



## Welcome

## Hello world!

Thank you for taking the 2023 Stack Overflow Developer Survey, the longest running survey of software developers (and anyone else who codes!) on Earth.

There are seven sections in this survey. The 2nd, 3rd, 4th and 5th sections will appear in a random order.

1. Basic Information
2. Education, Work, and Career
3. Technology and Tech Culture
4. Stack Overflow Usage + Community
5. Artificial Intelligence
6. Professional Developer Series (Optional)
7. Final Questions

Most questions in this survey are optional. Required questions are marked with \*.

This anonymous survey will take about 15 minutes to complete. We encourage you to

complete it in one sitting.

**If you use security or ad-blocking plugins, you may see error messages**

Our third-party software provider, Qualtrics, does not work well with certain ad blockers and security software. To avoid error messages that prevent you from taking the survey, please try specifically unblocking Qualtrics in your plugin or pausing the plugin while you take the survey.

To begin, click **Next**.

**Consent Statement****You consent to providing your information to help us stay privacy compliant**

Your participation in this survey is completely anonymous. As in previous years, anonymized results of the survey will be made publicly available under the Open Database License, where anyone can download and analyze the data. On that note, throughout the survey, certain answers you and your peers give will be treated as personally identifiable information, and therefore kept out of the anonymized results file. The information gathered via this survey is made available to the public in the spirit of community which Stack Overflow was founded and to serve as a resource for everyone who codes.

By selecting "I agree" and submitting this survey, you acknowledge that you voluntarily consent to your anonymous answers being made publicly available.

- ☐ I agree
- ☐ I do not agree (selecting this will end the survey)

## Qualification

## Basic Information

The first section will focus on some basic information about who you are.

Most questions in this section are required. Required questions are noted with \*.

Which of the following options best describes you today? For the purpose of this survey, a developer is "someone who writes code". \*

- ☐ I am a developer by profession
- ☐ I am not primarily a developer, but I write code sometimes as part of my work/studies
- ☐ I used to be a developer by profession, but no longer am
- ☐ I am learning to code

- ☐ I code primarily as a hobby
- ☐ None of these

What is your age? \*

- ☐ Under 18 years old
- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old
- ☐ 45-54 years old
- ☐ 55-64 years old
- ☐ 65 years or older
- ☐ Prefer not to say

## Employment

Which of the following best describes your current employment status? Select all that apply.

- ☐ Employed, full-time
- ☐ Employed, part-time
- ☐ Independent contractor, freelancer, or self-employed
- ☐ Not employed, but looking for work
- ☐ Not employed, and not looking for work
- ☐ Student, full-time

- ☐ Student, part-time
- ☐ Retired
- ☐ I prefer not to say

Which best describes your current work situation?

- ☐ Remote
- ☐ In-person
- ☐ Hybrid (some remote, some in-person)

Which of the following best describes the code you write outside of work? Select all that apply.

- ☐ Hobby
- ☐ Freelance/contract work
- ☐ Contribute to open-source projects
- ☐ Bootstrapping a business
- ☐ School or academic work
- ☐ Professional development or self-paced learning from online courses
- ☐ I don't code outside of work
- ☐  Other (please specify):

## 2 - Education + Work + Career

## Education, work, and career

This section will focus on your education, work, and career.

Most questions in this section are optional. Required questions are noted with \*.

Which of the following best describes the highest level of formal education that you've completed? \*

- ☐ Primary/elementary school
- ☐ Secondary school (e.g. American high school, German Realschule or Gymnasium, etc.)
- ☐ Some college/university study without earning a degree
- ☐ Associate degree (A.A., A.S., etc.)
- ☐ Bachelor's degree (B.A., B.S., B.Eng., etc.)
- ☐ Master's degree (M.A., M.S., M.Eng., MBA, etc.)
- ☐ Professional degree (JD, MD, Ph.D, Ed.D, etc.)
- ☐ Something else

How do you learn to code? Select all that apply.

- ☐ Books / Physical media
- ☐ Coding Bootcamp
- ☐ Colleague
- ☐ Friend or family member

- ☐ Hackathons (virtual or in-person)
- ☐ Online Courses or Certification
- ☐ On the job training
- ☐ Other online resources (e.g., videos, blogs, forum)
- ☐ School (i.e., University, College, etc)
- ☐  Other (please specify):

What online resources do you use to learn to code? Select all that apply.

- ☐ Technical documentation
- ☐ Blogs
- ☐ Online books
- ☐ Coding sessions (live or recorded)
- ☐ How-to videos
- ☐ Certification videos
- ☐ Video-based online courses
- ☐ Written-based online courses
- ☐ Auditory material (e.g., podcasts)
- ☐ Games that teach programming
- ☐ Online challenges (e.g., daily or weekly coding challenges)
- ☐ Interactive tutorial
- ☐ Written tutorials
- ☐ Online forum
- ☐ Stack Overflow

☐

Other (Please specify):

What online courses or certifications do you use to learn to code? Select all that apply.

☐

Codecademy

☐

Coursera

☐

edX

☐

Pluralsight

☐

Skillsoft

☐

Udacity

☐

Udemy

☐

Other (Please specify):

Including any education, how many years have you been coding in total?



NOT including education, how many years have you coded professionally (as a part of your work)?





Which of the following describes your current job, the one you do most of the time?  
Please select only one.

- ☐ Academic researcher
- ☐ Cloud infrastructure engineer
- ☐ Blockchain
- ☐ Data or business analyst
- ☐ Data scientist or machine learning specialist
- ☐ Database administrator
- ☐ Designer
- ☐ Developer Advocate
- ☐ Developer, back-end
- ☐ Developer, desktop or enterprise applications
- ☐ Developer, embedded applications or devices
- ☐ Developer Experience
- ☐ Developer, front-end
- ☐ Developer, full-stack
- ☐ Developer, game or graphics
- ☐ Developer, mobile
- ☐ Developer, QA or test
- ☐ DevOps specialist
- ☐ Educator
- ☐ Engineer, data
- ☐ Engineer, site reliability
- ☐ Engineering manager
- ☐ Hardware Engineer

- ☐ Marketing or sales professional
- ☐ Product manager
- ☐ Project manager
- ☐ Research & Development role
- ☐ Scientist
- ☐ Senior Executive (C-Suite, VP, etc.)
- ☐ Student
- ☐ System administrator
- ☐ Security professional
- ☐  Other (please specify):

Approximately how many people are employed by the company or organization you currently work for? This should only include your primary company, and not the entire holding or parent company if that applies.

- ☐ Just me - I am a freelancer, sole proprietor, etc.
- ☐ 2 to 9 employees
- ☐ 10 to 19 employees
- ☐ 20 to 99 employees
- ☐ 100 to 499 employees
- ☐ 500 to 999 employees
- ☐ 1,000 to 4,999 employees
- ☐ 5,000 to 9,999 employees
- ☐ 10,000 or more employees

☐ I don't know

What level of influence do you, personally, have over new technology purchases at your organization?

- ☐ I have little or no influence
- ☐ I have some influence
- ☐ I have a great deal of influence

When thinking about new technology purchases at your organization, are you more likely to be given a short list of products/services to evaluate or be told to investigate on your own?

- ☐ Given a list
- ☐ Investigate
- ☐  Other

When buying a new tool or software, how do you discover and research available solutions? Select all that apply.

- ☐ Start a free trial
- ☐ Ask developers I know/work with
- ☐ Ask a generative AI tool
- ☐ Visit developer communities like Stack Overflow

- ☐ Read ratings or reviews on third party sites like G2 Crowd
- ☐ Research companies that have advertised on sites I visit
- ☐ Research companies that have emailed me
- ☐  Other (please specify):

Where do you live? \*

Which currency do you use day-to-day? If your answer is complicated, please pick the one you're most comfortable estimating in. \*

What is your current total **annual** compensation (salary, bonuses, and perks, before taxes and deductions)? Please enter a whole number in the box below, without any punctuation. If you are paid hourly, please estimate an equivalent yearly salary. If you prefer not to answer, please leave the box empty.

3 - Tech and Tech Culture

Tech and tech culture

The next set of questions will focus on technology and tech culture.

Most questions in this section are optional. Required questions are noted with \*.

Which **programming, scripting, and markup languages** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the language and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
Ada	<input type="checkbox"/>	<input type="checkbox"/>
Apex	<input type="checkbox"/>	<input type="checkbox"/>
APL	<input type="checkbox"/>	<input type="checkbox"/>
Assembly	<input type="checkbox"/>	<input type="checkbox"/>
Bash/Shell (all shells)	<input type="checkbox"/>	<input type="checkbox"/>
C	<input type="checkbox"/>	<input type="checkbox"/>
C#	<input type="checkbox"/>	<input type="checkbox"/>
C++	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Clojure	<input type="checkbox"/>	<input type="checkbox"/>
Cobol	<input type="checkbox"/>	<input type="checkbox"/>
Crystal	<input type="checkbox"/>	<input type="checkbox"/>
Dart	<input type="checkbox"/>	<input type="checkbox"/>
Delphi	<input type="checkbox"/>	<input type="checkbox"/>
Elixir	<input type="checkbox"/>	<input type="checkbox"/>
Erlang	<input type="checkbox"/>	<input type="checkbox"/>
F#	<input type="checkbox"/>	<input type="checkbox"/>
Flow	<input type="checkbox"/>	<input type="checkbox"/>
Fortran	<input type="checkbox"/>	<input type="checkbox"/>
GDScript	<input type="checkbox"/>	<input type="checkbox"/>
Go	<input type="checkbox"/>	<input type="checkbox"/>
Groovy	<input type="checkbox"/>	<input type="checkbox"/>
Haskell	<input type="checkbox"/>	<input type="checkbox"/>
HTML/CSS	<input type="checkbox"/>	<input type="checkbox"/>
Java	<input type="checkbox"/>	<input type="checkbox"/>
JavaScript	<input type="checkbox"/>	<input type="checkbox"/>
Julia	<input type="checkbox"/>	<input type="checkbox"/>
Kotlin	<input type="checkbox"/>	<input type="checkbox"/>
Lisp	<input type="checkbox"/>	<input type="checkbox"/>
Lua	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
MATLAB	<input type="checkbox"/>	<input type="checkbox"/>
Nim	<input type="checkbox"/>	<input type="checkbox"/>
Objective-C	<input type="checkbox"/>	<input type="checkbox"/>
OCaml	<input type="checkbox"/>	<input type="checkbox"/>
Perl	<input type="checkbox"/>	<input type="checkbox"/>
PHP	<input type="checkbox"/>	<input type="checkbox"/>
PowerShell	<input type="checkbox"/>	<input type="checkbox"/>
Prolog	<input type="checkbox"/>	<input type="checkbox"/>
Python	<input type="checkbox"/>	<input type="checkbox"/>
R	<input type="checkbox"/>	<input type="checkbox"/>
Raku	<input type="checkbox"/>	<input type="checkbox"/>
Ruby	<input type="checkbox"/>	<input type="checkbox"/>
Rust	<input type="checkbox"/>	<input type="checkbox"/>
SAS	<input type="checkbox"/>	<input type="checkbox"/>
Scala	<input type="checkbox"/>	<input type="checkbox"/>
Solidity	<input type="checkbox"/>	<input type="checkbox"/>
SQL	<input type="checkbox"/>	<input type="checkbox"/>
Swift	<input type="checkbox"/>	<input type="checkbox"/>
TypeScript	<input type="checkbox"/>	<input type="checkbox"/>
VBA	<input type="checkbox"/>	<input type="checkbox"/>
Visual Basic (.Net)	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Zig	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **database environments** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the database and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
BigQuery	<input type="checkbox"/>	<input type="checkbox"/>
Cassandra	<input type="checkbox"/>	<input type="checkbox"/>
Clickhouse	<input type="checkbox"/>	<input type="checkbox"/>
Cloud Firestore	<input type="checkbox"/>	<input type="checkbox"/>
Cockroachdb	<input type="checkbox"/>	<input type="checkbox"/>
Cosmos DB	<input type="checkbox"/>	<input type="checkbox"/>
Couch DB	<input type="checkbox"/>	<input type="checkbox"/>
Couchbase	<input type="checkbox"/>	<input type="checkbox"/>
Datomic	<input type="checkbox"/>	<input type="checkbox"/>
DuckDB	<input type="checkbox"/>	<input type="checkbox"/>
Dynamodb	<input type="checkbox"/>	<input type="checkbox"/>



	Worked with in PAST year	Want to work with NEXT year
Elasticsearch	<input type="checkbox"/>	<input type="checkbox"/>
Firebase Realtime Database	<input type="checkbox"/>	<input type="checkbox"/>
Firebird	<input type="checkbox"/>	<input type="checkbox"/>
H2	<input type="checkbox"/>	<input type="checkbox"/>
IBM DB2	<input type="checkbox"/>	<input type="checkbox"/>
InfluxDB	<input type="checkbox"/>	<input type="checkbox"/>
MariaDB	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Access	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft SQL Server	<input type="checkbox"/>	<input type="checkbox"/>
MongoDB	<input type="checkbox"/>	<input type="checkbox"/>
MySQL	<input type="checkbox"/>	<input type="checkbox"/>
Neo4J	<input type="checkbox"/>	<input type="checkbox"/>
Oracle	<input type="checkbox"/>	<input type="checkbox"/>
PostgreSQL	<input type="checkbox"/>	<input type="checkbox"/>
RavenDB	<input type="checkbox"/>	<input type="checkbox"/>
Redis	<input type="checkbox"/>	<input type="checkbox"/>
Snowflake	<input type="checkbox"/>	<input type="checkbox"/>
Solr	<input type="checkbox"/>	<input type="checkbox"/>
SQLite	<input type="checkbox"/>	<input type="checkbox"/>
Supabase	<input type="checkbox"/>	<input type="checkbox"/>
TiDB	<input type="checkbox"/>	<input type="checkbox"/>

Other (Please Specify):

Worked with in PAST year

☐

Want to work with NEXT year

☐

Which **cloud platforms** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the platform and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
Amazon Web Services (AWS)	<input type="checkbox"/>	<input type="checkbox"/>
Cloudflare	<input type="checkbox"/>	<input type="checkbox"/>
Colocation	<input type="checkbox"/>	<input type="checkbox"/>
Digital Ocean	<input type="checkbox"/>	<input type="checkbox"/>
Firebase	<input type="checkbox"/>	<input type="checkbox"/>
Fly.io	<input type="checkbox"/>	<input type="checkbox"/>
Google Cloud	<input type="checkbox"/>	<input type="checkbox"/>
Heroku	<input type="checkbox"/>	<input type="checkbox"/>
Hetzner	<input type="checkbox"/>	<input type="checkbox"/>
IBM Cloud Or Watson	<input type="checkbox"/>	<input type="checkbox"/>
Linode	<input type="checkbox"/>	<input type="checkbox"/>
Managed Hosting	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Azure	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Netlify	<input type="checkbox"/>	<input type="checkbox"/>
OpenShift	<input type="checkbox"/>	<input type="checkbox"/>
OpenStack	<input type="checkbox"/>	<input type="checkbox"/>
Oracle Cloud Infrastructure (OCI)	<input type="checkbox"/>	<input type="checkbox"/>
OVH	<input type="checkbox"/>	<input type="checkbox"/>
Render	<input type="checkbox"/>	<input type="checkbox"/>
Scaleway	<input type="checkbox"/>	<input type="checkbox"/>
Vercel	<input type="checkbox"/>	<input type="checkbox"/>
VMware	<input type="checkbox"/>	<input type="checkbox"/>
Vultr	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **web frameworks and web technologies** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the framework and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
Angular	<input type="checkbox"/>	<input type="checkbox"/>
AngularJS	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
ASP.NET	<input type="checkbox"/>	<input type="checkbox"/>
ASP.NET CORE	<input type="checkbox"/>	<input type="checkbox"/>
Blazor	<input type="checkbox"/>	<input type="checkbox"/>
CodeIgniter	<input type="checkbox"/>	<input type="checkbox"/>
Deno	<input type="checkbox"/>	<input type="checkbox"/>
Django	<input type="checkbox"/>	<input type="checkbox"/>
Drupal	<input type="checkbox"/>	<input type="checkbox"/>
Elm	<input type="checkbox"/>	<input type="checkbox"/>
Express	<input type="checkbox"/>	<input type="checkbox"/>
FastAPI	<input type="checkbox"/>	<input type="checkbox"/>
Fastify	<input type="checkbox"/>	<input type="checkbox"/>
Flask	<input type="checkbox"/>	<input type="checkbox"/>
Gatsby	<input type="checkbox"/>	<input type="checkbox"/>
jQuery	<input type="checkbox"/>	<input type="checkbox"/>
Laravel	<input type="checkbox"/>	<input type="checkbox"/>
Lit	<input type="checkbox"/>	<input type="checkbox"/>
NestJS	<input type="checkbox"/>	<input type="checkbox"/>
Next.js	<input type="checkbox"/>	<input type="checkbox"/>
Node.js	<input type="checkbox"/>	<input type="checkbox"/>
Nuxt.js	<input type="checkbox"/>	<input type="checkbox"/>
Phoenix	<input type="checkbox"/>	<input type="checkbox"/>

Play Framework	Worked with in PAST year	Want to work with NEXT year
Qwik	<input type="checkbox"/>	<input type="checkbox"/>
React	<input type="checkbox"/>	<input type="checkbox"/>
Remix	<input type="checkbox"/>	<input type="checkbox"/>
Ruby on Rails	<input type="checkbox"/>	<input type="checkbox"/>
Solid.js	<input type="checkbox"/>	<input type="checkbox"/>
Spring Boot	<input type="checkbox"/>	<input type="checkbox"/>
Svelte	<input type="checkbox"/>	<input type="checkbox"/>
Symfony	<input type="checkbox"/>	<input type="checkbox"/>
Vue.js	<input type="checkbox"/>	<input type="checkbox"/>
WordPress	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **other frameworks and libraries** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the framework and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
.NET (5+)	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
.NET Framework (1.0 - 4.8)	<input type="checkbox"/>	<input type="checkbox"/>
.NET MAUI	<input type="checkbox"/>	<input type="checkbox"/>
Apache Kafka	<input type="checkbox"/>	<input type="checkbox"/>
Apache Spark	<input type="checkbox"/>	<input type="checkbox"/>
Capacitor	<input type="checkbox"/>	<input type="checkbox"/>
Cordova	<input type="checkbox"/>	<input type="checkbox"/>
CUDA	<input type="checkbox"/>	<input type="checkbox"/>
Electron	<input type="checkbox"/>	<input type="checkbox"/>
Flutter	<input type="checkbox"/>	<input type="checkbox"/>
GTK	<input type="checkbox"/>	<input type="checkbox"/>
Hadoop	<input type="checkbox"/>	<input type="checkbox"/>
Hugging Face Transformers	<input type="checkbox"/>	<input type="checkbox"/>
Ionic	<input type="checkbox"/>	<input type="checkbox"/>
JAX	<input type="checkbox"/>	<input type="checkbox"/>
Keras	<input type="checkbox"/>	<input type="checkbox"/>
Ktor	<input type="checkbox"/>	<input type="checkbox"/>
MFC	<input type="checkbox"/>	<input type="checkbox"/>
Micronaut	<input type="checkbox"/>	<input type="checkbox"/>
Numpy	<input type="checkbox"/>	<input type="checkbox"/>
Opencv	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
OpenGL	<input type="checkbox"/>	<input type="checkbox"/>
Pandas	<input type="checkbox"/>	<input type="checkbox"/>
Qt	<input type="checkbox"/>	<input type="checkbox"/>
Quarkus	<input type="checkbox"/>	<input type="checkbox"/>
RabbitMQ	<input type="checkbox"/>	<input type="checkbox"/>
React Native	<input type="checkbox"/>	<input type="checkbox"/>
Scikit-Learn	<input type="checkbox"/>	<input type="checkbox"/>
Spring Framework	<input type="checkbox"/>	<input type="checkbox"/>
SwiftUI	<input type="checkbox"/>	<input type="checkbox"/>
Tauri	<input type="checkbox"/>	<input type="checkbox"/>
TensorFlow	<input type="checkbox"/>	<input type="checkbox"/>
Tidyverse	<input type="checkbox"/>	<input type="checkbox"/>
Torch/PyTorch	<input type="checkbox"/>	<input type="checkbox"/>
Uno Platform	<input type="checkbox"/>	<input type="checkbox"/>
Xamarin	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **developer tools for compiling, building and testing** have you done extensive development work in over the past year, and which do you want to work in over the next year? (If you both worked with the technology and want to continue to do so, please check both boxes in that row.)

	Worked with in PAST year	Want to work with NEXT year
Ansible	<input type="checkbox"/>	<input type="checkbox"/>
Ant	<input type="checkbox"/>	<input type="checkbox"/>
APT	<input type="checkbox"/>	<input type="checkbox"/>
bandit	<input type="checkbox"/>	<input type="checkbox"/>
Boost.Test	<input type="checkbox"/>	<input type="checkbox"/>
build2	<input type="checkbox"/>	<input type="checkbox"/>
Bun	<input type="checkbox"/>	<input type="checkbox"/>
Cargo	<input type="checkbox"/>	<input type="checkbox"/>
Catch2	<input type="checkbox"/>	<input type="checkbox"/>
Chef	<input type="checkbox"/>	<input type="checkbox"/>
Chocolatey	<input type="checkbox"/>	<input type="checkbox"/>
CMake	<input type="checkbox"/>	<input type="checkbox"/>
Composer	<input type="checkbox"/>	<input type="checkbox"/>
cppunit	<input type="checkbox"/>	<input type="checkbox"/>
CUTE	<input type="checkbox"/>	<input type="checkbox"/>
Dagger	<input type="checkbox"/>	<input type="checkbox"/>



	Worked with in PAST year	Want to work with NEXT year
Docker	<input type="checkbox"/>	<input type="checkbox"/>
doctest	<input type="checkbox"/>	<input type="checkbox"/>
ELFspy	<input type="checkbox"/>	<input type="checkbox"/>
GNU GCC	<input type="checkbox"/>	<input type="checkbox"/>
Godot	<input type="checkbox"/>	<input type="checkbox"/>
Google Test	<input type="checkbox"/>	<input type="checkbox"/>
Gradle	<input type="checkbox"/>	<input type="checkbox"/>
Homebrew	<input type="checkbox"/>	<input type="checkbox"/>
Kubernetes	<input type="checkbox"/>	<input type="checkbox"/>
lest	<input type="checkbox"/>	<input type="checkbox"/>
liblittletest	<input type="checkbox"/>	<input type="checkbox"/>
LLVM's Clang	<input type="checkbox"/>	<input type="checkbox"/>
Make	<input type="checkbox"/>	<input type="checkbox"/>
Maven (build tool)	<input type="checkbox"/>	<input type="checkbox"/>
Meson	<input type="checkbox"/>	<input type="checkbox"/>
MSBuild	<input type="checkbox"/>	<input type="checkbox"/>
MSVC	<input type="checkbox"/>	<input type="checkbox"/>
Ninja	<input type="checkbox"/>	<input type="checkbox"/>
Nix	<input type="checkbox"/>	<input type="checkbox"/>
npm	<input type="checkbox"/>	<input type="checkbox"/>
NuGet	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Pacman	<input type="checkbox"/>	<input type="checkbox"/>
Pip	<input type="checkbox"/>	<input type="checkbox"/>
pnpm	<input type="checkbox"/>	<input type="checkbox"/>
Podman	<input type="checkbox"/>	<input type="checkbox"/>
Pulumi	<input type="checkbox"/>	<input type="checkbox"/>
Puppet	<input type="checkbox"/>	<input type="checkbox"/>
QMake	<input type="checkbox"/>	<input type="checkbox"/>
SCons	<input type="checkbox"/>	<input type="checkbox"/>
snitch	<input type="checkbox"/>	<input type="checkbox"/>
Terraform	<input type="checkbox"/>	<input type="checkbox"/>
tunit	<input type="checkbox"/>	<input type="checkbox"/>
Unity 3D	<input type="checkbox"/>	<input type="checkbox"/>
Unreal Engine	<input type="checkbox"/>	<input type="checkbox"/>
Visual Studio Solution	<input type="checkbox"/>	<input type="checkbox"/>
Vite	<input type="checkbox"/>	<input type="checkbox"/>
Wasmer	<input type="checkbox"/>	<input type="checkbox"/>
Webpack	<input type="checkbox"/>	<input type="checkbox"/>
Yarn	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify):	<input type="checkbox"/>	<input type="checkbox"/>

Worked with in PAST year

Want to work with NEXT year

Which **development environments** did you use regularly over the past year, and which do you want to work with over the next year? Please check all that apply.

	Worked with in PAST year	Want to work with NEXT year
Android Studio	<input type="checkbox"/>	<input type="checkbox"/>
Atom	<input type="checkbox"/>	<input type="checkbox"/>
BBEdit	<input type="checkbox"/>	<input type="checkbox"/>
CLion	<input type="checkbox"/>	<input type="checkbox"/>
Code::Blocks	<input type="checkbox"/>	<input type="checkbox"/>
condo	<input type="checkbox"/>	<input type="checkbox"/>
DataGrip	<input type="checkbox"/>	<input type="checkbox"/>
Eclipse	<input type="checkbox"/>	<input type="checkbox"/>
Emacs	<input type="checkbox"/>	<input type="checkbox"/>
Fleet	<input type="checkbox"/>	<input type="checkbox"/>
Geany	<input type="checkbox"/>	<input type="checkbox"/>
Goland	<input type="checkbox"/>	<input type="checkbox"/>
Helix	<input type="checkbox"/>	<input type="checkbox"/>
IntelliJ IDEA	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
IPython	<input type="checkbox"/>	<input type="checkbox"/>
Jupyter Notebook/JupyterLab	<input type="checkbox"/>	<input type="checkbox"/>
Kate	<input type="checkbox"/>	<input type="checkbox"/>
Micro	<input type="checkbox"/>	<input type="checkbox"/>
Nano	<input type="checkbox"/>	<input type="checkbox"/>
Neovim	<input type="checkbox"/>	<input type="checkbox"/>
Netbeans	<input type="checkbox"/>	<input type="checkbox"/>
Notepad++	<input type="checkbox"/>	<input type="checkbox"/>
Nova	<input type="checkbox"/>	<input type="checkbox"/>
PhpStorm	<input type="checkbox"/>	<input type="checkbox"/>
PyCharm	<input type="checkbox"/>	<input type="checkbox"/>
Qt Creator	<input type="checkbox"/>	<input type="checkbox"/>
Rad Studio (Delphi, C++ Builder)	<input type="checkbox"/>	<input type="checkbox"/>
Rider	<input type="checkbox"/>	<input type="checkbox"/>
RStudio	<input type="checkbox"/>	<input type="checkbox"/>
RubyMine	<input type="checkbox"/>	<input type="checkbox"/>
Spyder	<input type="checkbox"/>	<input type="checkbox"/>
Sublime Text	<input type="checkbox"/>	<input type="checkbox"/>
TextMate	<input type="checkbox"/>	<input type="checkbox"/>
Vim	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Visual Studio	<input type="checkbox"/>	<input type="checkbox"/>
Visual Studio Code	<input type="checkbox"/>	<input type="checkbox"/>
VSCodium	<input type="checkbox"/>	<input type="checkbox"/>
WebStorm	<input type="checkbox"/>	<input type="checkbox"/>
Xcode	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

What is the primary **operating system** in which you work?

	Personal use	Professional use
AIX	<input type="checkbox"/>	<input type="checkbox"/>
Android	<input type="checkbox"/>	<input type="checkbox"/>
Arch	<input type="checkbox"/>	<input type="checkbox"/>
BSD	<input type="checkbox"/>	<input type="checkbox"/>
ChromeOS	<input type="checkbox"/>	<input type="checkbox"/>
Cygwin	<input type="checkbox"/>	<input type="checkbox"/>
Debian	<input type="checkbox"/>	<input type="checkbox"/>
Fedora	<input type="checkbox"/>	<input type="checkbox"/>
Haiku	<input type="checkbox"/>	<input type="checkbox"/>

	Personal use	Professional use
iOS	<input type="checkbox"/>	<input type="checkbox"/>
iPadOS	<input type="checkbox"/>	<input type="checkbox"/>
MacOS	<input type="checkbox"/>	<input type="checkbox"/>
Other Linux-based	<input type="checkbox"/>	<input type="checkbox"/>
Red Hat	<input type="checkbox"/>	<input type="checkbox"/>
Solaris	<input type="checkbox"/>	<input type="checkbox"/>
Ubuntu	<input type="checkbox"/>	<input type="checkbox"/>
Windows	<input type="checkbox"/>	<input type="checkbox"/>
Windows Subsystem for Linux (WSL)	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **collaborative work management and/or code documentation tools** did you use regularly over the past year, and which do you want to work with over the next year? Select all that apply

	Worked with in PAST year	Want to work with NEXT year
Adobe Workfront	<input type="checkbox"/>	<input type="checkbox"/>
Airtable	<input type="checkbox"/>	<input type="checkbox"/>
Asana	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Azure Devops	<input type="checkbox"/>	<input type="checkbox"/>
Basecamp	<input type="checkbox"/>	<input type="checkbox"/>
Cerri	<input type="checkbox"/>	<input type="checkbox"/>
Clickup	<input type="checkbox"/>	<input type="checkbox"/>
Confluence	<input type="checkbox"/>	<input type="checkbox"/>
Dingtalk (Teambition)	<input type="checkbox"/>	<input type="checkbox"/>
Document360	<input type="checkbox"/>	<input type="checkbox"/>
Doxygen	<input type="checkbox"/>	<input type="checkbox"/>
GitHub Discussions	<input type="checkbox"/>	<input type="checkbox"/>
Jira	<input type="checkbox"/>	<input type="checkbox"/>
Leankor	<input type="checkbox"/>	<input type="checkbox"/>
Linear	<input type="checkbox"/>	<input type="checkbox"/>
Markdown File	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Lists	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Planner	<input type="checkbox"/>	<input type="checkbox"/>
Miro	<input type="checkbox"/>	<input type="checkbox"/>
Monday.com	<input type="checkbox"/>	<input type="checkbox"/>
Notion	<input type="checkbox"/>	<input type="checkbox"/>
Nuclino	<input type="checkbox"/>	<input type="checkbox"/>
Planview Projectplace Or Clarizen	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Redmine	<input type="checkbox"/>	<input type="checkbox"/>
Redocly	<input type="checkbox"/>	<input type="checkbox"/>
Shortcut	<input type="checkbox"/>	<input type="checkbox"/>
Smartsheet	<input type="checkbox"/>	<input type="checkbox"/>
Stack Overflow for Teams	<input type="checkbox"/>	<input type="checkbox"/>
Swit	<input type="checkbox"/>	<input type="checkbox"/>
Tettra	<input type="checkbox"/>	<input type="checkbox"/>
Trello	<input type="checkbox"/>	<input type="checkbox"/>
Wikis	<input type="checkbox"/>	<input type="checkbox"/>
Wimi	<input type="checkbox"/>	<input type="checkbox"/>
Workzone	<input type="checkbox"/>	<input type="checkbox"/>
Wrike	<input type="checkbox"/>	<input type="checkbox"/>
YouTrack	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Separate With A Comma): <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **communication tools** did you use regularly over the past year, and which do you want to work with over the next year? Select all that apply



	Worked with in PAST year	Want to work with NEXT year
Cisco Webex Teams	<input type="checkbox"/>	<input type="checkbox"/>
Coolfire Core	<input type="checkbox"/>	<input type="checkbox"/>
Discord	<input type="checkbox"/>	<input type="checkbox"/>
Google Chat	<input type="checkbox"/>	<input type="checkbox"/>
Google Meet	<input type="checkbox"/>	<input type="checkbox"/>
IRC	<input type="checkbox"/>	<input type="checkbox"/>
Jitsi	<input type="checkbox"/>	<input type="checkbox"/>
Matrix	<input type="checkbox"/>	<input type="checkbox"/>
Mattermost	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Teams	<input type="checkbox"/>	<input type="checkbox"/>
Ringcentral	<input type="checkbox"/>	<input type="checkbox"/>
Rocketchat	<input type="checkbox"/>	<input type="checkbox"/>
Signal	<input type="checkbox"/>	<input type="checkbox"/>
Skype	<input type="checkbox"/>	<input type="checkbox"/>
Slack	<input type="checkbox"/>	<input type="checkbox"/>
Symphony	<input type="checkbox"/>	<input type="checkbox"/>
Telegram	<input type="checkbox"/>	<input type="checkbox"/>
Unify Circuit	<input type="checkbox"/>	<input type="checkbox"/>
Whatsapp	<input type="checkbox"/>	<input type="checkbox"/>
Wickr	<input type="checkbox"/>	<input type="checkbox"/>

	Worked with in PAST year	Want to work with NEXT year
Wire	<input type="checkbox"/>	<input type="checkbox"/>
Zoom	<input type="checkbox"/>	<input type="checkbox"/>
Zulip	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Separate With A Comma):	<input type="checkbox"/>	<input type="checkbox"/>
<div></div>		

Which **AI-powered search tools** did you use regularly over the past year, and which do you want to work with over the next year? Select all that apply.

	Worked with in PAST year	Want to work with NEXT year
Andi	<input type="checkbox"/>	<input type="checkbox"/>
Bing AI	<input type="checkbox"/>	<input type="checkbox"/>
ChatGPT	<input type="checkbox"/>	<input type="checkbox"/>
Google Bard AI	<input type="checkbox"/>	<input type="checkbox"/>
Metaphor	<input type="checkbox"/>	<input type="checkbox"/>
Neeva AI	<input type="checkbox"/>	<input type="checkbox"/>
Perplexity AI	<input type="checkbox"/>	<input type="checkbox"/>
Phind	<input type="checkbox"/>	<input type="checkbox"/>
Quora Poe	<input type="checkbox"/>	<input type="checkbox"/>
WolframAlpha	<input type="checkbox"/>	<input type="checkbox"/>

You.com	Worked with in <input type="checkbox"/> PAST year	Want to work with <input type="checkbox"/> NEXT year
Other (please specify) <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

Which **AI-powered developer tools** did you use regularly over the past year, and which do you want to work with over the next year? Select all that apply

	Worked with in PAST year	Want to work with NEXT year
Adrenaline	<input type="checkbox"/>	<input type="checkbox"/>
AWS CodeWhisperer	<input type="checkbox"/>	<input type="checkbox"/>
Codeium	<input type="checkbox"/>	<input type="checkbox"/>
GitHub Copilot	<input type="checkbox"/>	<input type="checkbox"/>
Mintlify	<input type="checkbox"/>	<input type="checkbox"/>
Replit Ghostwriter	<input type="checkbox"/>	<input type="checkbox"/>
Rubber Duck.AI	<input type="checkbox"/>	<input type="checkbox"/>
Synk Code	<input type="checkbox"/>	<input type="checkbox"/>
Tabnine	<input type="checkbox"/>	<input type="checkbox"/>
Whispr AI	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) <div></div>	<input type="checkbox"/>	<input type="checkbox"/>

## 4 - Stack Community

### Stack Overflow - usage and community

This section will focus on Stack Overflow usage and community questions.

Most questions in this section are optional. Required questions are noted with \*.

Which of the following Stack Overflow sites have you visited? Select all that apply. \*

- ☐ Collectives on Stack Overflow
- ☐ Stack Overflow for Teams (private knowledge sharing & collaboration platform for companies)
- ☐ Stack Overflow
- ☐ Stack Exchange
- ☐ I have never visited Stack Overflow or the Stack Exchange network

How frequently would you say you visit Stack Overflow?

- ☐ Less than once per month or monthly
- ☐ A few times per month or weekly
- ☐ A few times per week
- ☐ Daily or almost daily

☐ Multiple times per day

Do you have a Stack Overflow account?

☐ Yes

☐ No

☐ Not sure/can't remember

How frequently would you say you participate in Q&A on Stack Overflow? By participate we mean ask, answer, vote for, or comment on questions.

☐ I have never participated in Q&A on Stack Overflow

☐ Less than once per month or monthly

☐ A few times per month or weekly

☐ A few times per week

☐ Daily or almost daily

☐ Multiple times per day

Do you consider yourself a member of the Stack Overflow community?

☐ No, not at all

☐ No, not really

☐ Neutral

☐ Yes, somewhat

☐ Yes, definitely

☐ Not sure

## 5 - Artificial Intelligence

### Artificial Intelligence (AI)

This section will focus on AI usage and sentiment.

Most questions in this section are optional. Required questions are noted with \*.

Artificial Intelligence (AI) tools have gained prominence recently across industries. The following question asks for your perspective on Stack Overflow using AI technology to improve the current experience, for example by using AI to suggest better titles for your question. For your response, consider these sorts of improvements to the experience with/on Stack Overflow and not the presence or absence of content generated by AI and posted on Stack Overflow.

What is your opinion on Stack Overflow using AI tools to improve the current experience? What could AI help with most to improve Stack Overflow?

Do you currently use AI tools in your development process? \*

- ☐ Yes
- ☐ No, but I plan to soon
- ☐ No, and I don't plan to

How favorable is your stance on using AI tools as part of your development workflow?

- ☐ Very favorable
- ☐ Favorable
- ☐ Indifferent
- ☐ Unfavorable
- ☐ Very unfavorable
- ☐ Unsure

For the AI tools you use as part of your development workflow, what are the MOST important benefits you are hoping to achieve? Please check all that apply.

- ☐ Increase productivity
- ☐ Greater efficiency
- ☐ Improve collaboration
- ☐ Speed up learning
- ☐ Improve accuracy in coding
- ☐ None of the above

☐

Other (please explain)

How much do you trust the accuracy of the output from AI tools as part of your development workflow?

- ☐ Highly trust
- ☐ Somewhat trust
- ☐ Neither trust nor distrust
- ☐ Somewhat distrust
- ☐ Highly distrust

Which parts of your development workflow are you currently using AI tools for and which are you interested in using AI tools for over the next year? Please select all that apply.

	Currently Using	Interested in Using	Not interested in Using
Learning about a codebase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documenting code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debugging and getting help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Testing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	Currently Using	Interested in Using	Not interested in Using
Committing and reviewing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deployment and monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating with teammates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<div></div>			

Thinking about how your workflow and process changes over time, how similar or different do you anticipate your workflow to be 1 year from now as a result of AI tools you are currently using?

	Very different	Somewhat different	Neither different nor similar	Somewhat similar	Very similar
» Learning about a codebase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Project planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Writing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Documenting code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Debugging and getting help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Testing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Committing and reviewing code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Deployment and monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Very different	Somewhat different	Neither different nor similar	Somewhat similar	Very similar
» Collaborating with teammates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
» Other (please describe) <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please describe how you would expect your workflow to be different, if at all, in 1 year as a result of AI advancements.

## TeamsBranch

## Professional Developer Series

In one of our previous pulse surveys, we saw that people valued being productive and having growth opportunities at work. By adding a **Professional Developer Series** to the survey we want to better understand the things that may impact your productivity and opportunities to learn.

Like the rest of the survey, your responses are completely anonymous. Most questions in this section are optional. Required questions are noted with \*.

Blog post - [New data: What developers look for in future job opportunities](#) - December 7, 2021

Would you like to participate in the Professional Developer Series? \*

- ☐ Yes
- ☐ No

## TeamsQuestions

Are you an individual contributor or people manager?

- ☐ Individual contributor
- ☐ People manager

How many years of working experience do you have?

0 5 10 15 20 25 30 35 40 45 50

Years of work experience

Please rate your level of agreement with the following statement:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I have interactions with people outside of my immediate team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge silos prevent me from getting ideas across the organization (i.e., one individual or team has information that isn't shared with others)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can find up-to-date information within my organization to help me do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to quickly find answers to my questions with existing tools and resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know which system or resource to use to find information and answers to questions I have.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often find myself answering questions that I've already answered before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting on answers to questions often causes interruptions and disrupts my workflow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I have the tools and/or resources to quickly understand and work on any area of my company's code/system/platform.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How frequently do you experience each of the following?

Needing help from people outside of your immediate team?

Interacting with people outside of your immediate team?

Encountering knowledge silos (where one individual or team has information that's not shared or distributed with other individuals or teams) at work?

☐

On an average day, how much time do you typically spend searching for answers or solutions to problems you encounter at work? (This includes time spent searching on your own, asking a colleague, and waiting for a response).

- ☐ Less than 15 minutes a day
- ☐ 15-30 minutes a day
- ☐ 30-60 minutes a day
- ☐ 60-120 minutes a day
- ☐ Over 120 minutes a day

On an average day, how much time do you typically spend answering questions you get asked at work?

- ☐ Less than 15 minutes a day
- ☐ 15-30 minutes a day
- ☐ 30-60 minutes a day
- ☐ 60-120 minutes a day
- ☐ Over 120 minutes a day

My company has:

- ☐ Innersource initiative

- ☐ AI-assisted technology tool(s)
- ☐ DevOps function
- ☐ Microservices
- ☐ Developer portal or other central places to find tools/services
- ☐ Continuous integration (CI) and (more often) continuous delivery
- ☐ Automated testing
- ☐ Observability tools
- ☐ None of these

What industry is the company you work for in?

- ☐ Advertising Services
- ☐ Business Consulting and Services
- ☐ Construction
- ☐ Financial Services
- ☐ Government Administration
- ☐ Healthcare
- ☐ Higher Education
- ☐ Information Services, IT, Software Development, or other Technology
- ☐ Insurance
- ☐ Legal Services
- ☐ Manufacturing, Transportation, or Supply Chain
- ☐ Non-profit Organizations
- ☐ Oil & Gas
- ☐ Retail and Consumer Services
- ☐ Telecommunications, Media, and Entertainment

- ☐ Wholesale
- ☐ Other

Does your team use Stack Overflow for Teams?

- ☐ Yes
- ☐ No
- ☐ No, but we want to use it

## FinalThoughtsSurveyReview

## Final Questions

How do you feel about the length of the survey this year?

- ☐ Too short
- ☐ Appropriate in length
- ☐ Too long

How easy or difficult was this survey to complete?

- ☐ Easy

☐ Neither easy nor difficult

☐ Difficult

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