



# Hello!

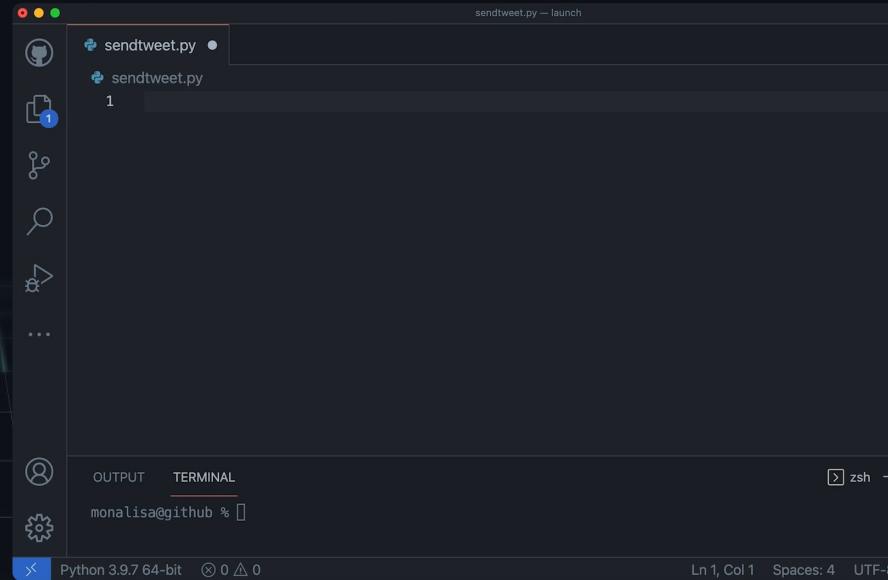


**Vinit Shahdeo**

GitHub Star, India

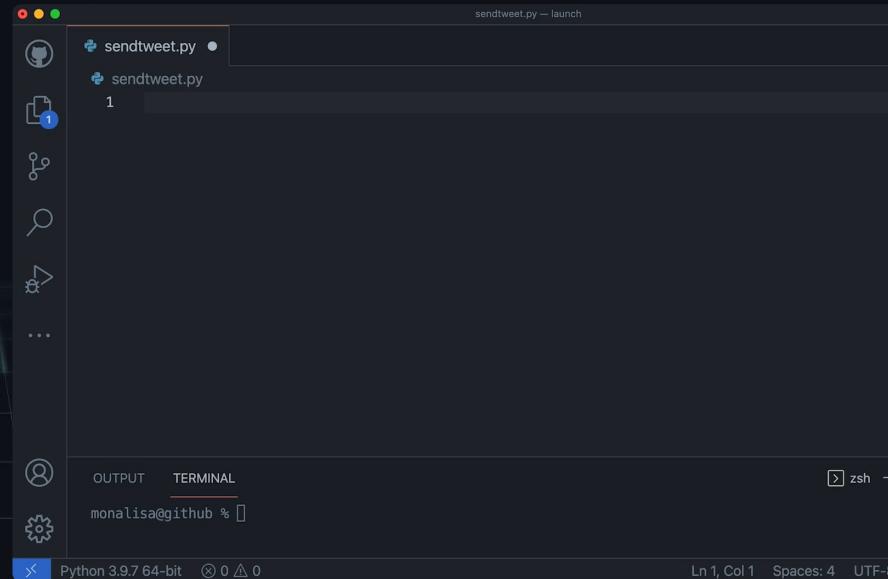
GitHub Copilot

# What is Copilot?



GitHub Copilot

# Your AI Pair Programmer



GitHub Copilot

# Is it magic?



GitHub Copilot

If it's not  
magic, then  
what?

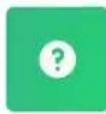




## Explore what's possible with some example applications

 Search...

All categories

**Q&A**

Answer questions based on existing knowle...

**Grammar correction**

Corrects sentences into standard English.

**Summarize for a 2nd grader**

Translates difficult text into simpler concep...

**Natural language to OpenAI API**

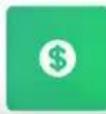
Create code to call to the OpenAI API usin...

**Text to command**

Translate text into programmatic commands.

**English to other languages**

Translates English text into French, Spanish...

**Natural language to Stripe API**

Create code to call the Stripe API using nat...

**SQL translate**

Translate natural language to SQL queries.

## Playground

Load a preset...

Save

View code

Share

...

Write a tagline for an ice cream shop.



I

Mode



Model

text-davinci-002



Temperature

0.7

Maximum length

256



Stop sequences

Enter sequence and press Tab



Top P

1



Frequency penalty

0



Submit



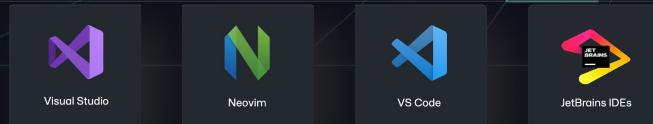
0

# GitHub Copilot

Once enabled...



OpenAI  
Codex



runtime.go course.rb time.js IsPrimeTest.java

```
1 package main
2
3 type Run struct {
4     Time int // in milliseconds
5     Results string
6     Failed bool
7 }
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
```

GitHub Copilot

# Features

# The main features

Convert  
comments  
to code

```
1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of text is positive
6 // Use a web service
7 async function isPositive(text: string): Promise<boolean> {
8   const response = await fetch("http://text-processing.com/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}
```

Copilot

Autofill  
repetitive  
code

```
1 const seconds = 3600
2 const minutes = seconds / 60
3 const hours = minutes / 60
4 const days = hours / 24
5 const weeks = days / 7
6 const months = days / 30
7 const years = months / 12
```

Copilot

Show  
alternatives

```
1 def max_sum_slice(xs):
2     max_ending = max_so_far = 0
3     begin = end = 0
4     for i, x in enumerate(xs):
5         if max_ending + x > 0:
6             max_ending += x
7         else:
8             max_ending = 0
9             begin = i
10            if max_ending > max_so_far:
11                max_so_far = max_ending
12                end = i
13
14    return begin, end, i
15
16
17 def max_sum_slice(xs):
18     if not xs:
19         return 0
20
21     max_ending = max_slice = 0
22     for x in xs:
23         max_ending = max(0, max_ending + x)
24         max_slice = max(max_slice, max_ending)
25
26    return max_slice
```

ⓘ README.md M

JS index.js U X



JS index.js

1 /

PROBLEMS

DEBUG CONSOLE

TERMINAL

PORTS

GITLENS

JUPYTER

> ✓ TERMINAL

☰ @blackgirlbytes → /workspaces/kcdc-demo (main ✘) \$

The screenshot shows a GitHub code editor interface with the following details:

- File List:** e.js, ApplicationForm.jsx, \_app.js, create-env.js (highlighted), inviteUser.js, AuthenticatedNavBar.jsx.
- Icons:** A vertical sidebar on the left contains icons for file operations like copy, paste, cut, and search.
- Code Content:**

```
1  const { access, appendFile, writeFile } = require('fs/promises')
2  const { randomBytes } = require('crypto')
3  const { constants } = require('fs')

4

5  if (process.env.NEXTAUTH_SECRET) {
6    process.exit(0)
7  }

8

9  (async () => {
10    const randomString = randomBytes(16).toString('hex')
11    try {
12      await access("./.env", constants.R_OK && constants.W_OK)
13      await appendFile('./.env', `\nNEXTAUTH_SECRET=${randomString}\n`)
14    } catch (error) {
15      await writeFile('./.env', `NEXTAUTH_SECRET=${randomString}\n`)
16    }
17 })()
```
- Activity:** The code was last modified by Rizel Scarlett, last month, adding all files needed for app.

&gt; EXPLAIN

LANGUAGE TRANSLATION

```
// write a binary search algorithm
const binarySearch = (arr, val) => {
    let left = 0;
    let right = arr.length - 1;
    let middle = Math.floor((left + right) / 2);
    while (arr[middle] !== val && left <= right) {
        if (target < arr[middle]) {
            right = middle - 1;
        } else {
            left = middle + 1;
        }
        middle = Math.floor((left + right) / 2);
    }
    return arr[middle] === val ? middle : -1;
}
```

// run the function

```
1 // write a binary search algorithm
2 const binarySearch = (arr, val) => {
3     let left = 0;
4     let right = arr.length - 1;
5     let middle = Math.floor((left + right) / 2);
6     while (arr[middle] !== val && left <= right) {
7         if (target < arr[middle]) {
8             right = middle - 1;
9         } else {
10            left = middle + 1;
11        }
12        middle = Math.floor((left + right) / 2);
13    }
14    return arr[middle] === val ? middle : -1;
15 }
16
17 // run the function
18 binarySearch([1, 2, 3, 4, 5, 6, 7, 8, 9, 10], 8);
```

Translate code into

python

Ask Copilot



&gt; BRUSHES

&gt; TEST GENERATION

initial.py U

piedrapapelotijera.py U ●

▷ ⏴ ⏵ ⏷ ⏸ ⏹

piedrapapelotijera.py

1

# |



...



added-about-me\*



⊗ 0 ⚠ 0

Live Share

Cloak

Go Live



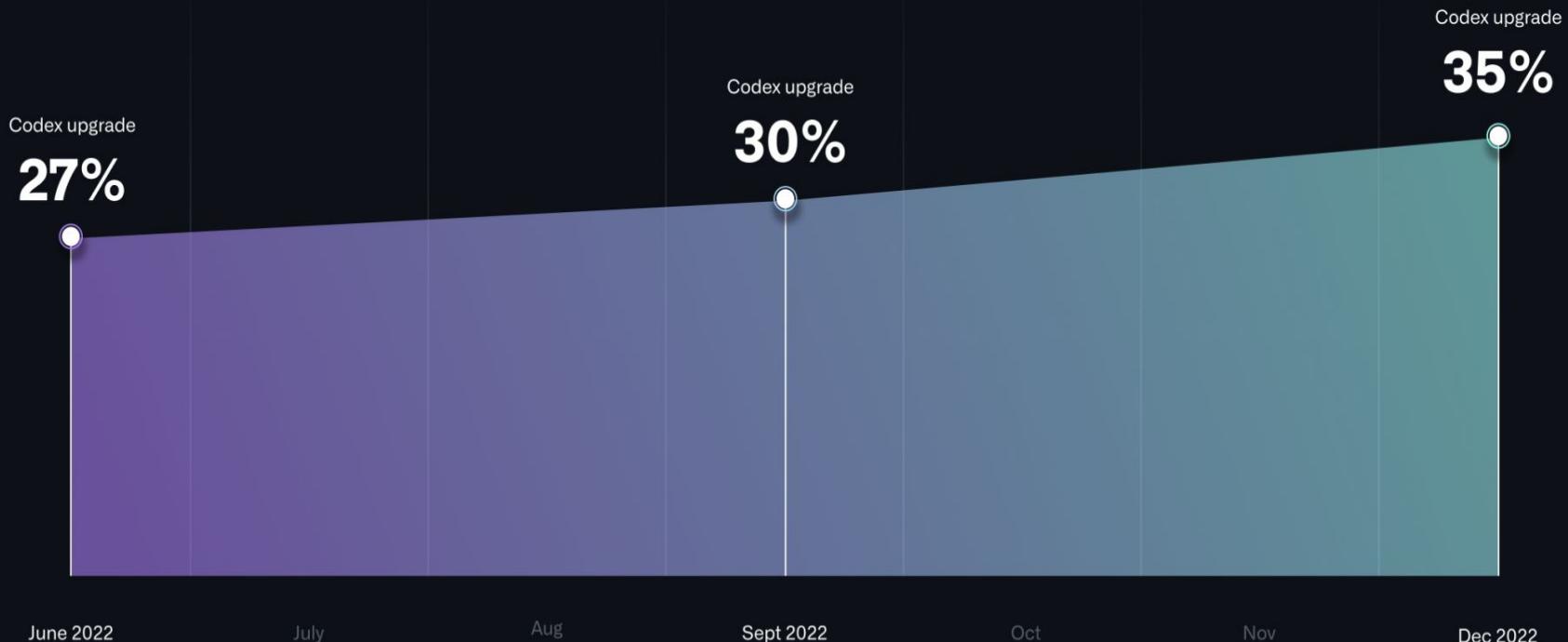
Prettier



GitHub Copilot

# Improvements

# Improvements to GitHub Copilot code acceptance rate



GitHub Copilot

# Less security vulnerabilities

```
script.src = "https://maps.googleapis.com/maps/api/js?key=[REDACTED]"
script.async = true;
script.defer = true;
document.body.appendChild(script)
```

GitHub Copilot

# Individuals and Businesses

GitHub Copilot

# Block public code suggestions

## Suggestions matching public code \*

GitHub Copilot can allow or block suggestions matching public code. See [GitHub Copilot FAQ](#) to learn more.

Block

GitHub Copilot

# Installation

# Visual Studio Code

The screenshot shows the Visual Studio Code interface with the GitHub Copilot extension details and the marketplace search results.

**Extension: GitHub Copilot — Copilot**

**EXTENSIONS: MARKETPLACE**

Search bar: copilot

Results:

- GitHub Copilot** (v1.0.0) - Your AI pair programmer by GitHub (122ms)  
Install
- GitHub Copilot Nightly** (v1.0.0) - Your AI pair programmer by GitHub (189K, 4.5)  
Install
- GitHub Copilot Labs** (v1.0.0) - Experimental features for GitHub Copilot by GitHub (175ms)
- Copilot Theme** (v1.0.0) - A VSCode implementation of the theme by Benjamin Benais (79K, 5)  
Install
- Clara Copilot** (v1.0.0) - Just Finds the snippets for you for any language by BadBoy17G (14K, 4.5)  
Install
- Copilot for VS Code** (v1.0.0) - JavaScript/TypeScript development tooling by Metatype (30K, 3.5)  
Install
- GPT\_CoPilot** (v1.0.0) - (2K, 5)

Left sidebar icons (circled):

- File
- Search
- Open
- Recent
- Extensions (circled)
- Snippets (circled)
- Terminal
- Help

Bottom status bar:

- X main\*
- ↻
- ✖ 0 ⚠ 0

**GitHub Copilot v1.0.0**

GitHub | 3,429,948 | Your AI pair programmer

Disable | Uninstall | ⚙️

This extension is enabled globally.

Details | Feature Contributions | Changelog | Runtimes

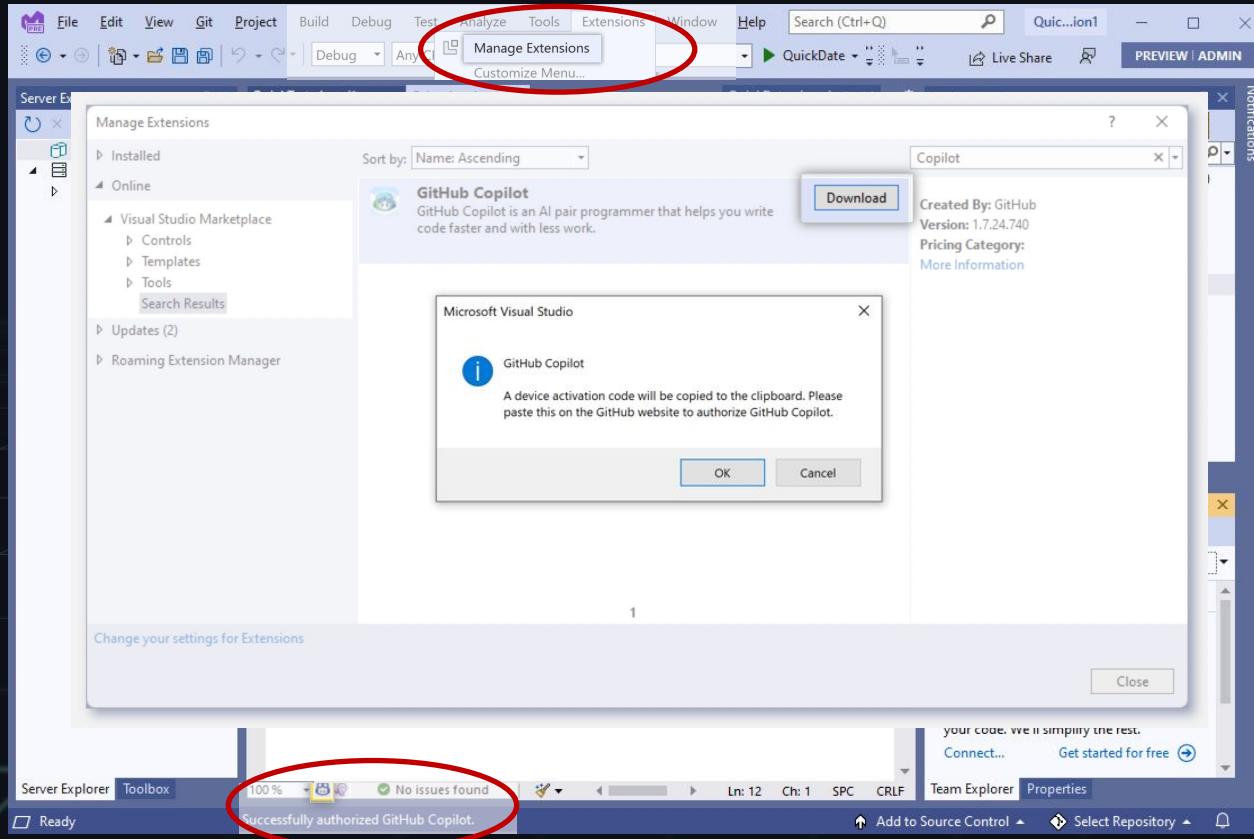
Followers: 16k | Twitter Follow | @github | Views: 9.8M | Try Copilot | Free for 60 days

Sign in to access GitHub Copilot.

Source: GitHub Copilot (Extension) | Sign in to GitHub

✓ Spell | ⚙️ | 🔍 | ⚡

# Visual Studio



GitHub Copilot

# Benefits

GitHub Copilot

# GitHub Copilot boosts developer productivity!

GitHub Copilot

# Less context switching

## Developers using GitHub Copilot...

**88%**

...have faster completion

**87%**

...exert less mental effort  
on repetitive tasks

**77%**

...spend less time  
searching

---

**73%**

...stay more in the flow

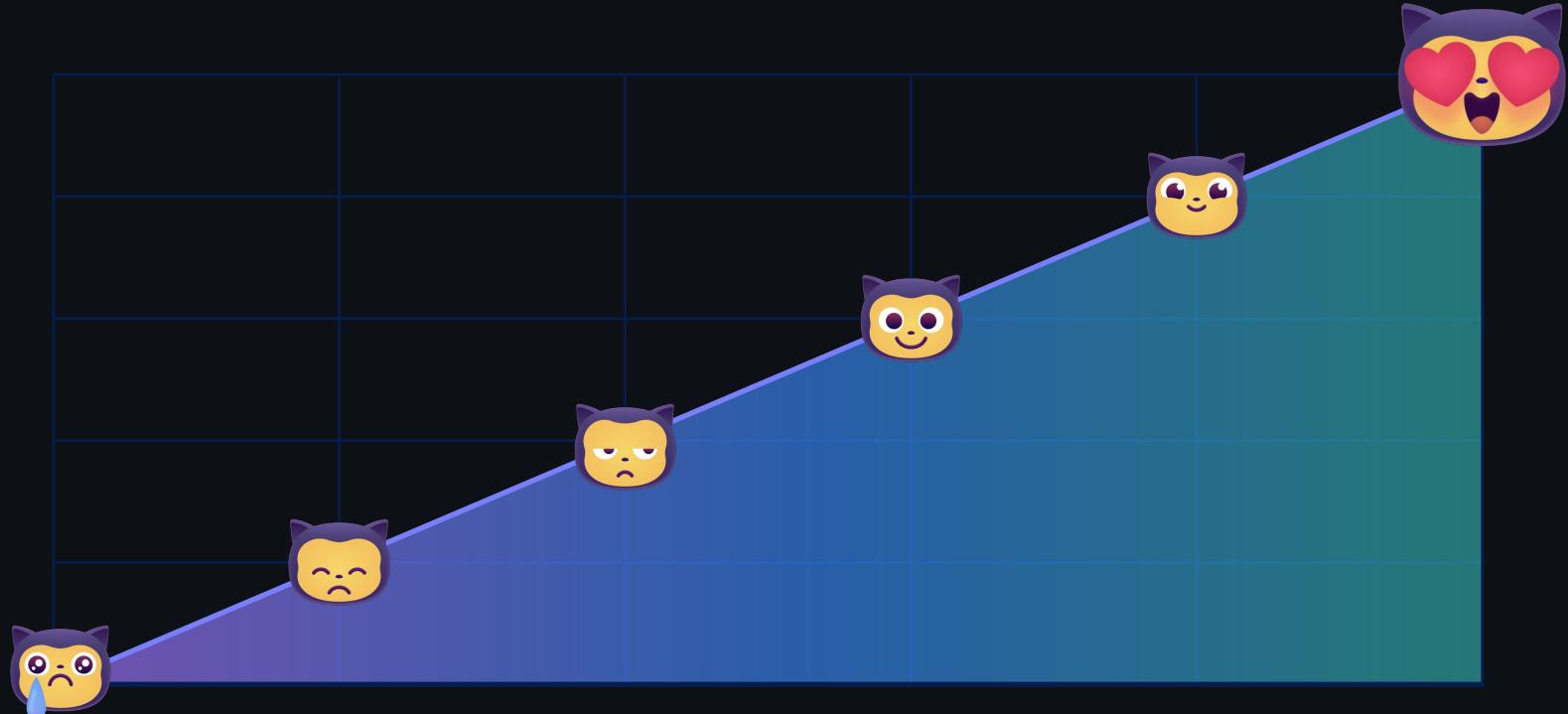
**60%**

...are more fulfilled with  
[their] job

**59%**

...are less frustrated  
when coding

Psychological Safety



Confidence, morale, & performance





GitHub Copilot

# User sentiment

# 40%

Of code written by  
developers using  
Python, was  
synthesized by Copilot

# 55%

Faster using Copilot



GitHub Copilot

# Examples in the wild

# Pattern recognition



MilMike  
@MilMikeDev

I am using github copilot. This thing is really helpful. It also helps with translations! Simple strings and also full sentences.

#github #copilot #webdev #coding

```
69      ],
70
71      'fr' => [
72          'answer' => 'Réponse',
73          'question' => 'Question',
74          'date' => 'Date',
75      ],
76
77      '|it' => [ You, Moments ago • Uncommitted changes
78          'answer' => 'Risposta',
79          'question' => 'Domanda',
80          'date' => 'Data',
81      ],
82
83
84
85
86
87
88
89
90
```

11:22 AM · Jun 24, 2022

```
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
```

public function getStrings(){
 return [
 'en' => [
 'answer' => 'Answer',
 'question' => 'Question',
 'date' => 'Date',
 ],
 '|it' => [ You, Moments ago • Uncommitted changes
 'answer' => 'Risposta',
 'question' => 'Domanda',
 'date' => 'Data',
 ],
 ];
}

# Code snippets in docs



**Hayden Barnes**  
@unixterminal

Copilot continues to blow my mind, even when writing documentation.

```
78  
79  
80  
81  
82  
83     Install basic building prerequisites:  
84  
85     On Debian and Ubuntu: `sudo apt install build-essential`  
86     On SUSE: `sudo zypper install gcc gcc-c++ make`  
87  
88  
89  
90  
91  
92
```

5:10 PM · Jul 6, 2022



**wassim.dev (off work)**  
@manekinekko

Replying to @FrenchTechLead

Half of our documentation of the SWA CLI has been written using Copilot 🤖

The screenshot shows a GitHub page for the 'Static Web Apps CLI Documentation'. The URL is 'Static Web Apps CLI Documentation | Static Web Apps CLI'. The page content includes a heading 'Static Web Apps CLI Documentation' and a paragraph describing it as a local development tool for the Azure Static Web Apps service. The GitHub logo is visible on the left.

12:35 PM · Jun 17, 2022 · Twitter Web App

 John Skoubourdis  
@scoumbourdis

...  
GitHub Copilot is like giving a programmer a super power 😊

11:41 PM · Jun 2, 2022

1,579 Retweets 137 Quote Tweets 22.6K Likes

 Alex MacCaw ✅  
@maccaw

...  
One of the best uses of GitHub CoPilot is autocompleting your tests.

At this point it's writing the majority of my tests.

5:55 PM · Oct 29, 2022

20 Retweets 3 Quote Tweets 307 Likes

 swyx ✨  
@swyx

...  
By far the greatest benefit of using @Github Copilot so far is I now don't have to be forced to document my code.

I actively \*want\* to write great comments, because when I do, I get the dopamine hit of a good Copilot suggestion.

7:51 PM · Oct 12, 2022 from Puerto Vallarta, Jalisco

21 Retweets 3 Quote Tweets 338 Likes

 @willman@xoxo.zone  
@willmanduffy

...  
You win this round Copilot

updateMyselfMutationVari  
Name: 'Bob',  
ame: 'Builder',

5:01 PM · Jun 14, 2022

50 Retweets 3 Quote Tweets 780 Likes

 Danny Postma  
@dannypostmaa

...  
AI is doing 80% of my coding – the future looks brighter than ever! 😊

90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
0:17 493.5K views

```
methods: [
  async fetch () {
    // ...
    this.test = await this.$axios.$get('/admin/analytics', {
      params: {
        startDate: this.date.start,
        endDate: this.date.end
      }
    })
    this.isLoading = false
  }
]
```

4:37 PM · Dec 1, 2022

1,161 Retweets 187 Quote Tweets 9,969 Likes

 JD Ross ✅  
@justindross

...  
Some of our engineers just told me they'd estimate 40% of the lines of code they produce are now written by the Github CoPilot AI

6:13 PM · Oct 19, 2022

386 Retweets 159 Quote Tweets 5,220 Likes

# GitHub Copilot can help you



Brainstorm



Jog your memory



Retain focus

# GitHub Copilot can help you



Brainstorm



Jog your memory



Retain focus

Aa Type

GitHub Next

# Hey GitHub!

GitHub Next

# Copilot X

[gh.io/copilotx](https://gh.io/copilotx)





# Tools of Empowerment

[GitHub Copilot](#)

[Copilot Labs](#)

[Hey, GitHub](#)



# Thank you.

[github.com/vinitshahdeo](https://github.com/vinitshahdeo)   [twitter.com/vinit\\_shahdeo](https://twitter.com/vinit_shahdeo)

---

Say Hi on Twitter :)