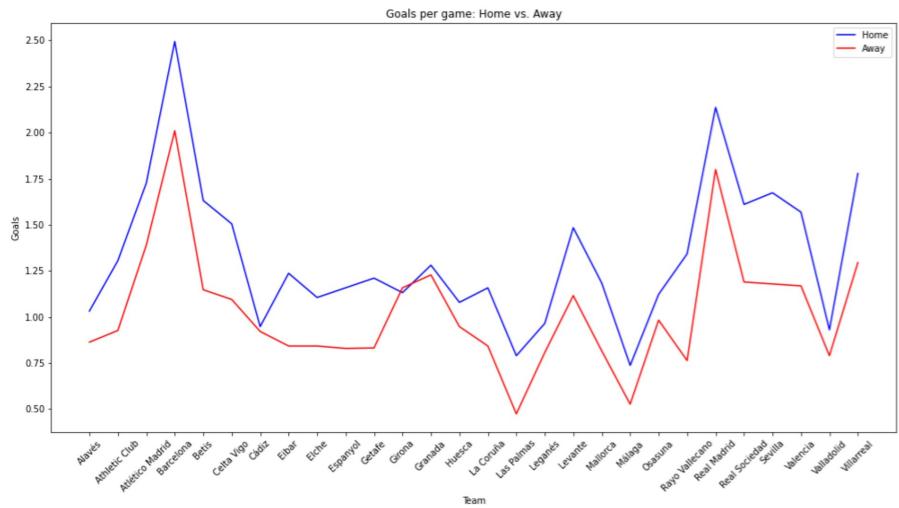
# Creating a new branch



# Creating a new branch

The screenshot shows a GitHub repository page for 'george-boorman / soccer\_analysis'. The repository is public. At the top, there is a search bar and navigation links for Pull requests, Issues, Marketplace, and Explore. A notification bell icon shows 1 unread notification. The main content area displays a message: 'Branch la\_liga will be created shortly.' Below this, the repository name and public status are shown, along with options to Pin, Unwatch, Fork, and Star. The navigation bar includes Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings, with 'Code' being the active tab. A search bar for branches is present. The 'Overview' tab is selected. Below the tabs, there are three sections: 'Default branch' (main), 'Your branches' (la\_liga), and 'Active branches' (la\_liga). Each section shows the branch name, last update time ('Updated 1 hour ago by george-boorman'), and a 'New pull request' button. The 'New branch' button is highlighted in green.

# Adding a file



Search or jump to... Pull requests Issues Marketplace Explore

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

la\_liga had recent pushes less than a minute ago Compare & pull request

la\_liga 2 branches 0 tags Go to file Add file Code

This branch is 1 commit ahead of main. Contribute

george-boorman Add la liga home vs away goals plot f2d9072 now 11 commits

EDA Add EDA directory 16 hours ago

README.md Update README.md 5 days ago

la\_liga\_league\_home\_vs\_away\_att... Add la liga attendance plot 16 hours ago

la\_liga\_league\_home\_vs\_away\_goa... Add la liga home vs away goals plot now

requirements.txt Add seaborn to requirements.txt 16 hours ago

README.md

soccer\_analysis

About

No description, website, or topics provided.

Readme

0 stars

1 watching

0 forks

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

# Listing branches

The screenshot shows a GitHub repository page for `george-boorman/soccer_analysis`. The repository is public and has 2 branches. The `Code` tab is selected. A message indicates that the `la_liga` branch had recent pushes less than a minute ago. The `la_liga` branch is 1 commit ahead of the `main` branch. The repository has 11 commits, 0 forks, and 1 watching. There are no releases or packages published.

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

la\_liga had recent pushes less than a minute ago

la\_liga 2 branches 0 tags

This branch is 1 commit ahead of main.

george-boorman Add la liga home vs away goals plot f2d9072 1 minute ago 11 commits

EDA Add EDA directory 16 hours ago

README.md Update README.md 5 days ago

la\_liga\_league\_home\_vs\_away\_att... Add la liga attendance plot 16 hours ago

la\_liga\_league\_home\_vs\_away\_goa... Add la liga home vs away goals plot 1 minute ago

requirements.txt Add seaborn to requirements.txt 16 hours ago

README.md

soccer\_analysis

About

No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

# Switching branches

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The repository is public and has 2 branches and 0 tags. The 'Code' tab is selected. A dropdown menu titled 'Switch branches/tags' is open, showing the 'la\_liga' branch is currently selected. Other branches listed are 'main' and 'la\_liga'. The repository has 11 commits in the last hour, 17 hours ago, 5 days ago, and 18 hours ago. The README.md file contains the text 'soccer\_analysis'.

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

la\_liga ▾ 2 branches 0 tags

Switch branches/tags Find or create a branch...

Branches Tags

main default

✓ la\_liga

View all branches

away goals plot f2d9072 1 hour ago 11 commits

Add EDA directory 17 hours ago

Update README.md 5 days ago

la\_liga\_league\_home\_vs\_away\_att... Add la liga attendance plot 18 hours ago

la\_liga\_league\_home\_vs\_away\_goa... Add la liga home vs away goals plot 1 hour ago

requirements.txt Add seaborn to requirements.txt 18 hours ago

README.md

soccer\_analysis

Pin Unwatch 1 Fork 0 Star 0

About

No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Contribute

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

# Switching branches

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The repository is public and contains 2 branches and 0 tags. The 'Code' tab is selected. A dropdown menu titled 'Switch branches/tags' is open, showing the 'main' branch as the current default. Other branches listed are `la_liga` (selected) and `default`. The repository has 11 commits in the last hour, 0 stars, 1 watcher, and 0 forks. The README.md file contains the text 'soccer\_analysis'.

george-boorman / soccer\_analysis Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

la\_liga ▾ 2 branches 0 tags

Switch branches/tags

Find or create a branch...

Branches Tags

main default

View all branches

la\_liga

away goals plot f2d9072 1 hour ago 11 commits

Add EDA directory 17 hours ago

Update README.md 5 days ago

la\_liga\_league\_home\_vs\_away\_att... Add la liga attendance plot 18 hours ago

la\_liga\_league\_home\_vs\_away\_goa... Add la liga home vs away goals plot 1 hour ago

requirements.txt Add seaborn to requirements.txt 18 hours ago

README.md

soccer\_analysis

Pin Unwatch 1 Fork 0 Star 0

About

No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

# Comparing branches

The screenshot shows a GitHub repository page for `george-boorman/soccer_analysis`. The page has a dark theme. At the top, there's a search bar, navigation links for Pull requests, Issues, Marketplace, and Explore, and a user profile icon. Below the header, the repository name is displayed with a 'Public' badge. To the right are buttons for Pin, Unwatch (1), Fork (0), and Star (0). A navigation bar below the repository name includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The main content area shows a message about recent pushes to the `la_liga` branch and a green 'Compare & pull request' button. On the left, a sidebar shows the current branch is `main`, there are 2 branches, and 0 tags. Below this, a list of commits is shown:

Author	Commit Message	Date	Commits
george-boorman	Delete .gitignore	b45ce89 16 hours ago	10 commits
	Add EDA directory	16 hours ago	
	Update README.md	5 days ago	
	Add la liga attendance plot	16 hours ago	
	Add seaborn to requirements.txt	16 hours ago	

A commit for the `la_liga_league_home_vs_away_att...` file is highlighted with a yellow box. On the right side, there are sections for About (no description, website, or topics provided), Releases (no releases published, Create a new release), and Packages (no packages published, Publish your first package).

# Working with branches



# Branch protection rules

- Rules for specific branches
  - Require a pull request before merging
  - Require that pull requests are approved before merging
  - Restrict who can delete a protected branch



<sup>1</sup> Image credit: <https://unsplash.com/@bluzninja>

# Branch protection rules

The screenshot shows a GitHub repository page for `george-boorman / soccer_analysis`. The `Settings` tab is highlighted with a green border. The page displays recent activity, including a push from `la_liga` 6 minutes ago. It shows 2 branches and 0 tags. The commit history includes:

- george-boorman Delete .gitignore (b45ce89, 16 hours ago, 10 commits)
- EDA (Add EDA directory, 16 hours ago)
- README.md (Update README.md, 5 days ago)
- la\_liga\_league\_home\_vs\_away\_att... (Add la\_liga attendance plot, 16 hours ago)
- requirements.txt (Add seaborn to requirements.txt, 16 hours ago)

The `README.md` file contains the text `soccer_analysis`.

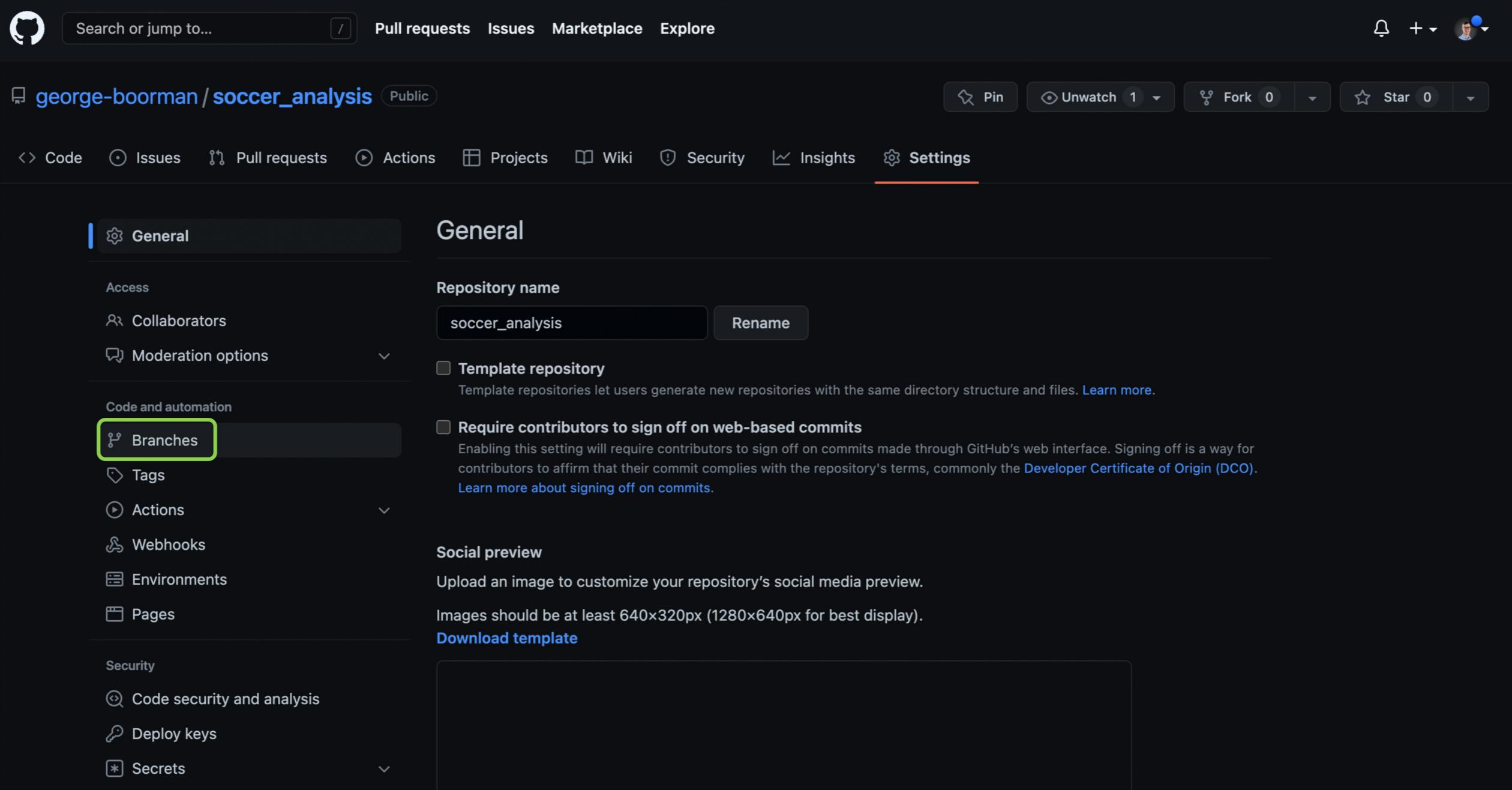
**About**  
No description, website, or topics provided.

**Code**

**Releases**  
No releases published  
Create a new release

**Packages**  
No packages published  
Publish your first package

# Branch protection rules



The screenshot shows the GitHub repository settings for 'george-boorman / soccer\_analysis'. The 'General' tab is selected. On the left, there's a sidebar with sections like 'Access', 'Collaborators', 'Moderation options', 'Code and automation' (with 'Branches' highlighted), 'Actions', 'Webhooks', 'Environments', 'Pages', 'Security', 'Code security and analysis', 'Deploy keys', and 'Secrets'. The main area has a 'Repository name' field set to 'soccer\_analysis' with a 'Rename' button. It also includes sections for 'Template repository', 'Require contributors to sign off on web-based commits', 'Social preview', and a large empty box for a social media preview image.

# Branch protection rules

The screenshot shows the GitHub repository settings for 'george-boorman / soccer\_analysis'. The 'Settings' tab is selected. On the left, a sidebar lists 'General', 'Access', 'Collaborators', 'Moderation options', 'Code and automation' (with 'Branches' selected), 'Tags', 'Actions', 'Webhooks', 'Environments', 'Pages', 'Security', 'Code security and analysis', 'Deploy keys', and 'Secrets'. The main content area is titled 'Default branch' and describes it as the 'base' branch. It shows a 'main' branch card with edit and delete icons. Below this is the 'Branch protection rules' section, which displays the message 'No branch protection rules defined yet.' and features a prominent green-outlined 'Add rule' button.

# Adding rules

The screenshot shows the GitHub repository interface for 'george-boorman / soccer\_analysis'. The 'Settings' tab is selected. On the left, a sidebar lists various settings categories like General, Access, Collaborators, and Branches. The 'Branches' section is currently active. In the main area, the 'Branch protection rule' is being configured. A 'Branch name pattern \*' input field contains 'protect\_main' and is highlighted with a green rounded rectangle. Below this, under 'Protect matching branches', there are three optional checkboxes: 'Require a pull request before merging', 'Require status checks to pass before merging', and 'Require conversation resolution before merging'. Each checkbox has a descriptive subtitle below it.

Search or jump to... / Pull requests Issues Marketplace Explore

george-boorman / soccer\_analysis Public Pin Unwatch 1 Fork 0 Star 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

Actions

Webhooks

Environments

Pages

Security

Code security and analysis

Deploy keys

Secrets

Branch protection rule

Branch name pattern \*

protect\_main

Protect matching branches

**Require a pull request before merging**  
When enabled, all commits must be made to a non-protected branch and submitted via a pull request before they can be merged into a branch that matches this rule.

**Require status checks to pass before merging**  
Choose which [status checks](#) must pass before branches can be merged into a branch that matches this rule. When enabled, commits must first be pushed to another branch, then merged or pushed directly to a branch that matches this rule after status checks have passed.

**Require conversation resolution before merging**  
When enabled, all conversations on code must be resolved before a pull request can be merged into a branch that matches this rule. [Learn more](#).

# Require a pull request

The screenshot shows the GitHub settings page for the repository `george-boorman/soccer_analysis`. The `Settings` tab is selected. On the left, the `Branches` section is highlighted in the sidebar. The main area displays a `Branch protection rule` for the pattern `protect_main`. The rule includes three conditions:

- Protect matching branches**:
  - Require a pull request before merging**: All commits must be made to a non-protected branch and submitted via a pull request before they can be merged into a branch that matches this rule.
  - Require status checks to pass before merging**: Choose which status checks must pass before branches can be merged into a branch that matches this rule. When enabled, commits must first be pushed to another branch, then merged or pushed directly to a branch that matches this rule after status checks have passed.
  - Require conversation resolution before merging**: When enabled, all conversations on code must be resolved before a pull request can be merged into a branch that matches this rule. [Learn more](#).

# Saving the rule

Rules applied to everyone including administrators

**Allow force pushes**

Permit force pushes for all users with push access.

**Allow deletions**

Allow users with push access to delete matching branches.

Create

# **Let's practice!**

**GITHUB CONCEPTS**

# Repo access

GITHUB CONCEPTS

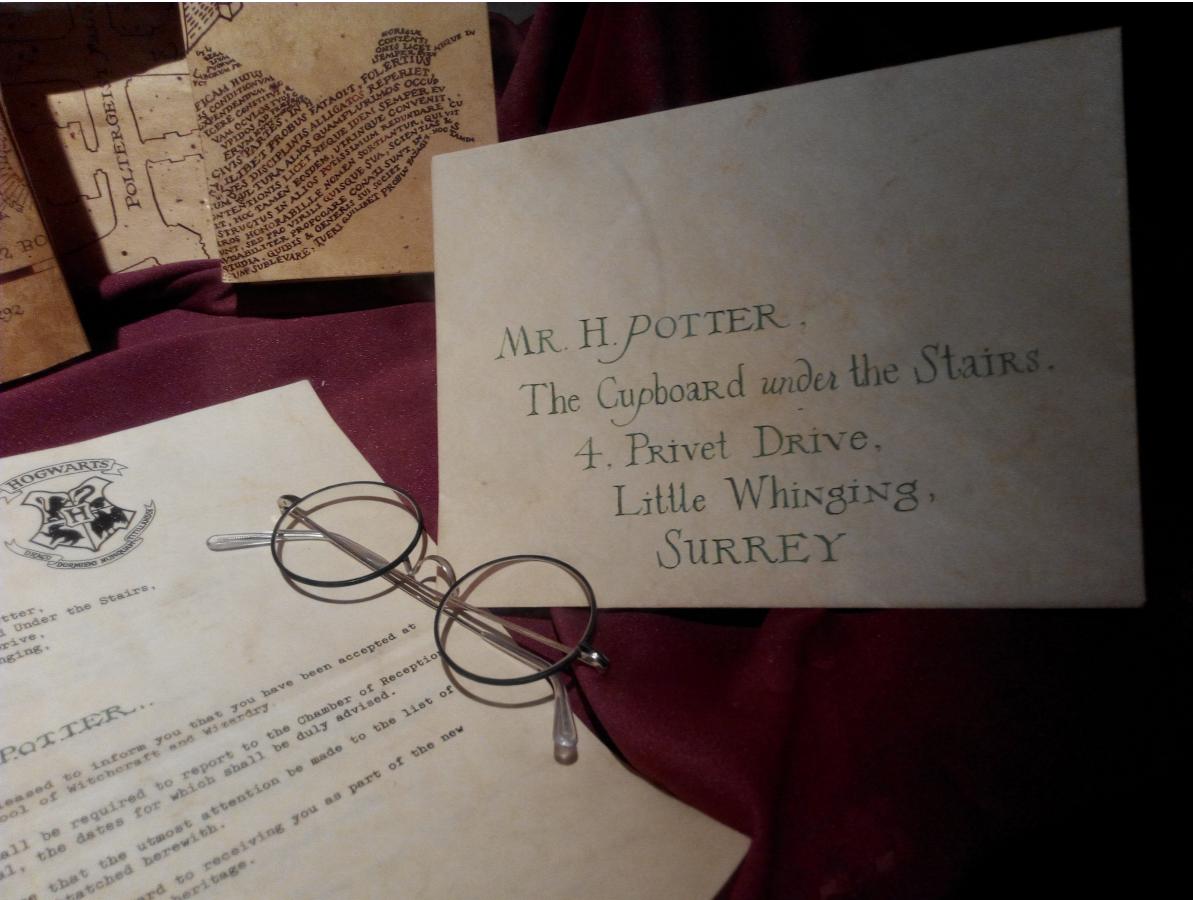


**George Boorman**

Curriculum Manager, DataCamp

# Why restrict access?

- Datasets containing personally identifiable information
- Developing or using commercial products



<sup>1</sup> Image credits: [https://unsplash.com/@rae\\_1991](https://unsplash.com/@rae_1991)

# Bank marketing campaign

Column name	Description
name	Full name
address	Home address
age	Age in years
job	Job type
marital	Marital status
education	Level of education
balance	Bank balance (\$)
housing	Has a mortgage
deposit	Made a deposit as a result of the campaign

# Creating a private repo

The screenshot shows the GitHub interface for creating a new repository. At the top, there's a navigation bar with icons for search, pull requests, issues, marketplace, and explore. Below that, a header says "Create a new repository" with a sub-instruction about project files and revision history. A link to "Import a repository" is also present.

The main form fields include "Owner \*" set to "george-boorman" and "Repository name \*" set to "bank\_marketing". A note below suggests short and memorable names like "cautious-octo-winner".

The "Description (optional)" field is empty.

For visibility, there are two options: "Public" (unchecked) and "Private" (checked). A callout box highlights the "Private" option, which is described as allowing the user to choose who can see and commit to the repository.

At the bottom, there's a section for initializing the repository, with a checked checkbox for "Add a README file". A note below says this is where you can write a long description for your project.

# Is it private?

The screenshot shows a GitHub repository page for the user 'george-boorman' with the repository name 'bank\_marketing'. A green rounded rectangle highlights the 'Private' badge located next to the repository name. The page includes standard GitHub navigation links like Pull requests, Issues, Marketplace, and Explore. Below the header, there are buttons for Unwatch, Fork, and Star, each with a count of 1, 0, and 0 respectively. The main content area shows a single commit from 'george-boorman' titled 'Initial commit' made 16 days ago. The commit message is 'Initial commit'. The repository has 1 branch and 0 tags. On the right side, there's an 'About' section with a note that 'No description, website, or topics provided.' It also lists 0 stars, 1 watching, and 0 forks. Below that is a 'Releases' section indicating no releases have been published, with a link to 'Create a new release'. At the bottom, a 'Packages' section shows that no packages have been published, with a link to 'Publish your first package'.

george-boorman / bank\_marketing Private

Code Issues Pull requests Actions Projects Security Insights Settings

main 1 branch 0 tags

george-boorman Initial commit a675666 16 days ago 1 commit

README.md Initial commit 16 days ago

README.md

bank\_marketing

About

No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

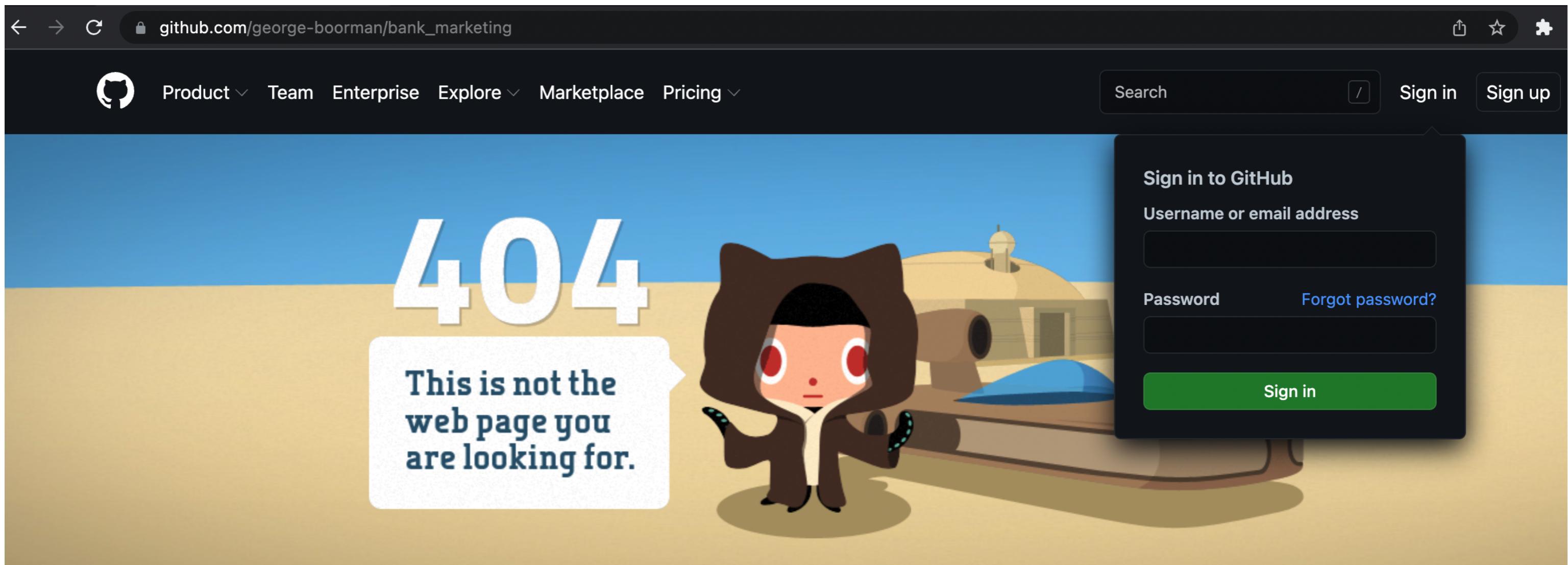
Releases

No releases published Create a new release

Packages

No packages published Publish your first package

# Is it private?



# Collaboration in a private repo

The screenshot shows a GitHub repository page for `george-boorman/bank_marketing`. The repository is marked as `Private`. The top navigation bar includes links for `Pull requests`, `Issues`, `Marketplace`, and `Explore`. On the right side, there are buttons for `Unwatch` (1), `Fork` (0), and `Star` (0). The main navigation bar below the repository name has tabs for `Code`, `Issues`, `Pull requests`, `Actions`, `Projects`, `Security`, `Insights`, and `Settings`, with `Settings` highlighted by a green box. The left sidebar contains sections for `General`, `Access`, `Collaborators`, `Code and automation`, `Branches`, `Tags`, `Actions`, `Webhooks`, and `Pages`. The `General` section is expanded, showing the `Repository name` set to `bank_marketing` with a `Rename` button. It also includes two optional settings: `Template repository` (unchecked) and `Require contributors to sign off on web-based commits` (unchecked). A `Social preview` section is visible at the bottom of the general settings.

# Collaborators

The screenshot shows the GitHub repository settings page for the repository `george-boorman/bank_marketing`. The page is in dark mode. The navigation bar at the top includes links for **Pull requests**, **Issues**, **Marketplace**, and **Explore**. On the far right of the header are icons for a bell (notifications), a plus sign (new repository), and a user profile.

The main content area has a title **Who has access**. On the left, there's a sidebar with sections: **General**, **Access** (which is expanded), **Code and automation**, **Branches**, **Tags**, **Actions**, **Webhooks**, **Pages**, **Security** (with sub-options like **Code security and analysis** and **Deploy keys**), and **Integrations** (with sub-options like **GitHub apps** and **Email notifications**). The **Access** section is currently active, with the **Collaborators** tab highlighted by a green border.

The main content area displays two boxes: **PRIVATE REPOSITORY** and **DIRECT ACCESS**. The **PRIVATE REPOSITORY** box states: "Only those with access to this repository can view it." and includes a **Manage** link. The **DIRECT ACCESS** box states: "0 collaborators have access to this repository. Only you can contribute to this repository." Below this, under the heading **Manage access**, is a large callout box with a network icon and the text "You haven't invited any collaborators yet". A green button labeled **Add people** is located at the bottom of this box.

# Collaborators

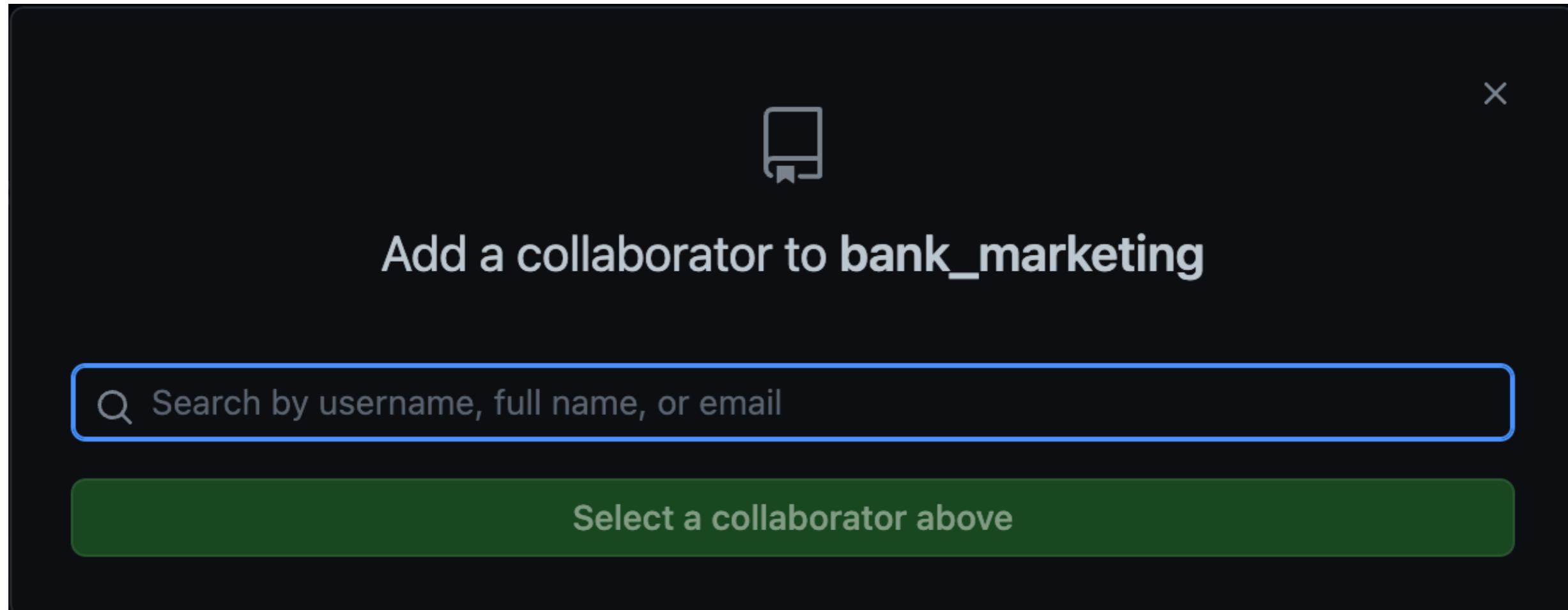
The screenshot shows the GitHub repository settings page for the repository `george-boorman/bank_marketing`. The repository is private, as indicated by the "Private" badge. The "Settings" tab is selected in the navigation bar.

The left sidebar contains sections for General, Access (Collaborators, PRIVATE REPOSITORY, DIRECT ACCESS), Code and automation, Branches, Tags, Actions, Webhooks, Pages, Security (Code security and analysis, Deploy keys, Secrets), Integrations, GitHub apps, and Email notifications.

The main content area is titled "Who has access". It shows that the repository is a PRIVATE REPOSITORY, accessible only to those with access. It also indicates that there are 0 collaborators, with a "Manage" link. A large button labeled "Manage access" is prominently displayed.

The central part of the page features a "You haven't invited any collaborators yet" message with an "Add people" button.

# Adding a collaborator



# Adding a collaborator

The screenshot shows a GitHub repository settings page with a modal window open for adding a collaborator. The main navigation bar at the top includes links for Code, Issues, Pull requests, Actions, Projects, Security, Insights, and Settings. The Settings menu is expanded, showing options like General, Access, Collaborators (which is selected and highlighted in blue), Code and automation, Branches, Tags, Actions, Webhooks, Pages, Security, Code security and analysis, Deploy keys, Secrets, Integrations, GitHub apps, and Email notifications. A sub-menu titled 'Manage access' is also visible. The central modal window has a title 'Add a collaborator to bank\_marketing'. It features a search bar with the placeholder 'Search by username, full name, or email'. Below the search bar is a green button with the text 'Select a collaborator above'. The main content area of the modal displays a message 'You haven't invited any collaborators yet' next to a small user icon. At the bottom of the modal is a green 'Add people' button.

# **Let's practice!**

**GITHUB CONCEPTS**

# Personal Access Tokens (PAT)

GITHUB CONCEPTS



**George Boorman**

Curriculum Manager, DataCamp

# Authentication

- Can use Git in the terminal to interact with GitHub

```
git clone https://github.com/george-boorman/bank_marketing
```

Username for 'https://github.com': george-boorman

Password for 'https://george-boorman@github.com':

# Authentication failed

```
remote: Support for password authentication was removed on August 13, 2021.  
remote: Please see https://docs.github.com/en/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently recommended modes of authentication.  
fatal: Authentication failed for 'https://github.com/george-boorman/bank_marketing/'
```

# GitHub Docs

The screenshot shows a dark-themed GitHub Docs page. On the left, there's a sidebar with navigation links: 'Writing on GitHub', 'Importing your projects', 'Explore projects' (which is expanded), and 'Getting started with Git' (which has two sub-links: 'Set your username' and 'Caching credentials'). The main content area has a breadcrumb navigation at the top: 'Get started' / 'Getting started with Git' / 'About remote repositories'. It also shows 'Free, Pro, & Team' and 'English' dropdown menus. The main title is 'Cloning with HTTPS URLs'. The text explains that HTTPS clone URLs are available on all repositories, regardless of visibility, and that they work even if you are behind a firewall or proxy. It then describes the process of using Git commands like 'git clone', 'git fetch', 'git pull', and 'git push' over HTTPS, noting that it will prompt for a GitHub username and password. It suggests using a personal access token (PAT) instead, which is highlighted with a green box. It also mentions the 'Git Credential Manager' and notes that password-based authentication has been removed.

## Cloning with HTTPS URLs

The `https://` clone URLs are available on all repositories, regardless of visibility. `https://` clone URLs work even if you are behind a firewall or proxy.

When you `git clone`, `git fetch`, `git pull`, or `git push` to a remote repository using HTTPS URLs on the command line, Git will ask for your GitHub username and password. When Git prompts you for your password, enter your [personal access token \(PAT\)](#). Alternatively, you can use a credential helper like [Git Credential Manager](#). Password-based authentication for Git has been removed in favor of more secure authentication methods. For more information, see "[Creating a personal access token](#)."

<sup>1</sup> <https://docs.github.com/en/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls>

# What is a Personal Access Token?

- Personal Access Token (PAT)
  - An alternative to using passwords for authentication in the terminal
  - Required since August 2021 instead of passwords
  - More secure
- Not needed in GitHub
  - Only to access a remote repo using the terminal

<sup>1</sup> <https://docs.github.com/en/authentication/keeping-your-account-and-data-secure/creating-a-personal-access-token>

# Creating a PAT

The screenshot shows a GitHub profile page for a user named George Boorman (george-boorman). The profile picture is a circular portrait of a smiling man with glasses. Below the picture, the name "George Boorman" and the handle "george-boorman" are displayed, along with a "Edit profile" button.

The main content area shows "Popular repositories" with one listed: "soccer\_analysis" (Public). It also displays "1,040 contributions in the last year" with a heatmap visualization of activity by month and day.

At the top of the page, there is a navigation bar with links: Pull requests, Issues, Marketplace, Explore, Overview (which is underlined), Repositories (3), Projects, Packages, and Stars.

A vertical sidebar on the right lists various GitHub features: Signed in as george-boorman, Set status, Your profile, Your repositories, Your codespaces, Your organizations, Your projects, Your stars, Your gists, Upgrade, Feature preview (with a blue dot indicating it's active), Help, and Settings (which is highlighted with a green border).

# Creating a PAT

The screenshot shows the GitHub Profile settings page. On the left, a sidebar lists various sections: Code, planning, and automation (Repositories, Packages, GitHub Copilot, Pages, Saved replies); Security (Code security and analysis); Integrations (Applications, Scheduled reminders); Archives (Security log, Sponsorship log); and Developer settings. The 'Developer settings' option is highlighted with a green border. The main content area contains fields for URL, Twitter username, Company (with a note about linking to a GitHub organization), and Location. A note states that all fields are optional and can be deleted at any time, and by filling them out, you're giving consent to share the data. A large green 'Update profile' button is centered. Below it is a section titled 'Contributions & Activity' with a checkbox for 'Make profile private and hide activity' (Beta). Enabling this will hide contributions and activity from the GitHub profile and social features.

Code, planning, and automation

- Repositories
- Packages
- GitHub Copilot
- Pages
- Saved replies

Security

- Code security and analysis

Integrations

- Applications
- Scheduled reminders

Archives

- Security log
- Sponsorship log

<> Developer settings

URL

Twitter username

Company

You can @mention your company's GitHub organization to link it.

Location

All of the fields on this page are optional and can be deleted at any time, and by filling them out, you're giving us consent to share this data wherever your user profile appears. Please see our [privacy statement](#) to learn more about how we use this information.

Update profile

## Contributions & Activity

**Make profile private and hide activity** Beta

Enabling this will hide your contributions and activity from your GitHub profile and from social features like followers, stars, feeds, leaderboards and releases.

# Creating a PAT

The screenshot shows the GitHub developer settings interface. At the top, there is a navigation bar with links for Pull requests, Issues, Marketplace, and Explore. Below the navigation bar, the path "Settings / Developer settings" is visible. On the left, a sidebar contains three options: GitHub Apps, OAuth Apps, and Personal access tokens, with the last one being highlighted by a green border. The main content area is titled "GitHub Apps" and contains a sub-section titled "Personal access tokens". This section includes a call-to-action message: "Want to build something that integrates with and extends GitHub? Register a new GitHub App to get started developing on the GitHub API. You can also read more about building GitHub Apps in our developer documentation." A "New GitHub App" button is located in the top right corner of this sub-section.

# Creating a PAT

The screenshot shows the GitHub developer settings interface. At the top, there is a navigation bar with the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. To the right of the search bar is a notification bell icon, a plus sign for creating new items, and a user profile icon.

The main area is titled "Settings / Developer settings". On the left, there is a sidebar with three options: "GitHub Apps", "OAuth Apps", and "Personal access tokens", which is highlighted with a blue vertical bar. The central part of the screen is titled "Personal access tokens" and contains the sub-instruction "Tokens you have generated that can be used to access the GitHub API.". At the top right of this section are two buttons: "Generate new token" (which is highlighted with a green rounded rectangle) and "Revoke all".

# Creating a PAT

The screenshot shows the GitHub developer settings interface. In the top navigation bar, there is a search bar, a pull requests button, an issues button, a marketplace button, an explore button, a notifications icon, a plus sign for creating new items, and a user profile icon. Below the navigation, the path 'Settings / Developer settings' is visible. On the left sidebar, there are links for GitHub Apps, OAuth Apps, and Personal access tokens. The main content area is titled 'New personal access token'. It contains a note explaining that personal access tokens function like ordinary OAuth access tokens and can be used for Git over HTTPS or API authentication. A note field contains the text 'bank\_marketing\_PAT'. Below it, a question 'What's this token for?' is followed by an 'Expiration \*' dropdown set to '30 days', which is noted to expire on 'Fri Oct 7 2022'. Two green arrows point from the text 'Expiration' at the bottom left to the 'Expiration' dropdown, and from the text 'Note' at the bottom right to the note input field.

**Expiration**

**Note**

# Creating a PAT

The screenshot shows the GitHub developer settings interface. On the left sidebar, there are links for GitHub Apps, OAuth Apps, and Personal access tokens. The main area is titled "New personal access token". It explains that personal access tokens function like ordinary OAuth access tokens and can be used for Git over HTTPS or API authentication. A note field contains "bank\_marketing\_PAT". The expiration is set to "30 days", which will expire on Fri, Oct 7 2022. Under "Select scopes", the "repo" scope is checked and highlighted with a green border. Other available scopes include repo:status, repo\_deployment, public\_repo, repo:invite, and security\_events.

Search or jump to... / Pull requests Issues Marketplace Explore

Settings / Developer settings

GitHub Apps OAuth Apps Personal access tokens

## New personal access token

Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to [authenticate to the API over Basic Authentication](#).

**Note**

bank\_marketing\_PAT

What's this token for?

**Expiration \***

30 days The token will expire on Fri, Oct 7 2022

**Select scopes**

Scopes define the access for personal tokens. [Read more about OAuth scopes](#).

<input checked="" type="checkbox"/> <b>repo</b>	Full control of private repositories
<input checked="" type="checkbox"/> repo:status	Access commit status
<input checked="" type="checkbox"/> repo_deployment	Access deployment status
<input checked="" type="checkbox"/> public_repo	Access public repositories
<input checked="" type="checkbox"/> repo:invite	Access repository invitations
<input checked="" type="checkbox"/> security_events	Read and write security events

# Creating a PAT

<input type="checkbox"/> <b>write:discussion</b>	Read and write team discussions
<input type="checkbox"/> <b>read:discussion</b>	Read team discussions
<input type="checkbox"/> <b>admin:enterprise</b>	Full control of enterprises
<input type="checkbox"/> <b>manage_runners:enterprise</b>	Manage enterprise runners and runner groups
<input type="checkbox"/> <b>manage_billing:enterprise</b>	Read and write enterprise billing data
<input type="checkbox"/> <b>read:enterprise</b>	Read enterprise profile data
<input type="checkbox"/> <b>project</b>	Full control of projects
<input type="checkbox"/> <b>read:project</b>	Read access of projects
<input type="checkbox"/> <b>admin:gpg_key</b>	Full control of public user GPG keys
<input type="checkbox"/> <b>write:gpg_key</b>	Write public user GPG keys
<input type="checkbox"/> <b>read:gpg_key</b>	Read public user GPG keys
<input type="checkbox"/> <b>admin:ssh_signing_key</b>	Full control of public user SSH signing keys
<input type="checkbox"/> <b>write:ssh_signing_key</b>	Write public user SSH signing keys
<input type="checkbox"/> <b>read:ssh_signing_key</b>	Read public user SSH signing keys

[Generate token](#)   [Cancel](#)

# Using the PAT

The screenshot shows the GitHub developer settings page with the 'Personal access tokens' tab selected. The page title is 'Personal access tokens'. There are two buttons at the top right: 'Generate new token' and 'Revoke all'. A note below the tokens says 'Tokens you have generated that can be used to access the GitHub API.' A callout box highlights the instruction 'Make sure to copy your personal access token now. You won't be able to see it again!'. A single token is listed with a green checkmark, the value 'ghp\_Pm2ESiF7wNZUDnIfeYtX5pTJFgC8Fh4NTlJX', and a blue copy icon. A red 'Delete' button is to the right of the token.

Search or jump to... / Pull requests Issues Marketplace Explore

Settings / Developer settings

GitHub Apps OAuth Apps Personal access tokens

Personal access tokens

Generate new token Revoke all

Tokens you have generated that can be used to access the GitHub API.

Make sure to copy your personal access token now. You won't be able to see it again!

✓ ghp\_Pm2ESiF7wNZUDnIfeYtX5pTJFgC8Fh4NTlJX ⚡ Delete

# Using the PAT

A screenshot of the GitHub 'Personal access tokens' page. The page title is 'Personal access tokens'. It includes a note: 'Tokens you have generated that can be used to access the GitHub API.' A message says, 'Make sure to copy your personal access token now. You won't be able to see it again!' Below is a list of tokens:

Token	Action
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 [copy]	Delete

A green arrow points from the text 'PAT' to the copied token 'ghp\_Pm2ESiF7wNZUDnIfeYtX5pTJFgC8Fh4NTlJX'.

- Don't share a PAT!

# Using the PAT

```
git clone https://github.com/george-boorman/bank_marketing  
Cloning into 'bank_marketing'...  
Username for 'https://github.com': george-boorman  
Password for 'https://george-boorman@github.com':
```

```
remote: Enumerating objects: 3, done.  
remote: Counting objects: 100% (3/3), done.  
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
```

```
ls
```

```
bank_marketing
```

# **Let's practice!**

**GITHUB CONCEPTS**