



# The World's Most Widely Adopted AI Developer Tool



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# Overview of GitHub Copilot

Setup and Access

Resources

Labs

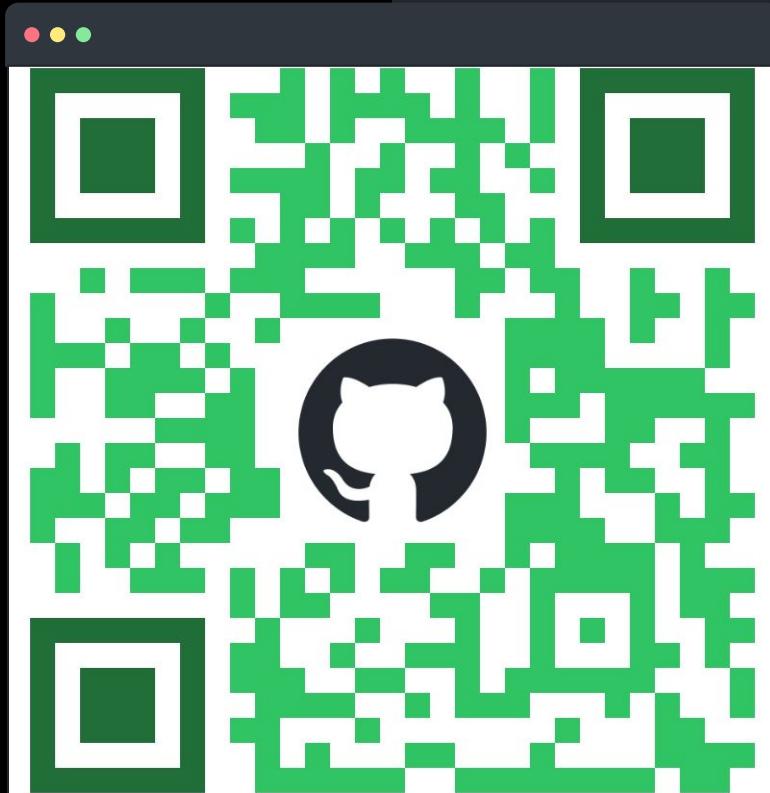
Feedback

Agenda

# Setup and Access

<https://gh.io/aifair-workshop>

Ground Zero For This Workshop



A portrait of GitHub CEO, Tom Preston-Werner, positioned on the left side of the image. He is a man with short brown hair, wearing a dark blue t-shirt. The background behind him is a blurred blue and yellow gradient.

# GitHub Copilot





# GitHub Copilot

Your AI pair programmer



# GitHub Copilot

Your AI pair programmer

**Uses the context you've provided  
and synthesizes code to match**

Convert comments to code

Autofill for repetitive code

Streamline test creation

Show alternatives

A screenshot of a code editor interface. At the top, there are tabs for 'sentiment.ts' (selected), 'write\_sql.go', and 'parse\_expense.go'. The main area shows a snippet of TypeScript code:

```
1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of
6 // Use a web service
7 async function isPositive(text: string) {
8     const response = await fetch(`http://localhost:3001/api/sentiment`, {
9         method: "POST",
10        body: `text=${text}`,
11        headers: {
12            "Content-Type": "application/x-www-form-urlencoded"
13        },
14    });
15    const json = await response.json();
16    return json.label === "pos";
17}
```

The code editor highlights the word 'method' in line 9, indicating it is being completed or suggested by Copilot. A blue callout box at the bottom right contains the GitHub Copilot logo and the text 'Copilot'.



Qured SDLC

# Your copilot for an AI-powered software development lifecycle.

From the  
IDE and  
Terminal



To the  
Platform





PUBLIC  
DATA



OPENAI  
GPT LLM



CONTEXT

SUGGESTIONS

A screenshot of a code editor window titled "lilly.py". The code is a Python script for image processing, specifically for juxtaposing images and adding text. The code includes imports for Image, ImageFont, and ImageDraw, and defines a function "juxtapose" that creates a new image, adds text, and pastes it onto a new image. A "PROBLEMS" panel shows a single error from "ryanjsalva" about an ImportError. The status bar at the bottom indicates "Python 3.10.0 64-bit ('.venv': venv) ⊗ 0 ▲".

```
translation = translation
assert translation ==

def juxtapose(image, text):
    """create a new image
    Make the new image twice as wide as the original
    Display the text in the center
    # create a new image
    new_image = Image.new('RGB', (image.width * 2, image.height))

    # paste the original image
    new_image.paste(image)

    # get a font
    font = ImageFont.truetype("arial.ttf", 36)

    # get a drawing context
    draw = ImageDraw.Draw(new_image)

    # calculate the position of the text
    width, height = draw.textsize(text, font=font)
    x = (new_image.width - width) / 2
    y = (new_image.height - height) / 2

    # draw the text
    draw.text((x, y), text, font=font, fill="black")

    return new_image
```

# Answers to common questions

---

Does GitHub Copilot train  
on my code?

No. When using GitHub Copilot  
for Business, none of your code  
is stored by GitHub.

What is included in the  
context?

Context includes the file you are  
working on, and tabs open in the  
IDE starting from the current file.

Can't I just write the code  
on my own?

As developers, we write an awful  
lot of boring code. Offloading  
this code to GitHub Copilot  
allows you to focus on the  
important problems.

# GitHub Copilot Chat

ChatGPT-like experience in editor

- Generic questions
- Generate unit tests
- Explain the code
- Propose a fix for bug
- Make code robust / secure

Support VS Code  
and Visual Studio and JetBrains

The screenshot shows a dark-themed VS Code interface with the GitHub Copilot extension active. The top bar displays the repository name 'django-conference'. The left sidebar shows file navigation: 'models.py', 'views.py' (which is the active tab), and 'tests.py'. The main editor area contains Python code for views:conference > views.py > TalkList
7
8 # Create your views here.
9 # Create a list view for all talks
10 class TalkList(ListView):
11 model = Talk
12 context\_object\_name = 'talks'
13 template\_name = 'talk\_list.html'
14
15 # Create a detail view for a talk
16 class TalkDetail(DetailView):
17 model = Talk
18 context\_object\_name = 'talk'
19 template\_name = 'talk\_detail.html'A yellow dot highlights the line 'model = Talk' in the 'TalkList' class. In the bottom right corner of the editor, there is a tooltip from GitHub Copilot suggesting to use Django's `select_related` or `prefetch_related` methods to reduce database queries.

The right-hand sidebar is titled 'CHAT: GITHUB COPILOT'. It shows a message from 'GeekTrainer' suggesting to 'Improve the performance of this view'. Below it, GitHub Copilot provides a suggestion: 'Used 1 reference > To improve the performance of this view, you can use Django's `select_related` or `prefetch_related` methods to reduce the number of database queries if your `Talk` model has foreign key or many-to-many relationships.' At the bottom of the sidebar, it says 'Here's an example of how you might do this:' followed by a code snippet:

```
class TalkList(ListView):
    model = Talk
```

At the very bottom of the interface, there is a status bar with various icons and text, including 'main', 'Python', '3.9.6 (venv: venv)', and 'Ask Copilot or type '/' for commands'.



# Prompt crafting

Helping GitHub Copilot help you

# Help GitHub Copilot help you

## Context

Information provided to help GitHub Copilot understand the task better

## Intent

The specific goal or purpose you have in mind when creating a prompt

## Clarity

The quality of being easy to understand

## Specificity

The level of detail and precision

# Good code begets good code

Use good names  
GitHub Copilot understands  
natural language

Spell out variable names  
Single letter variables and  
abbreviations are ambiguous

Keep functions functional  
Follow strong principles  
when creating named blocks

Be consistent  
Generated code follows  
contextual patterns

If at first you  
don't succeed,  
**iterate!**

### Initial prompt

```
1 //Write a JavaScript function that finds
2 //the maximum value in an array.
3 function max(array) {
4     return Math.max.apply(null, array);
5 }
```

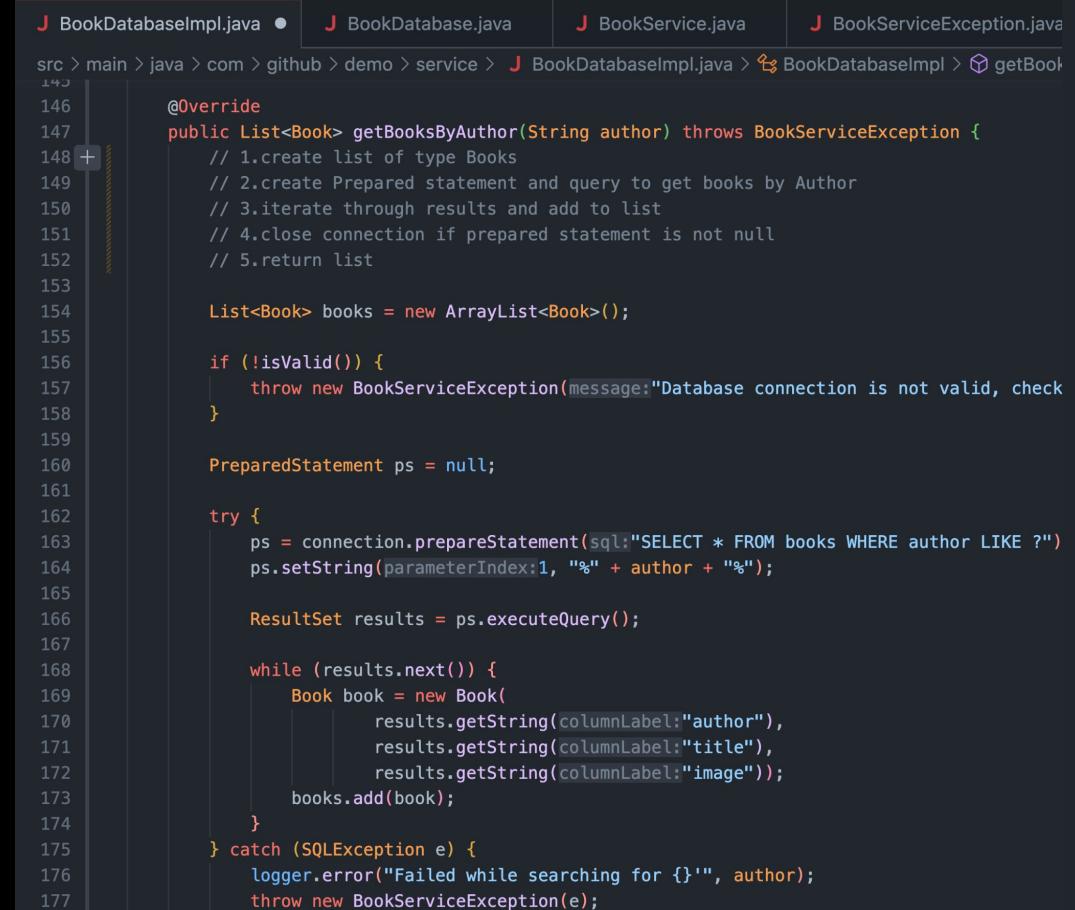
### Second prompt

```
1 ↵ //Create a JavaScript function, `findMax`, that takes an array of
2   //and returns the string with the maximum length.
3   //Ensure that the function works correctly for arrays that are em
4   //as well as arrays that contain both strings and numbers.
5 ↵ function findMax(array) {
6     var max = array[0].length;
7     array.map(v => max = Math.max(max, v.length));
8     result = array.filter(v => v.length == max);
9     return result;
10 }
```

**Provide examples in your prompt to clarify your expectations for the logic Copilot should take into consideration**

```
calculations.py > ...
1  """
2  Create a Python function, `sum_array_values`, that finds
3  and returns the sum of integers in an array.
4
5  1.Verify if the array is empty and exit if it is.
6  2.Throw error if the array contains non-integer values.
7  3.Return the sum of the array values if the array is valid.
8
9  Please consider the following example data:
10 Example 1: [5, 10, 15, 20, 8]
11 Example 2: [2, 4, 6, 1, 9, 12]
12 The generated code should work correctly for arrays like above
13 """
14 #define sum_array_values function
15 def sum_array_values(array):
16     # 1.Verify if the array is empty and exit if it is.
17     if len(array) == 0:
18         return 0
19     # 2.Throw error if the array contains non-integer values.
20     for i in array:
21         if type(i) != int:
22             raise TypeError("The array contains non-integer values.")
23     # 3.Return the sum of the array values if the array is valid.
24     return sum(array)
```

**Keep files open that  
are relevant to the  
requirements of your  
current file.**



The screenshot shows a Java code editor with the file `BookDatabaseImpl.java` open. The code implements a method to search for books by author. It uses a prepared statement to query the database and iterates through the results to build a list of books. Error handling is included to catch `SQLException`.

```
src > main > java > com > github > demo > service > BookDatabaseImpl.java > BookDatabaseImpl > getBooksByAuthor
```

```
146
147
148 + @Override
149
150     public List<Book> getBooksByAuthor(String author) throws BookServiceException {
151         // 1.create list of type Books
152         // 2.create Prepared statement and query to get books by Author
153         // 3.iterate through results and add to list
154         // 4.close connection if prepared statement is not null
155         // 5.return list
156
157         List<Book> books = new ArrayList<Book>();
158
159         if (!isValid()) {
160             throw new BookServiceException(message:"Database connection is not valid, check");
161         }
162
163         PreparedStatement ps = null;
164
165         try {
166             ps = connection.prepareStatement(sql:"SELECT * FROM books WHERE author LIKE ?");
167             ps.setString(parameterIndex:1, "%" + author + "%");
168
169             ResultSet results = ps.executeQuery();
170
171             while (results.next()) {
172                 Book book = new Book(
173                     results.getString(columnLabel:"author"),
174                     results.getString(columnLabel:"title"),
175                     results.getString(columnLabel:"image"));
176                 books.add(book);
177             }
178         } catch (SQLException e) {
179             logger.error("Failed while searching for {}", author);
180             throw new BookServiceException(e);
181         }
182     }
183 }
```

# Key tips to remember

GitHub Copilot looks at tabs  
Consider closing all tabs when context switching to ensure GitHub Copilot sees what you need it to see.

Formality isn't required  
A couple of lines of comments or a bit of pseudocode go a long way.

There isn't one right way to use GitHub Copilot  
Because LLMs are probabilistic, you may see different responses for the same prompts. Being flexible is the best way to ensure success.

**Above all else,  
go with the flow**

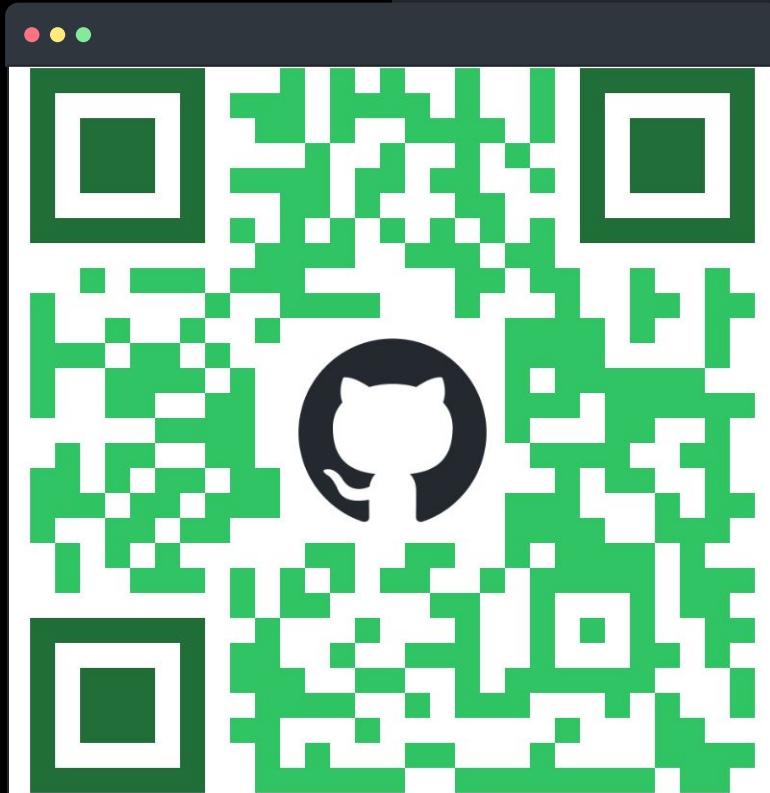


# The workshop

That's great and all... But when can I write code?

# Setup and Access

<https://gh.io/aifair-workshop>



# Need Help?

GitHub Discussions

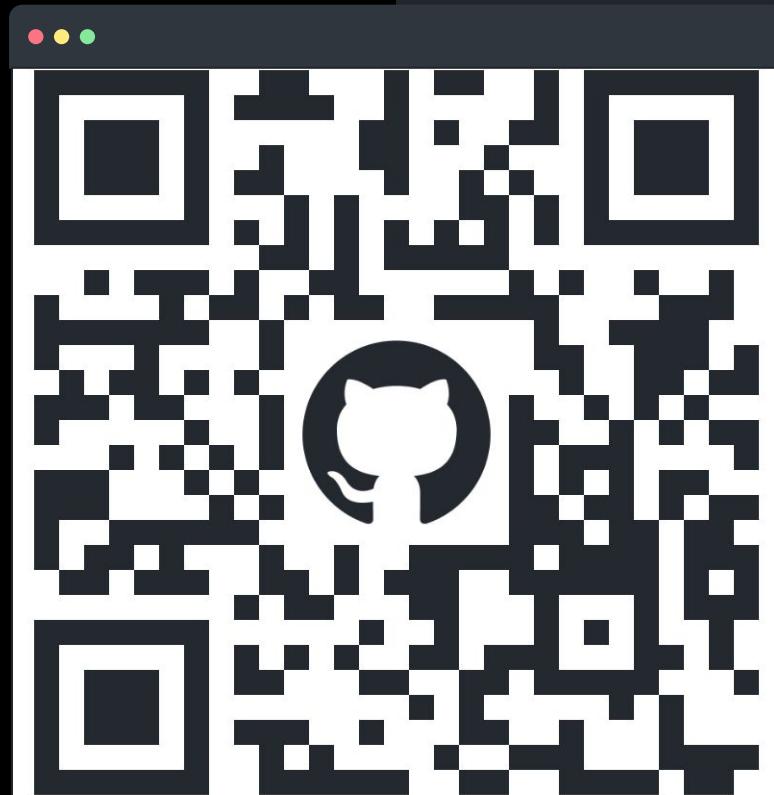
<https://gh.io/aifair-discussions>

Use “Workshop Issues”

A screenshot of a web browser window displaying a GitHub Discussions page. The title of the page is "How satisfied were you with this workshop?". Below the title, it says "Workshop Survey · DaveOps30". A search bar contains the query "category:'Workshop Issues'". On the left, there's a sidebar titled "Categories" with links to "View all discussions", "Announcements", "General", "Q&A", "# AI Engineer World's Fair 2024", "Show and tell", "Workshop Feedback & Suggestions", "Workshop Issues" (which is highlighted with a blue border), and "Workshop Survey". At the bottom of the sidebar, there's a box titled "Most helpful" with the text: "Be sure to mark someone's comment as an answer if it helps you resolve your question — they deserve the credit! ❤️".

# GitHub Copilot Coupon

<https://gh.io/aiwf2024>



# Redeem Your Coupon

## Redeem your coupon

Account:  DaveB

### Your new subscription

**GitHub Pro**  
\$4/month Free

### FAQs

**What's different about an organization?**  
A GitHub organization is a profile on GitHub that is managed from your personal account. Organizations are best suited for businesses who need to manage permissions for many employees. For more information, please read our [Help article](#).

**Why don't I see any disk space limits?**  
See our [Help article](#).

### Coupon summary

You're getting  
for 7-day

**\$10.00 per month off**

### Billing information

 **DaveB**  
Personal account

**Dave Burnison**  
1132  
United States of America

**Apply coupon** 

# Fork This Repo

The screenshot shows a GitHub repository page for 'copilot-hands-on'. The repository is public and was forked from [skillrepos/copilot-hands-on](https://github.com/skillrepos/copilot-hands-on). The main branch is 'main', and there is 1 branch and 0 tags. The repository has 117 commits. A commit by DaveBurnisonMS updated 'labs.md' with instructions. Another commit by GitHub Copilot-Resources added steps to the lab. The README and LICENSE files are also present. The 'About' section notes that the repository is a fork for training purposes. The 'Fork' button is highlighted with a red box and a cursor icon. The sidebar includes links for Readme, MIT license, Activity, 0 stars, 0 watching, 0 forks, and Report repository. The 'Releases' section indicates no releases have been published. The 'Packages' section shows no packages have been published.

**copilot-hands-on** Public

forked from [skillrepos/copilot-hands-on](https://github.com/skillrepos/copilot-hands-on)

main · 1 Branch · 0 Tags

This branch is 19 commits ahead of [skillrepos/copilot-hands-on:main](#).

Go to file · Add file · Code · Contribute · Sync fork

**About**

Fork of <https://github.com/skillrepos/copilot-hands-on> for training purposes

Readme · MIT license · Activity · 0 stars · 0 watching · 0 forks · Report repository

**Releases**

No releases published · Create a new release

**Packages**

No packages published · Publish your first package

**GitHub Copilot Hands-on - lab setup**

These instructions will guide you through configuring a GitHub Codespaces environment that you can use to run the course labs. If you prefer and if you know one of the other IDEs supported by Copilot, you can use that. But the

# Start Your Codespace

The screenshot shows a GitHub repository page for `copilot-hands-on`. The top navigation bar includes links for Code, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. Below the navigation is a header for the repository, which is public and forked from `skillrepos/copilot-hands-on`. The repository has 1 branch and 0 tags. A message indicates that the branch is up to date with the source repository. The main content area lists files: `.devcontainer`, `images`, `LICENSE`, `README.md`, `create-tables.sql`, and `labs.md`. On the right side, there is a sidebar with tabs for Local and Codespaces. The Codespaces tab is selected and highlighted with a red circle labeled '2'. Below this, a section titled "No codespaces" states that no codespaces are currently checked out. A prominent green button labeled "Create codespace on main" is also highlighted with a red circle labeled '3'. To the right of the sidebar, there is descriptive text about the repository, including its star count (0 stars), watching count (0 watching), and fork count (0 forks). There are also sections for Releases and Packages.

copilot-hands-on Public

forked from [skillrepos/copilot-hands-on](#)

main ▾ 1 Branch 0 Tags

This branch is up to date with [skillrepos/copilot-hands-on](#)

**Local**

**Codespaces** 2

No description, website, or provided.

No codespaces

You don't have any codespaces with this repository checked out

Create codespace on main 3

Learn more about codespaces...

Codespace usage for this repository is paid for by gwstudent2.

Readme

MIT license

Activity

0 stars

0 watching

0 forks

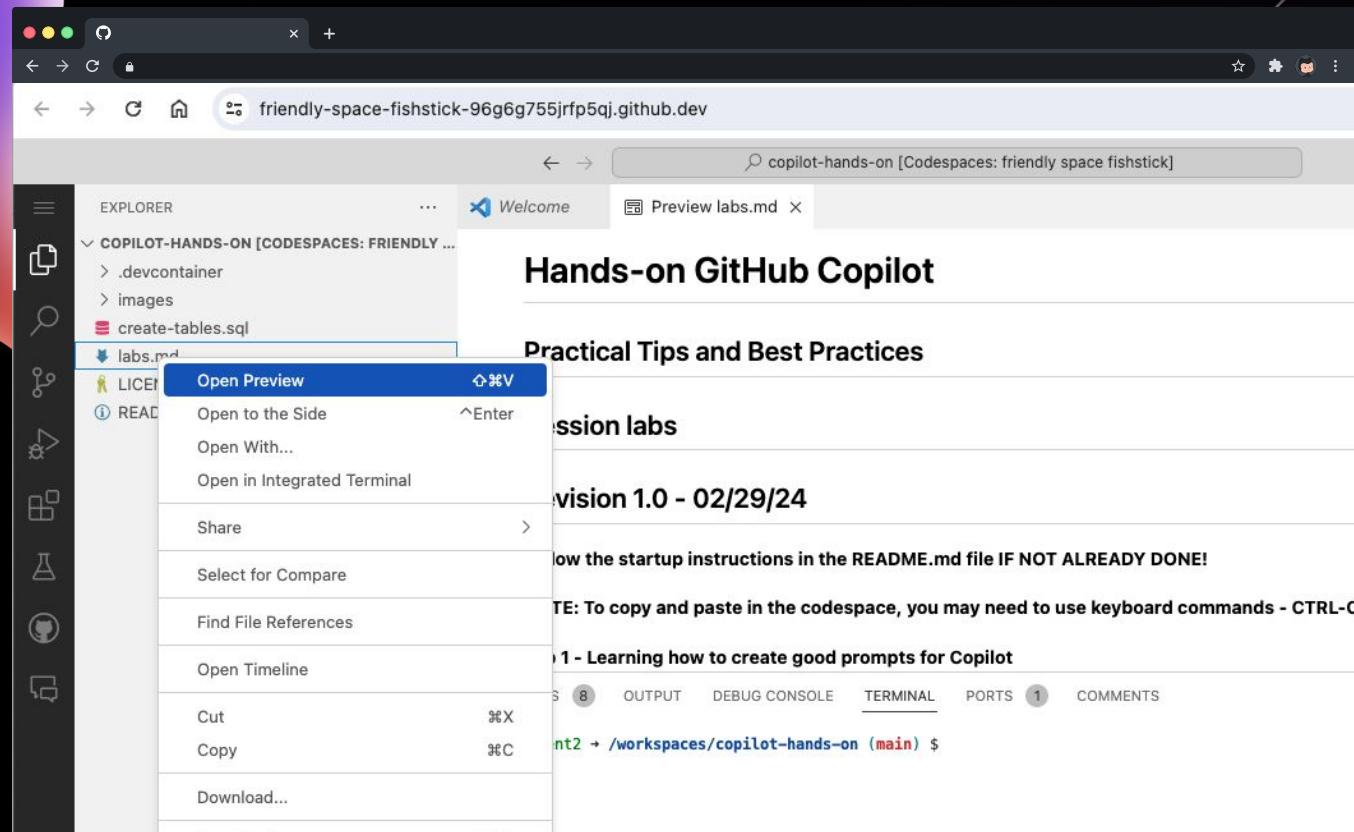
Releases

No releases published

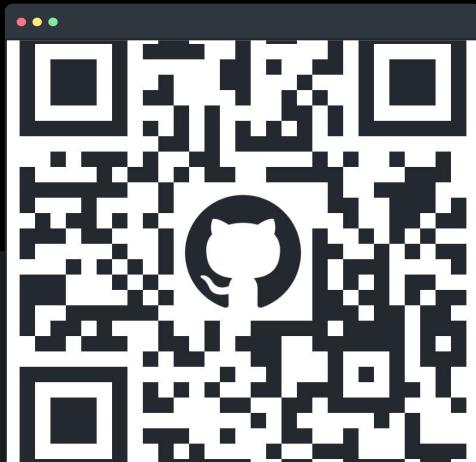
Create a new release

Packages

# Open the Labs

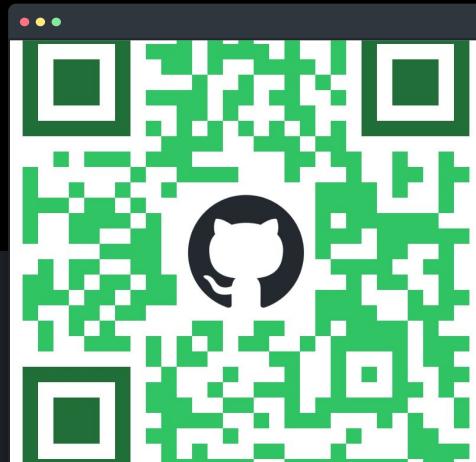


# Links and Resources



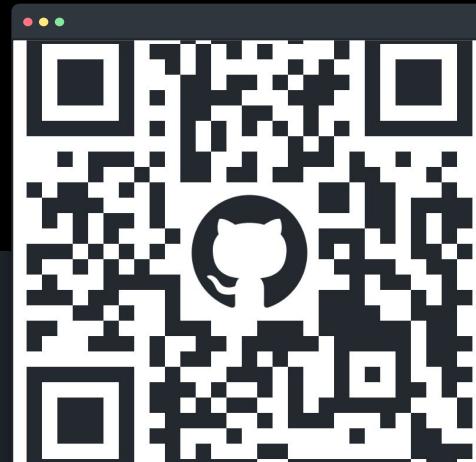
Copilot Coupon

<https://gh.io/aiwf2024>



Main Repo

<https://gh.io/aifair-workshop>



Labs README

<https://gh.io/aifair-labs>

# Tips for success

## Explore!

This is your opportunity to try things, break things, and learn!

## Try it!

Not sure if something works, if a feature is supported, or how to build a prompt? Try it!

## Ask!

We're here for you, not the other way around. We can answer all your questions!

## Run wild!

There's limited guardrails on the project. Build what you want how you want!



# Feedback

<https://gh.io/aifair-survey>





Thank you