GitLab

Automatic Code Generation by AI
Illusion of Time Savings?

GitLab Copyright 2023

Philippe Charrière

CSM & CSE at GitLab
Developer

pcharriere@gitlab.com
@k33g on GitLab.com
@k33g_org on Twitter

GitLab Copyright 2023

Disclaimer

I'm not a Data Scientist

nor a Machine Learning Engineer

nor a AI Expert

I’m a AI user

GitLab Copyright 2023

✋ Poll

How many Developers?

How many Data Scientists?

How many Machine Learning Engineer?

How many Ops?

How many Managers?

How many non Tech Persons?

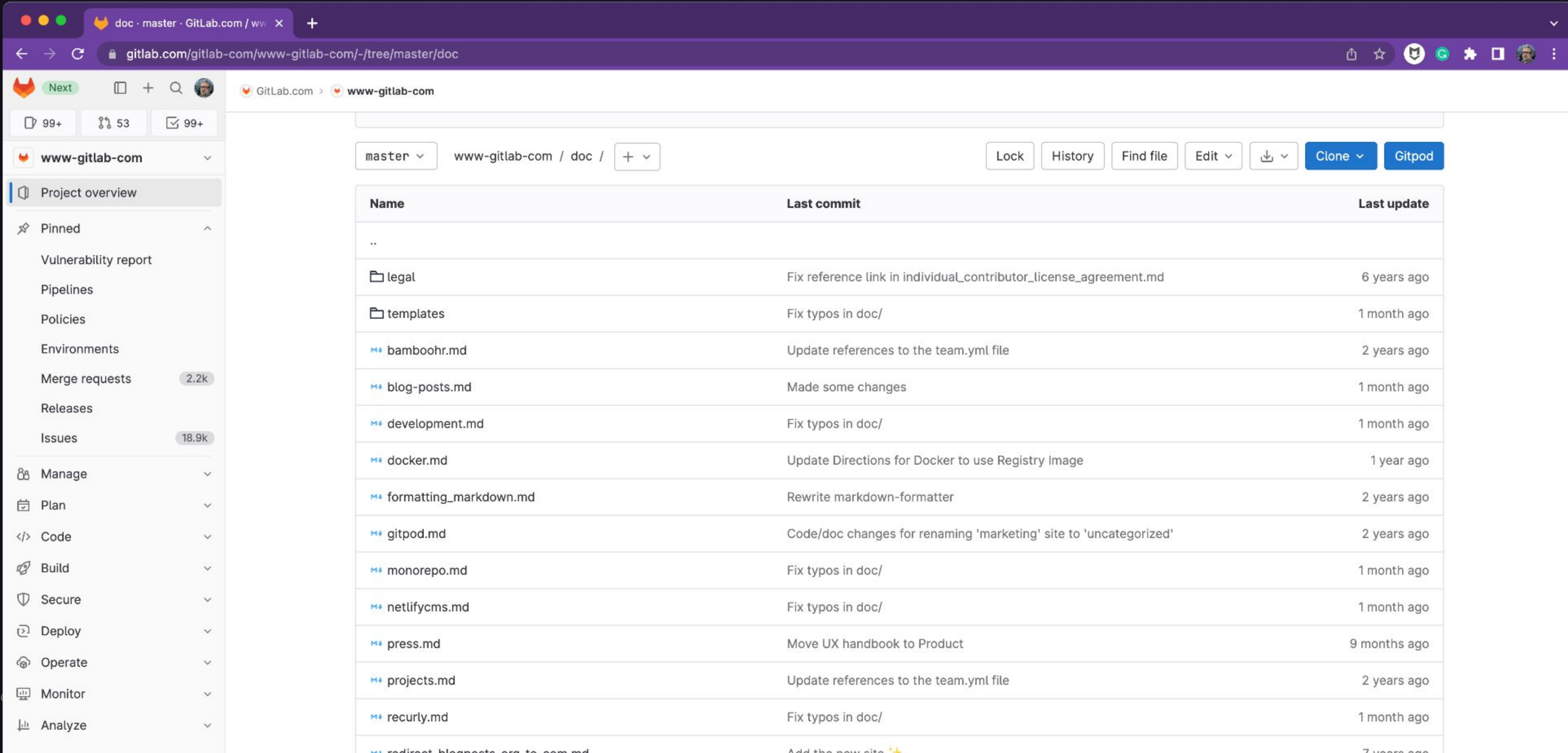
GitLab Copyright 2023

What is GitLab? 🦊

A collaborative tool to work on source code, documentation, ...
And accelerate innovation

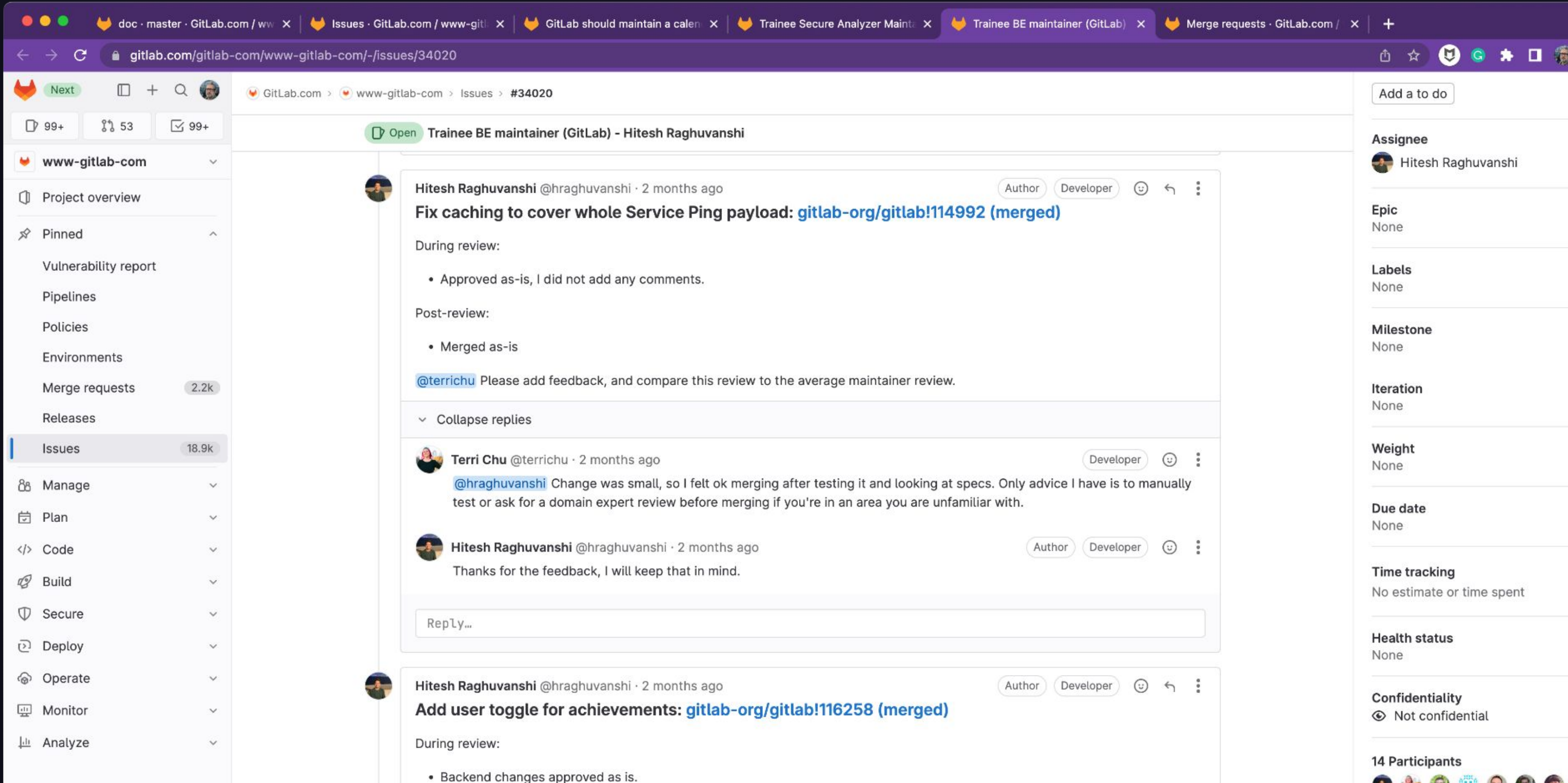
GitLab Copyright 2023

A Developer Oriented Platform? Not only



Name	Last commit	Last update
..		
legal	Fix reference link in individual_contributor_license_agreement.md	6 years ago
templates	Fix typos in doc/	1 month ago
bamboohr.md	Update references to the team.yml file	2 years ago
blog-posts.md	Made some changes	1 month ago
development.md	Fix typos in doc/	1 month ago
docker.md	Update Directions for Docker to use Registry Image	1 year ago
formatting_markdown.md	Rewrite markdown-formatter	2 years ago
gitpod.md	Code/doc changes for renaming 'marketing' site to 'uncategorized'	2 years ago
monorepo.md	Fix typos in doc/	1 month ago
netlifycms.md	Fix typos in doc/	1 month ago
press.md	Move UX handbook to Product	9 months ago
projects.md	Update references to the team.yml file	2 years ago
recurly.md	Fix typos in doc/	1 month ago

Issues


doc · master · GitLab.com / ww
Issues · GitLab.com / www-gitl
GitLab should maintain a calen
Trainee Secure Analyzer Mainta
Trainee BE maintainer (GitLab)
Merge requests · GitLab.com /
gitlab.com/gitlab-com/www-gitlab-com/-/issues/34020
Next
99+
53
99+
www-gitlab-com
Project overview
Pinned
Vulnerability report
Pipelines
Policies
Environments
Merge requests 2.2k
Releases
Issues 18.9k
Manage
Plan
Code
Build
Secure
Deploy
Operate
Monitor
Analyze
GitLab.com › www-gitlab-com › Issues › #34020
Open
Add a to do

Trainee BE maintainer (GitLab) - Hitesh Raghuvanshi

Hitesh Raghuvanshi @hraghuvanshi · 2 months ago Author Developer

Fix caching to cover whole Service Ping payload: gitlab-org/gitlab!114992 (merged)

During review:

- Approved as-is, I did not add any comments.

Post-review:

- Merged as-is

@terrichu Please add feedback, and compare this review to the average maintainer review.

Collapse replies

Terri Chu @terrichu · 2 months ago Developer

@hraghuvanshi Change was small, so I felt ok merging after testing it and looking at specs. Only advice I have is to manually test or ask for a domain expert review before merging if you're in an area you are unfamiliar with.

Hitesh Raghuvanshi @hraghuvanshi · 2 months ago Author Developer

Thanks for the feedback, I will keep that in mind.

Reply…

Hitesh Raghuvanshi @hraghuvanshi · 2 months ago Author Developer

Add user toggle for achievements: gitlab-org/gitlab!116258 (merged)

During review:

- Backend changes approved as is.

Assignee
Hitesh Raghuvanshi

Epic
None

Labels
None

Milestone
None

Iteration
None

Weight
None

Due date
None

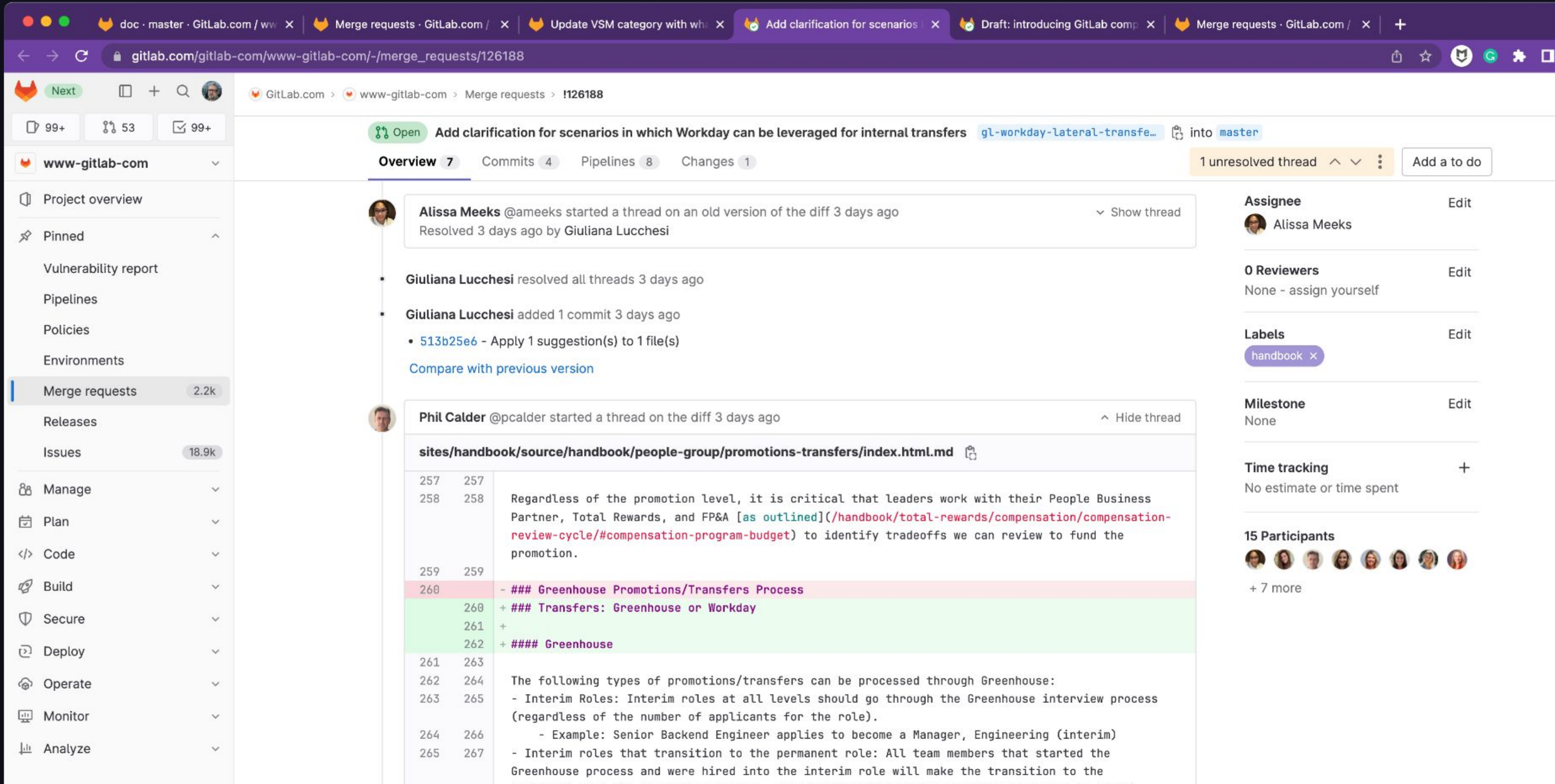
Time tracking
No estimate or time spent

Health status
None

Confidentiality
Not confidential

14 Participants

Merge requests



Add clarification for scenarios in which Workday can be leveraged for internal transfers `gl-workday-lateral-transfe…` into `master`

Alissa Meeks @ameeks started a thread on an old version of the diff 3 days ago
Resolved 3 days ago by Giuliana Lucchesi

Giuliana Lucchesi resolved all threads 3 days ago

Giuliana Lucchesi added 1 commit 3 days ago

- 513b25e6 - Apply 1 suggestion(s) to 1 file(s)

Phil Calder @pcalder started a thread on the diff 3 days ago

sites/handbook/source/handbook/people-group/promotions-transfers/index.html.md

```
257 257
258 258   Regardless of the promotion level, it is critical that leaders work with their People Business
          Partner, Total Rewards, and FP&A [as outlined](/handbook/total-rewards/compensation/compensation-
          review-cycle/#compensation-program-budget) to identify tradeoffs we can review to fund the
          promotion.
259 259
260     - ### Greenhouse Promotions/Transfers Process
    260 + ### Transfers: Greenhouse or Workday
    261 +
    262 + #### Greenhouse
261 263
262 264   The following types of promotions/transfers can be processed through Greenhouse:
263 265   - Interim Roles: Interim roles at all levels should go through the Greenhouse interview process
          (regardless of the number of applicants for the role).
264 266       - Example: Senior Backend Engineer applies to become a Manager, Engineering (interim)
265 267   - Interim roles that transition to the permanent role: All team members that started the
          Greenhouse process and were hired into the interim role will make the transition to the
```

Assignee: Alissa Meeks

0 Reviewers: None - assign yourself

Milestone: None

Time tracking: No estimate or time spent

Automatic Code Generation by AI

Illusion of Time Savings?

GitLab Copyright 2023

Some brief definitions reminders about AI for dummies (like me)

GitLab Copyright 2023

Some brief definitions reminders

- A **machine learning model** is a computer program that is used to recognize patterns in data or make predictions.
- **Machine learning for source code generation** is a field that uses machine learning models to write computer code from various inputs, such as natural language descriptions, incomplete code…
- **AI code generation** is a process of using machine learning models to write code from input that describes what the code should do.

Relevance of ML models
for AI Code Generation

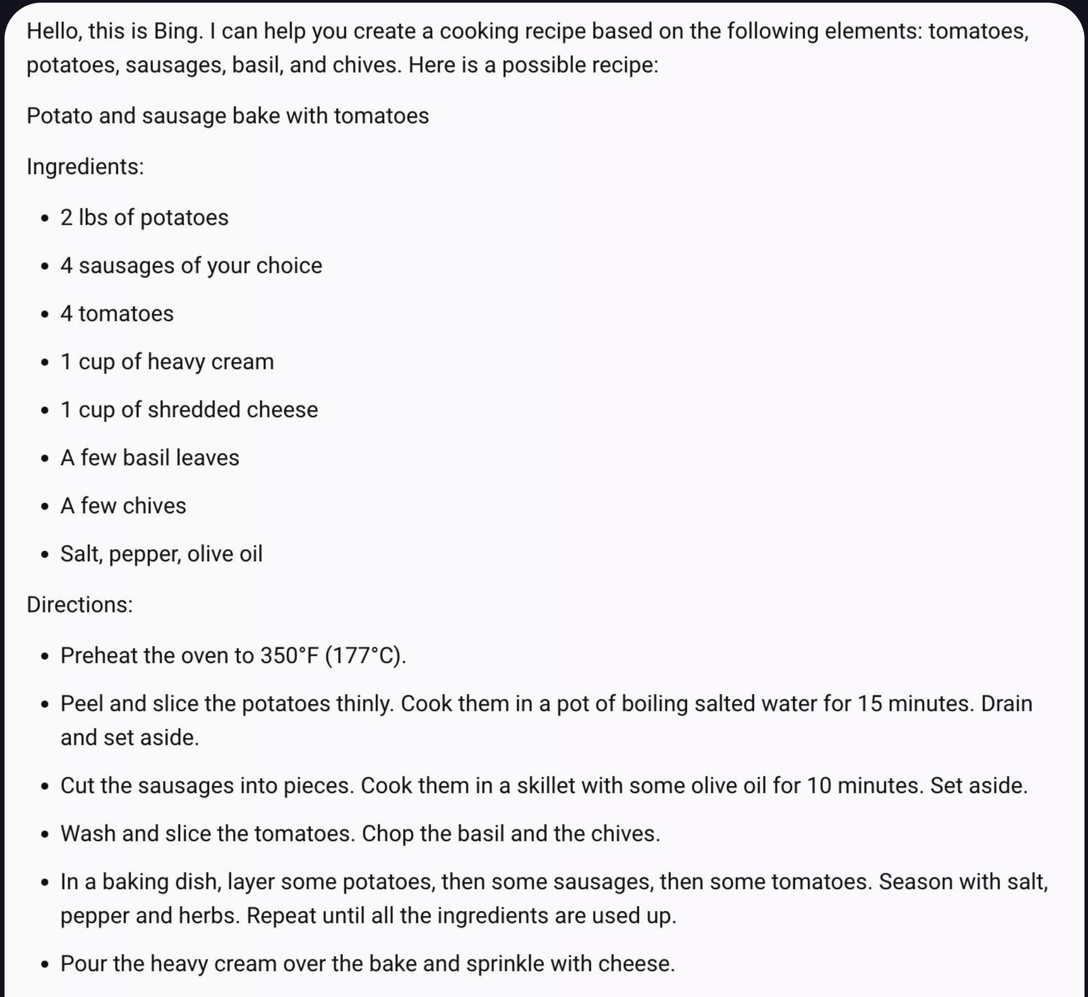
GitLab Copyright 2023

Do you know
Chat GPT?

GitLab Copyright 2023

Please Help

Hello Bing; I need you to create me a cooking recipe based on the following elements: tomatoes, potatoes, sausages, basil, and chives. Can you **please** help me?



Hello, this is Bing. I can help you create a cooking recipe based on the following elements: tomatoes, potatoes, sausages, basil, and chives. Here is a possible recipe:

Potato and sausage bake with tomatoes

Ingredients:

- 2 lbs of potatoes
- 4 sausages of your choice
- 4 tomatoes
- 1 cup of heavy cream
- 1 cup of shredded cheese
- A few basil leaves
- A few chives
- Salt, pepper, olive oil

Directions:

- Preheat the oven to 350°F (177°C).
- Peel and slice the potatoes thinly. Cook them in a pot of boiling salted water for 15 minutes. Drain and set aside.
- Cut the sausages into pieces. Cook them in a skillet with some olive oil for 10 minutes. Set aside.
- Wash and slice the tomatoes. Chop the basil and the chives.
- In a baking dish, layer some potatoes, then some sausages, then some tomatoes. Season with salt, pepper and herbs. Repeat until all the ingredients are used up.
- Pour the heavy cream over the bake and sprinkle with cheese.

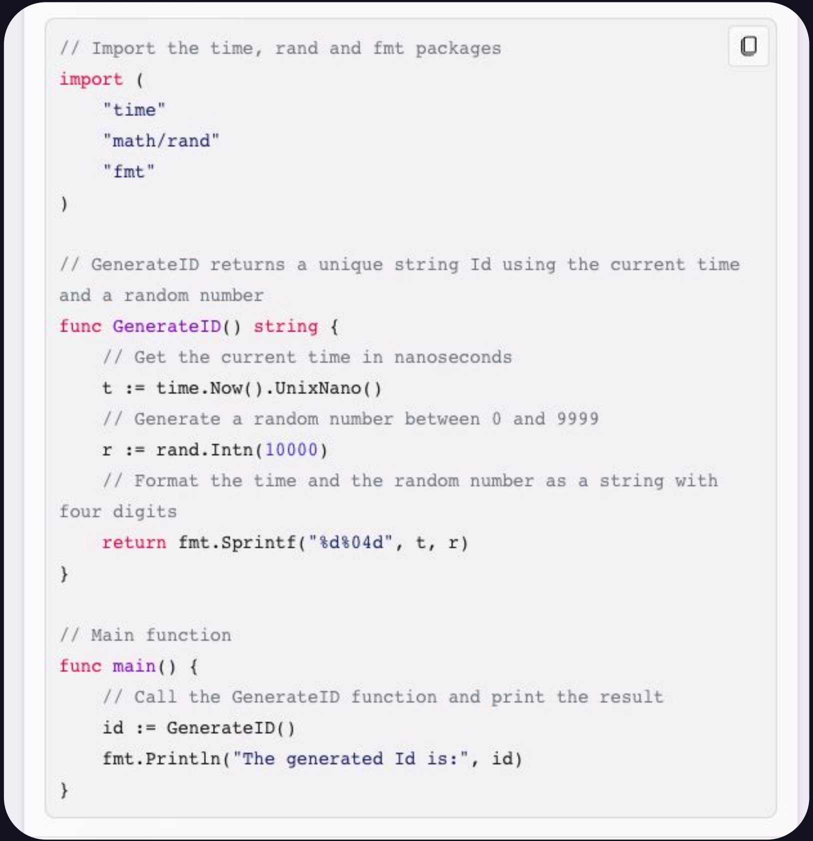
From a Developer perspective
Will AI code generation help me?

GitLab Copyright 2023

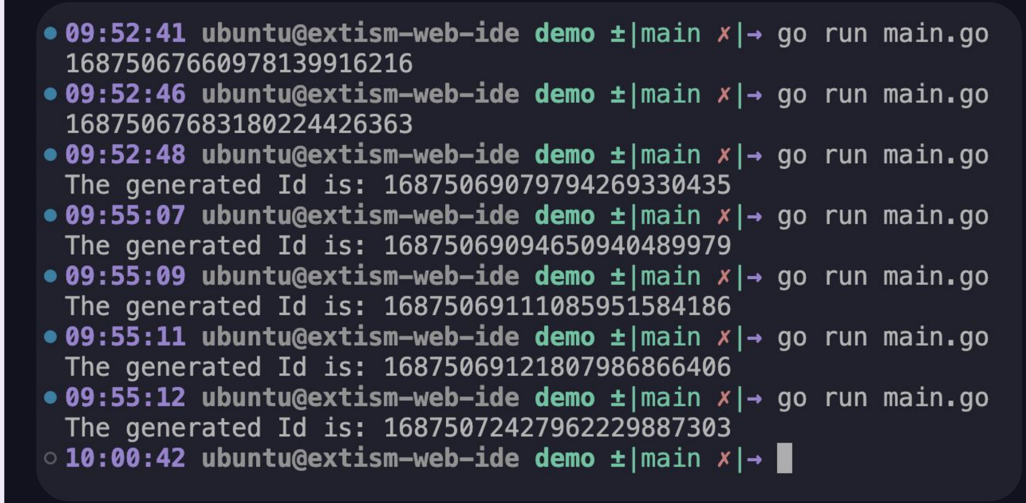
I did some tests (with Bing / Chat GPT4)

Can you please generate a program with a Golang function that returns a unique string Id, and call this function from the main function?

It works! 🥰



```go
// Import the time, rand and fmt packages
import (
    "time"
    "math/rand"
    "fmt"
)

// GenerateID returns a unique string Id using the current time
and a random number
func GenerateID() string {
    // Get the current time in nanoseconds
    t := time.Now().UnixNano()
    // Generate a random number between 0 and 9999
    r := rand.Intn(10000)
    // Format the time and the random number as a string with
four digits
    return fmt.Sprintf("%d%04d", t, r)
}

// Main function
func main() {
    // Call the GenerateID function and print the result
    id := GenerateID()
    fmt.Println("The generated Id is:", id)
}
```

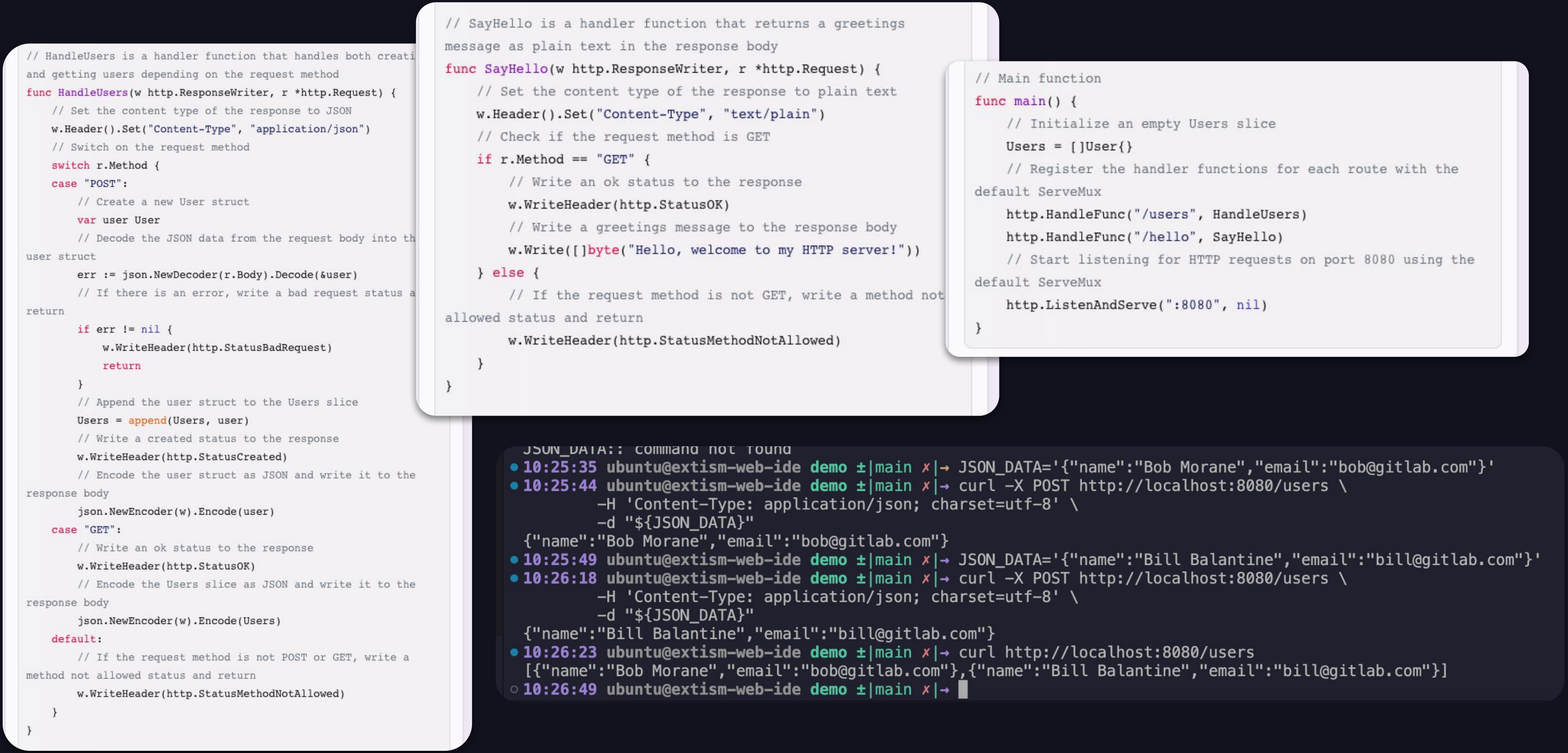


```
● 09:52:41 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  16875067660978139916216
● 09:52:46 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  16875067683180224426363
● 09:52:48 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  The generated Id is: 16875069079794269330435
● 09:55:07 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  The generated Id is: 16875069094650940489979
● 09:55:09 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  The generated Id is: 16875069111085951584186
● 09:55:11 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  The generated Id is: 16875069121807986866406
● 09:55:12 ubuntu@extism-web-ide demo ±|main ✗|→ go run main.go
  The generated Id is: 16875072427962229887303
○ 10:00:42 ubuntu@extism-web-ide demo ±|main ✗|→ █
```

I did other tests (with Bing / Chat GPT4)

Can you **please**, generate in GoLang the source code of an HTTP server with a “/users” route. For this route if the HTTP method is POST it will create a user and if the HTTP method is GET it will get the list of the users. And I need a “/hello” route to get a greetings message.

It works again! 🥰😍



```
// HandleUsers is a handler function that handles both creati
and getting users depending on the request method
func HandleUsers(w http.ResponseWriter, r *http.Request) {
    // Set the content type of the response to JSON
    w.Header().Set("Content-Type", "application/json")
    // Switch on the request method
    switch r.Method {
    case "POST":
        // Create a new User struct
        var user User
        // Decode the JSON data from the request body into th
user struct
        err := json.NewDecoder(r.Body).Decode(&user)
        // If there is an error, write a bad request status a
return
        if err != nil {
            w.WriteHeader(http.StatusBadRequest)
            return
        }
        // Append the user struct to the Users slice
        Users = append(Users, user)
        // Write a created status to the response
        w.WriteHeader(http.StatusCreated)
        // Encode the user struct as JSON and write it to the
response body
        json.NewEncoder(w).Encode(user)
    case "GET":
        // Write an ok status to the response
        w.WriteHeader(http.StatusOK)
        // Encode the Users slice as JSON and write it to the
response body
        json.NewEncoder(w).Encode(Users)
    default:
        // If the request method is not POST or GET, write a
method not allowed status and return
        w.WriteHeader(http.StatusMethodNotAllowed)
    }
}
```

```
// SayHello is a handler function that returns a greetings
message as plain text in the response body
func SayHello(w http.ResponseWriter, r *http.Request) {
    // Set the content type of the response to plain text
    w.Header().Set("Content-Type", "text/plain")
    // Check if the request method is GET
    if r.Method == "GET" {
        // Write an ok status to the response
        w.WriteHeader(http.StatusOK)
        // Write a greetings message to the response body
        w.Write([]byte("Hello, welcome to my HTTP server!"))
    } else {
        // If the request method is not GET, write a method not
allowed status and return
        w.WriteHeader(http.StatusMethodNotAllowed)
    }
}
```

```
// Main function
func main() {
    // Initialize an empty Users slice
    Users = []User{}
    // Register the handler functions for each route with the
default ServeMux
    http.HandleFunc("/users", HandleUsers)
    http.HandleFunc("/hello", SayHello)
    // Start listening for HTTP requests on port 8080 using the
default ServeMux
    http.ListenAndServe(":8080", nil)
}
```

```
JSON_DATA:: command not found
● 10:25:35 ubuntu@extism-web-ide demo ±|main ✗|→ JSON_DATA='{"name":"Bob Morane","email":"bob@gitlab.com"}'
● 10:25:44 ubuntu@extism-web-ide demo ±|main ✗|→ curl -X POST http://localhost:8080/users \
        -H 'Content-Type: application/json; charset=utf-8' \
        -d "${JSON_DATA}"
{"name":"Bob Morane","email":"bob@gitlab.com"}
● 10:25:49 ubuntu@extism-web-ide demo ±|main ✗|→ JSON_DATA='{"name":"Bill Balantine","email":"bill@gitlab.com"}'
● 10:26:18 ubuntu@extism-web-ide demo ±|main ✗|→ curl -X POST http://localhost:8080/users \
        -H 'Content-Type: application/json; charset=utf-8' \
        -d "${JSON_DATA}"
{"name":"Bill Balantine","email":"bill@gitlab.com"}
● 10:26:23 ubuntu@extism-web-ide demo ±|main ✗|→ curl http://localhost:8080/users
[{"name":"Bob Morane","email":"bob@gitlab.com"},{"name":"Bill Balantine","email":"bill@gitlab.com"}]
○ 10:26:49 ubuntu@extism-web-ide demo ±|main ✗|→ █
```

But, the life of a **Developer** is often more complicated...

GitLab Copyright 2023

Requirement: WebAssembly plugins

- WebAssembly ?
- Requirement: Run WASM functions from the Host
- Why: Efficiency, Speed, Safe >>> FaaS

>>> write an application that runs WASM programs

Problem

- The specification is half-baked (but in progress)
- Usually simple things are complicated to do
- Reinvent the wheel

I worked several days(weeks) to implement a solution

- Read the documentation
- Read the samples
- It works! 🎉
- I improved my expertise 💪 >>> 📝 blog posts
- I can reuse it 📦

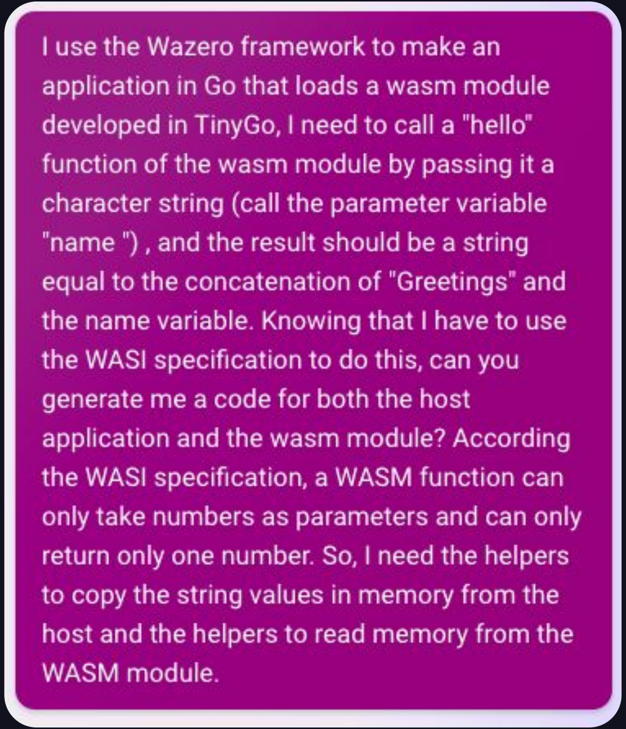
But let's imagine that I don't have the solution

I'm lazy sometimes...

GitLab Copyright 2023

Ask ChatGPT 😈

- The logic is **not bad**
- Some statements are **false**
- Some references are **not relevant**
- **The code does not compile**



I use the Wazero framework to make an application in Go that loads a wasm module developed in TinyGo, I need to call a "hello" function of the wasm module by passing it a character string (call the parameter variable "name ") , and the result should be a string equal to the concatenation of "Greetings" and the name variable. Knowing that I have to use the WASI specification to do this, can you generate me a code for both the host application and the wasm module? According the WASI specification, a WASM function can only take numbers as parameters and can only return only one number. So, I need the helpers to copy the string values in memory from the host and the helpers to read memory from the WASM module.

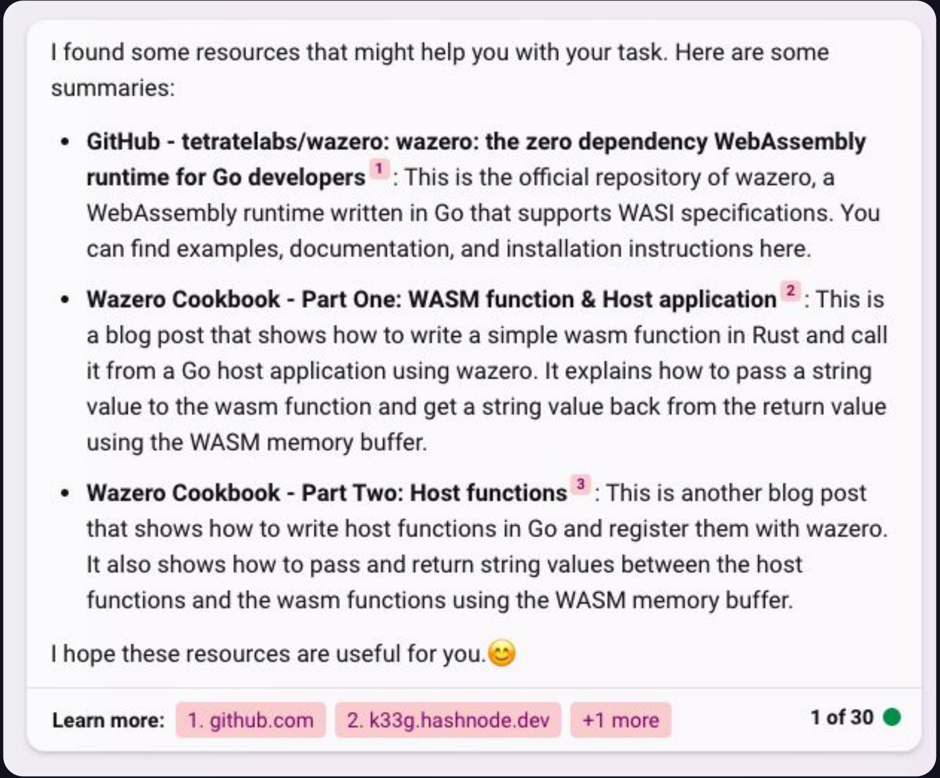
So, ChatGPT 😈 useful or not?

- Without expertise, it could be a wasted time
- You need to understand why it does not work
- As a Junior developer, you don't know if your code is optimized

Before using ChatGPT 😈
For complex use cases

- Read the documentation
- First search tutorials on the internet
- Ask Senior Developers

Or ask ChatGPT for Tutorials 😈



I found some resources that might help you with your task. Here are some summaries:

- **GitHub - tetratelabs/wazero: wazero: the zero dependency WebAssembly runtime for Go developers** [1]: This is the official repository of wazero, a WebAssembly runtime written in Go that supports WASI specifications. You can find examples, documentation, and installation instructions here.
- **Wazero Cookbook - Part One: WASM function & Host application** [2]: This is a blog post that shows how to write a simple wasm function in Rust and call it from a Go host application using wazero. It explains how to pass a string value to the wasm function and get a string value back from the return value using the WASM memory buffer.
- **Wazero Cookbook - Part Two: Host functions** [3]: This is another blog post that shows how to write host functions in Go and register them with wazero. It also shows how to pass and return string values between the host functions and the wasm functions using the WASM memory buffer.

I hope these resources are useful for you.😊

GitLab

ChatGPT 😈, Risks

- **Productivity** of Junior developers **will not increase** (it may even be worse)
- Junior developers will produce **poor** quality code **faster**
- Senior developers will spend more time to fix the source code of the other developers

🤔 So, are you telling me AI is useless?

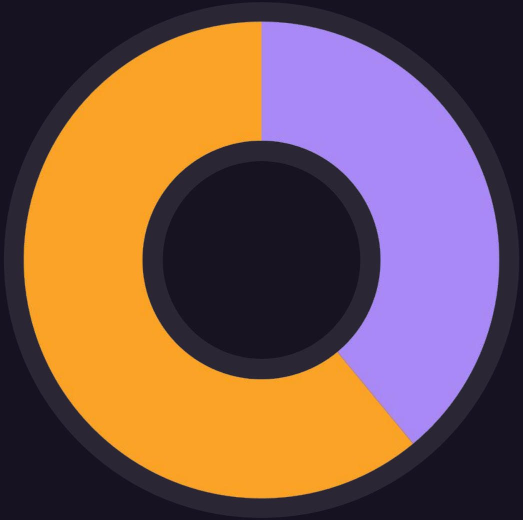
GitLab Copyright 2023

No! 🤗

AI is great, and it's only the beginning

GitLab Copyright 2023

The real opportunity goes beyond creating code



How developers spend their time

🟪 39%
Understanding code, writing new code or improving existing code

🟧 61%
Everything else

Source: Tidelift

GitLab Copyright 2023

How to helps developers for real with AI features?

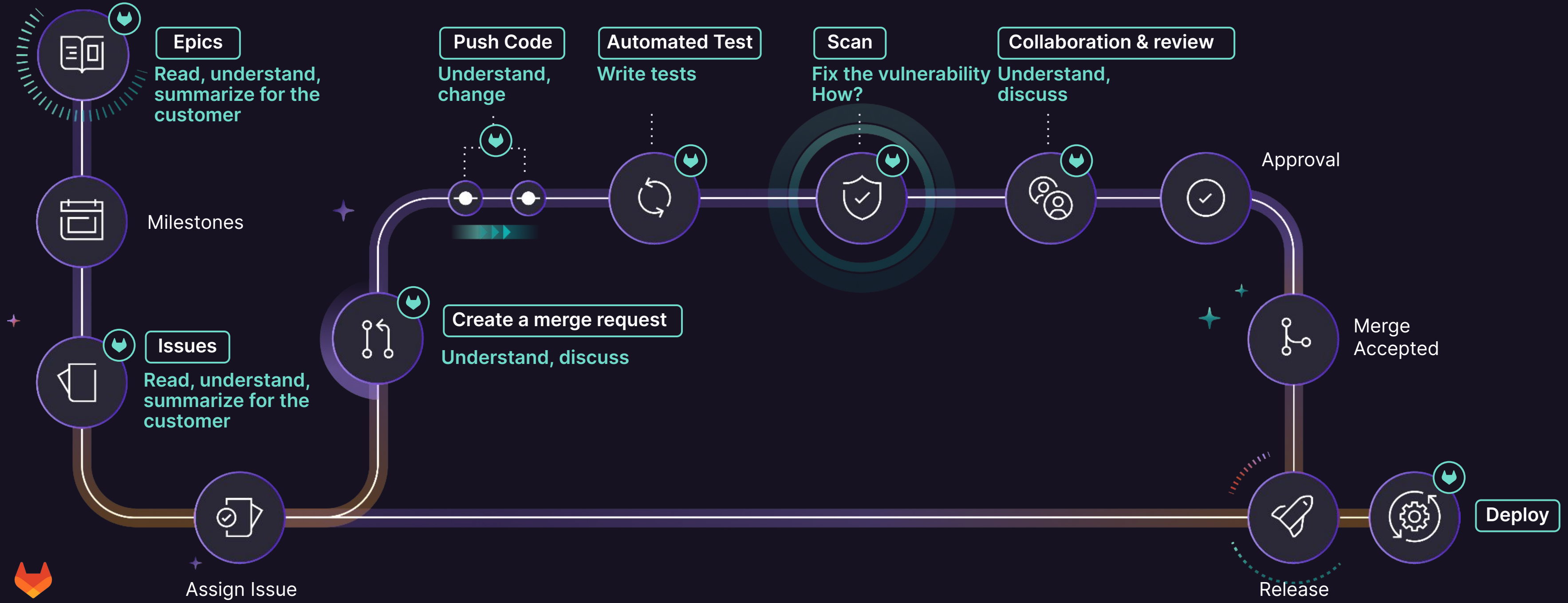
GitLab Copyright 2023

How to helps GitLab users for real with AI features?

GitLab Copyright 2023

What is my day-to-day job at GitLab?

CSM, CSE, Developer... And the others



Epics
Read, understand, summarize for the customer

Milestones

Issues
Read, understand, summarize for the customer

Assign Issue

Create a merge request
Understand, discuss

Push Code
Understand, change

Automated Test
Write tests

Scan
Fix the vulnerability
How?

Collaboration & review
Understand, discuss

Approval

Merge Accepted

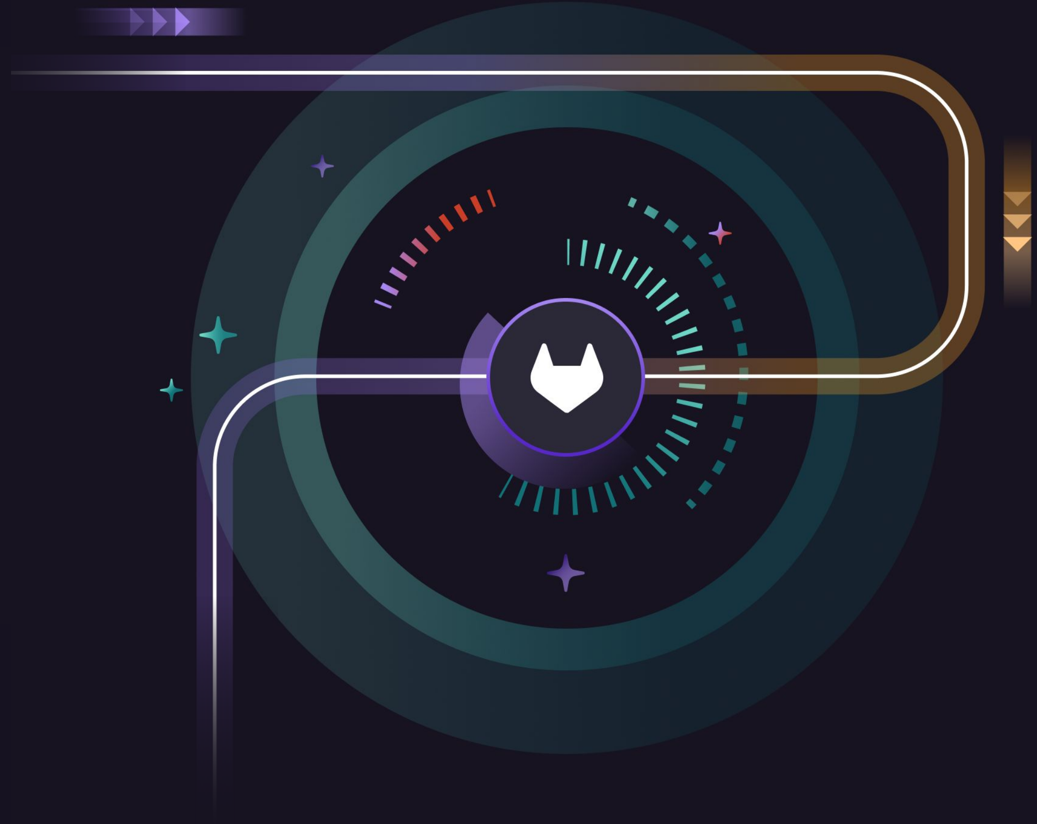
Release

Deploy

GitLab Copyright 2023

GitLab

AI-assisted features

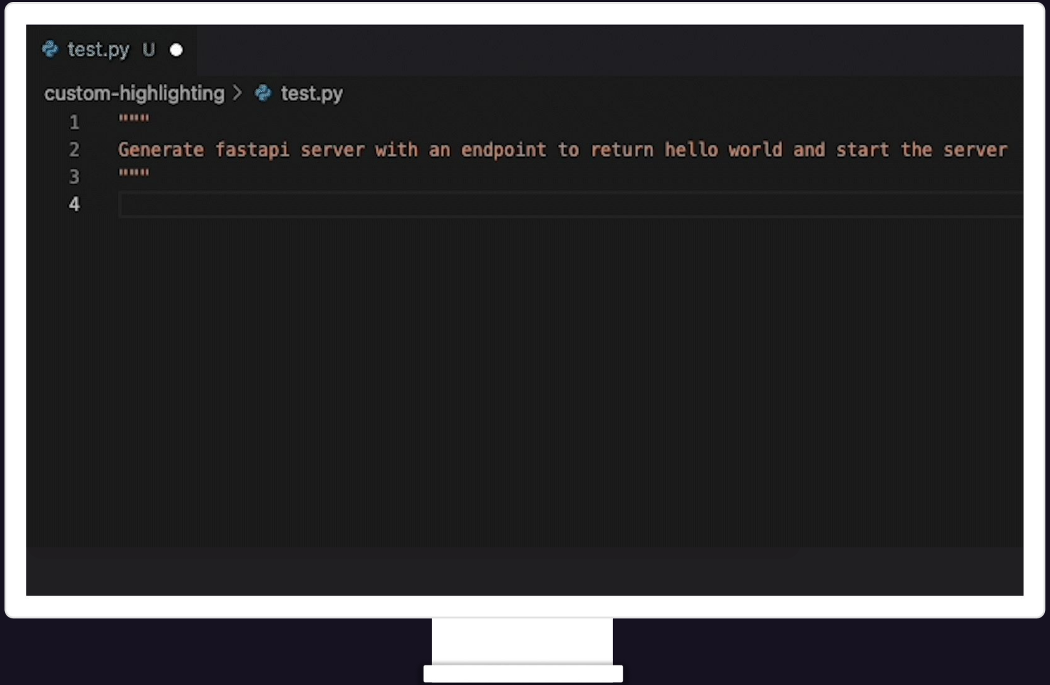


GitLab Copyright 2023

From a developer perspective
I want ...

GitLab Copyright 2023

AI Assisted code suggestions



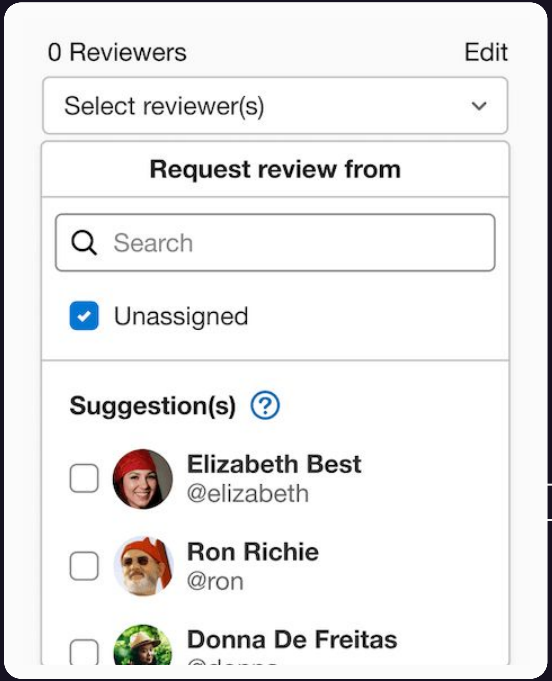
```
"""
Generate fastapi server with an endpoint to return hello world and start the server
"""

```

GitLab Copyright 2023

Developer
Teams

Suggested Reviewers

Find the best person to review your code changes



0 Reviewers Edit

Select reviewer(s)

Request review from

Search

☑ Unassigned

Suggestion(s)

☐ **Elizabeth Best** @elizabeth

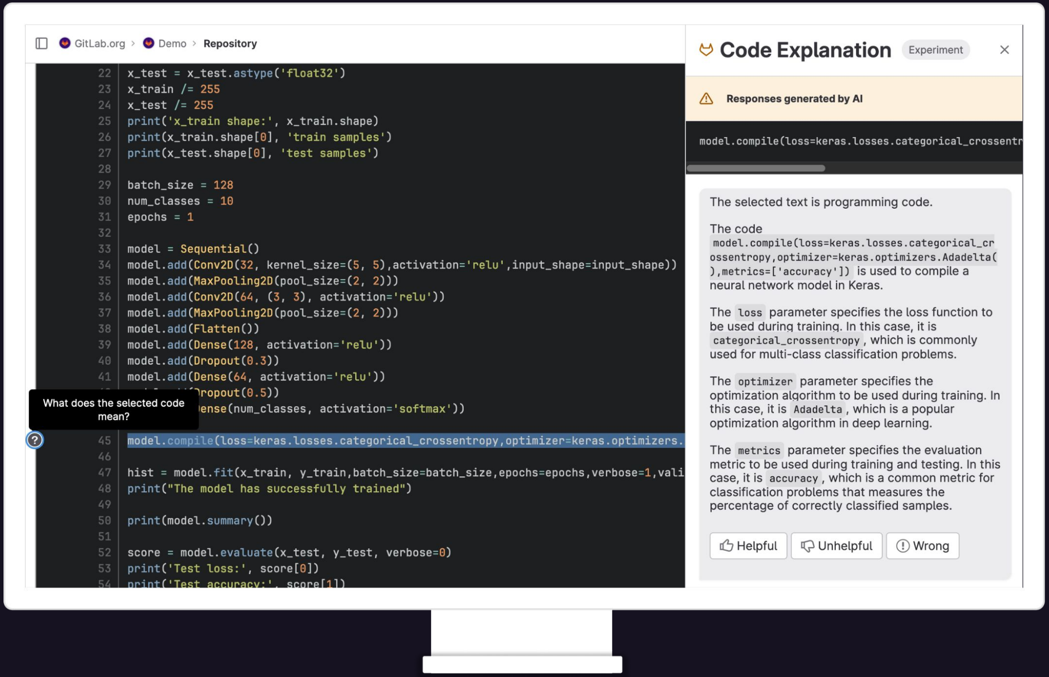
☐ **Ron Richie** @ron

☐ **Donna De Freitas**

GitLab Copyright 2023

Explain this code

Inline code explanations


GitLab.org > Demo > Repository
Code Explanation
Experiment
Responses generated by AI
What does the selected code mean?
Helpful
Unhelpful
Wrong

```
x_test = x_test.astype('float32')
x_train /= 255
x_test /= 255
print('x_train shape:', x_train.shape)
print(x_train.shape[0], 'train samples')
print(x_test.shape[0], 'test samples')

batch_size = 128
num_classes = 10
epochs = 1

model = Sequential()
model.add(Conv2D(32, kernel_size=(5, 5),activation='relu',input_shape=input_shape))
model.add(MaxPooling2D(pool_size=(2, 2)))
model.add(Conv2D(64, (3, 3), activation='relu'))
model.add(MaxPooling2D(pool_size=(2, 2)))
model.add(Flatten())
model.add(Dense(128, activation='relu'))
model.add(Dropout(0.3))
model.add(Dense(64, activation='relu'))
ropout(0.5))
ense(num_classes, activation='softmax'))

model.compile(loss=keras.losses.categorical_crossentropy,optimizer=keras.optimizers.

hist = model.fit(x_train, y_train,batch_size=batch_size,epochs=epochs,verbose=1,vali
print("The model has successfully trained")

print(model.summary())

score = model.evaluate(x_test, y_test, verbose=0)
print('Test loss:', score[0])
print('Test accuracy:', score[1])
```

```
model.compile(loss=keras.losses.categorical_crossentr
```

The selected text is programming code.

The code `model.compile(loss=keras.losses.categorical_crossentropy,optimizer=keras.optimizers.Adadelta(),metrics=['accuracy'])` is used to compile a neural network model in Keras.

The `loss` parameter specifies the loss function to be used during training. In this case, it is `categorical_crossentropy`, which is commonly used for multi-class classification problems.

The `optimizer` parameter specifies the optimization algorithm to be used during training. In this case, it is `Adadelta`, which is a popular optimization algorithm in deep learning.

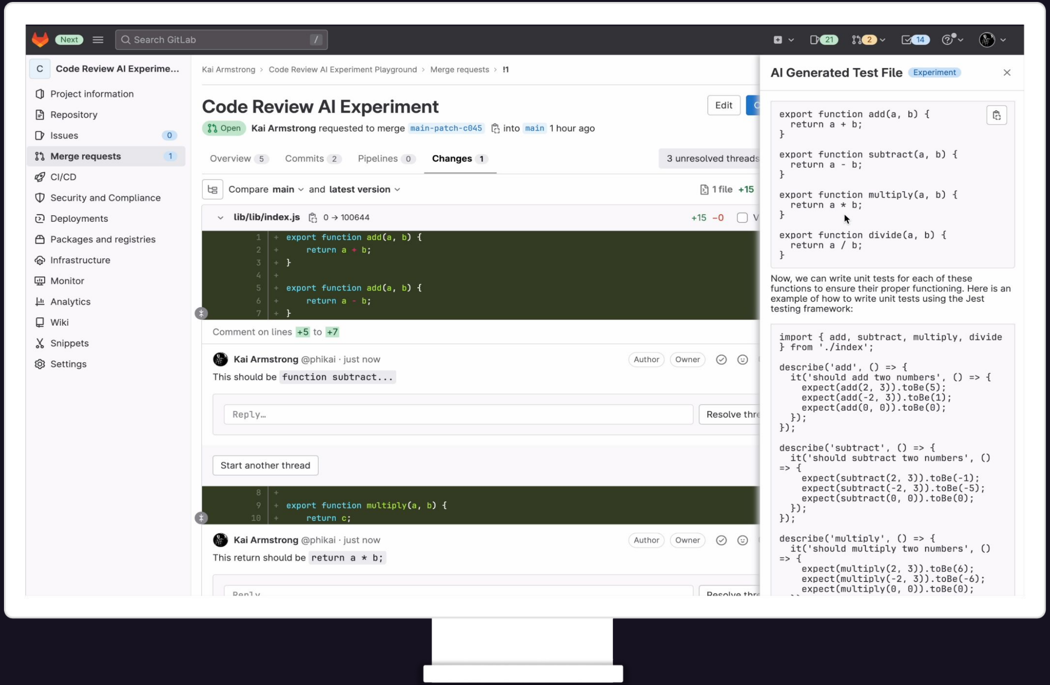
The `metrics` parameter specifies the evaluation metric to be used during training and testing. In this case, it is `accuracy`, which is a common metric for classification problems that measures the percentage of correctly classified samples.

GitLab Copyright 2023

Developer Teams

Generate Tests 🥱 in MR

Quickly add unit tests to merge requests



Code Review AI Experiment

Open **Kai Armstrong** requested to merge `main-patch-c045` into `main` 1 hour ago

```
1  + export function add(a, b) {
2  +     return a + b;
3  + }
4  +
5  + export function add(a, b) {
6  +     return a - b;
7  + }
```

Comment on lines +5 to +7

Kai Armstrong @phikai · just now

This should be `function subtract...`

```
8  +
9  + export function multiply(a, b) {
10 +     return c;
```

Kai Armstrong @phikai · just now

This return should be `return a * b;`

AI Generated Test File

```
export function add(a, b) {
  return a + b;
}

export function subtract(a, b) {
  return a - b;
}

export function multiply(a, b) {
  return a * b;
}

export function divide(a, b) {
  return a / b;
}
```

Now, we can write unit tests for each of these functions to ensure their proper functioning. Here is an example of how to write unit tests using the Jest testing framework:

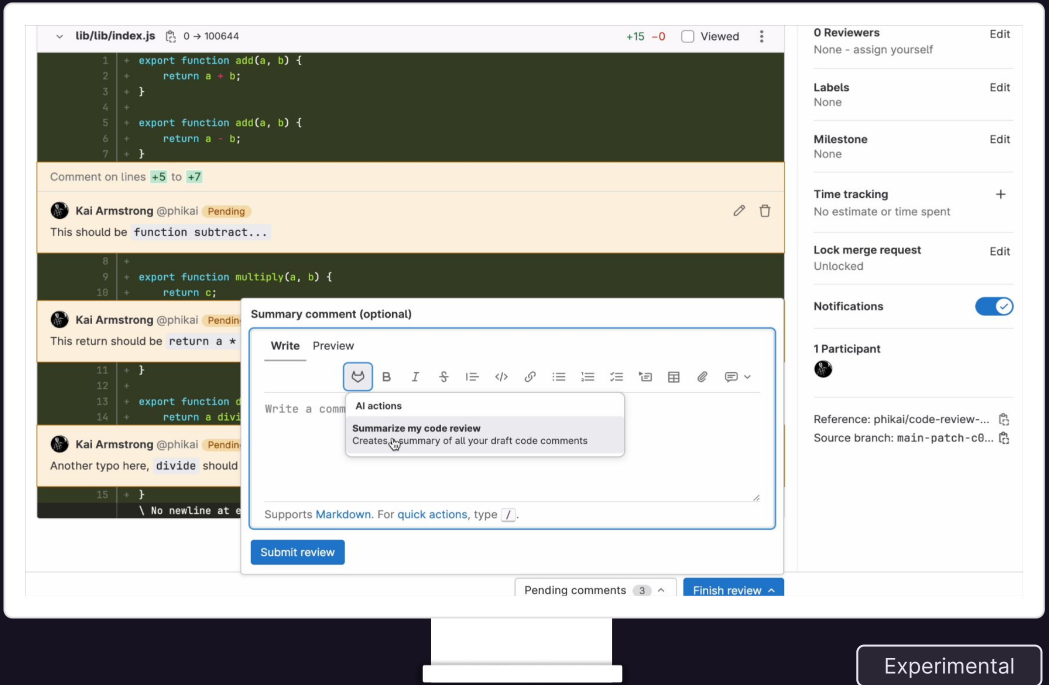
```
import { add, subtract, multiply, divide
} from './index';

describe('add', () => {
  it('should add two numbers', () => {
    expect(add(2, 3)).toBe(5);
    expect(add(-2, 3)).toBe(1);
    expect(add(0, 0)).toBe(0);
  });
});

describe('subtract', () => {
  it('should subtract two numbers', ()
=> {
    expect(subtract(2, 3)).toBe(-1);
    expect(subtract(-2, 3)).toBe(-5);
    expect(subtract(0, 0)).toBe(0);
  });
});

describe('multiply', () => {
  it('should multiply two numbers', ()
=> {
    expect(multiply(2, 3)).toBe(6);
    expect(multiply(-2, 3)).toBe(-6);
    expect(multiply(0, 0)).toBe(0);
```

GitLab Copyright 2023

Developer Teams

Summarize my MR Review

Quickly summarize changes you recommend making



lib/lib/index.js 0 → 100644 +15 −0 ☐ Viewed

```
 1 + export function add(a, b) {
 2 +     return a + b;
 3 + }
 4 +
 5 + export function add(a, b) {
 6 +     return a - b;
 7 + }
```

Comment on lines +5 to +7

Kai Armstrong @phikai Pending

This should be `function subtract...`

```
 8 +
 9 + export function multiply(a, b) {
10 +     return c;
```

Kai Armstrong @phikai Pendin

This return should be `return a *`

```
11 + }
12 +
13 + export function d
14 +     return a divi
```

Kai Armstrong @phikai Pendin

Another typo here, `divide` should

```
15 + }
     \ No newline at e
```

Summary comment (optional)

Write Preview

Write a comm

AI actions

Summarize my code review
Creates a summary of all your draft code comments

Supports Markdown. For quick actions, type `/`.

Submit review

Pending comments 3 Finish review

0 Reviewers Edit
None - assign yourself

Labels Edit
None

Milestone Edit
None

Time tracking +
No estimate or time spent

Lock merge request Edit
Unlocked

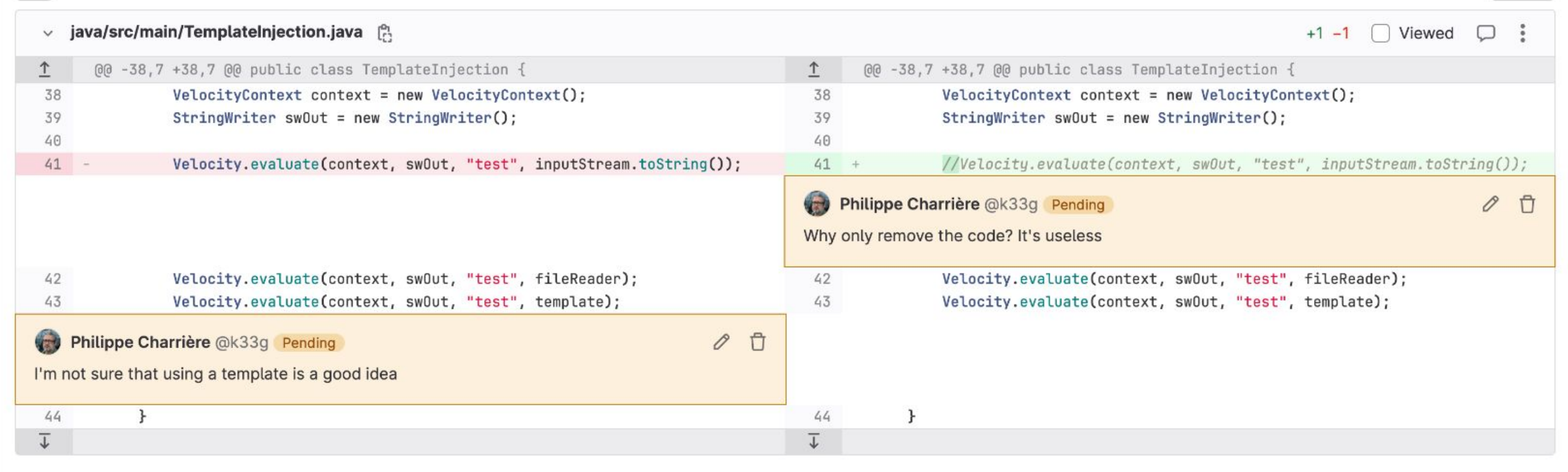
Notifications

1 Participant

Reference: phikai/code-review-...
Source branch: `main-patch-c0...`

Experimental

GitLab Copyright 2023



java/src/main/TemplateInjection.java +1 −1 ☐ Viewed

```
@@ -38,7 +38,7 @@ public class TemplateInjection {
        VelocityContext context = new VelocityContext();
        StringWriter swOut = new StringWriter();

-       Velocity.evaluate(context, swOut, "test", inputStream.toString());
+       //Velocity.evaluate(context, swOut, "test", inputStream.toString());
```

Philippe Charrière @k33g Pending

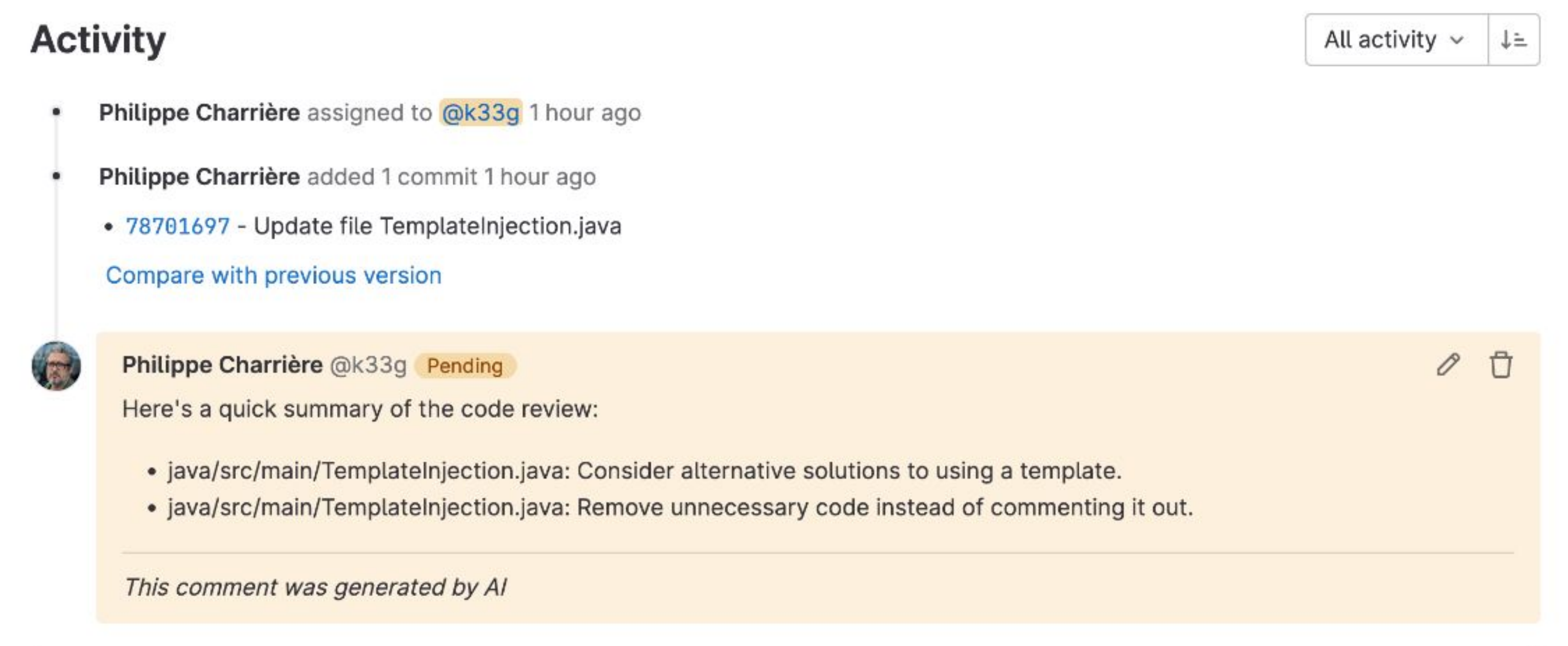
Why only remove the code? It's useless

```
        Velocity.evaluate(context, swOut, "test", fileReader);
        Velocity.evaluate(context, swOut, "test", template);
```

Philippe Charrière @k33g Pending

I'm not sure that using a template is a good idea

```
    }
```



Activity

- **Philippe Charrière** assigned to @k33g 1 hour ago
- **Philippe Charrière** added 1 commit 1 hour ago
  - 78701697 - Update file TemplateInjection.java

  Compare with previous version

Philippe Charrière @k33g Pending

Here's a quick summary of the code review:

- java/src/main/TemplateInjection.java: Consider alternative solutions to using a template.
- java/src/main/TemplateInjection.java: Remove unnecessary code instead of commenting it out.

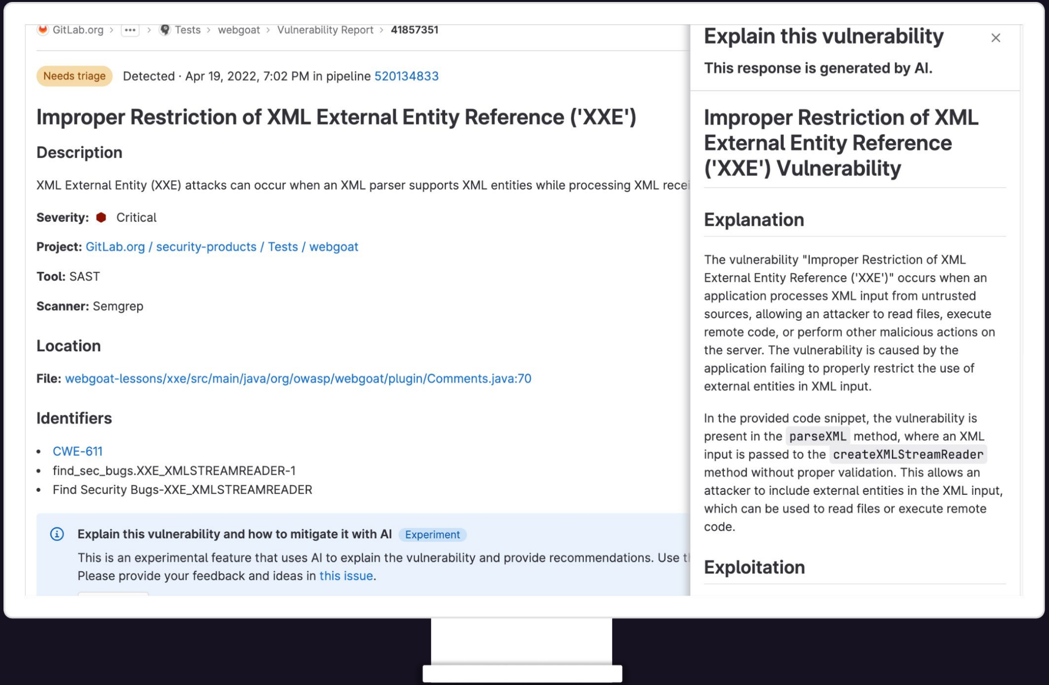
This comment was generated by AI

From a Security perspective
I want ...

GitLab Copyright 2023

Explain this vulnerability

Continuous security improvements



GitLab.org › ••• › Tests › webgoat › Vulnerability Report › **41857351**

Needs triage Detected · Apr 19, 2022, 7:02 PM in pipeline 520134833

Improper Restriction of XML External Entity Reference ('XXE')

Description

XML External Entity (XXE) attacks can occur when an XML parser supports XML entities while processing XML recei

Severity: ● Critical

Project: GitLab.org / security-products / Tests / webgoat

Tool: SAST

Scanner: Semgrep

Location

File: webgoat-lessons/xxe/src/main/java/org/owasp/webgoat/plugin/Comments.java:70

Identifiers

- CWE-611
- find_sec_bugs.XXE_XMLSTREAMREADER-1
- Find Security Bugs-XXE_XMLSTREAMREADER

Explain this vulnerability and how to mitigate it with AI Experiment

This is an experimental feature that uses AI to explain the vulnerability and provide recommendations. Use t
Please provide your feedback and ideas in this issue.

Explain this vulnerability

This response is generated by AI.

Improper Restriction of XML External Entity Reference ('XXE') Vulnerability

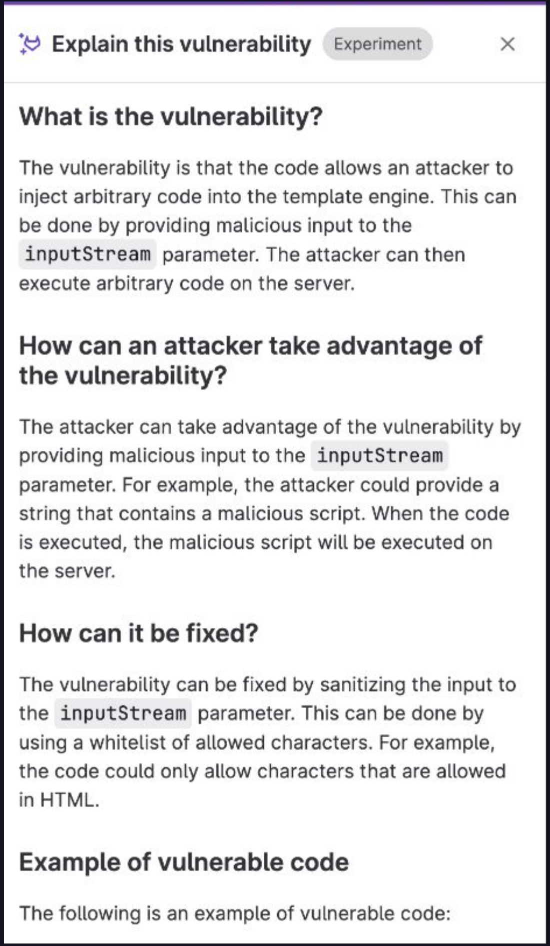
Explanation

The vulnerability "Improper Restriction of XML External Entity Reference ('XXE')" occurs when an application processes XML input from untrusted sources, allowing an attacker to read files, execute remote code, or perform other malicious actions on the server. The vulnerability is caused by the application failing to properly restrict the use of external entities in XML input.

In the provided code snippet, the vulnerability is present in the `parseXML` method, where an XML input is passed to the `createXMLStreamReader` method without proper validation. This allows an attacker to include external entities in the XML input, which can be used to read files or execute remote code.

Exploitation

GitLab Copyright 2023



What is the vulnerability?

The vulnerability is that the code allows an attacker to inject arbitrary code into the template engine. This can be done by providing malicious input to the `inputStream` parameter. The attacker can then execute arbitrary code on the server.

How can an attacker take advantage of the vulnerability?

The attacker can take advantage of the vulnerability by providing malicious input to the `inputStream` parameter. For example, the attacker could provide a string that contains a malicious script. When the code is executed, the malicious script will be executed on the server.

How can it be fixed?

The vulnerability can be fixed by sanitizing the input to the `inputStream` parameter. This can be done by using a whitelist of allowed characters. For example, the code could only allow characters that are allowed in HTML.

Example of vulnerable code

The following is an example of vulnerable code:

From a CSM & CSE perspective (and more)

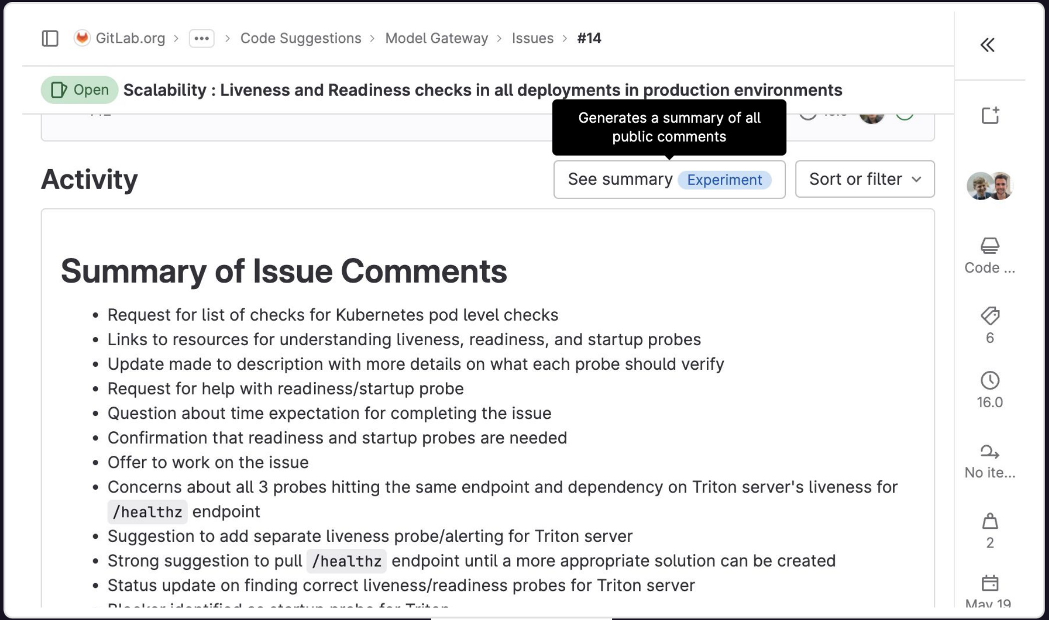
I want ...

GitLab Copyright 2023

For Everyone

Issue summaries

Summarize long issue and merge request comment threads



Scalability : Liveness and Readiness checks in all deployments in production environments

Activity

Summary of Issue Comments

- Request for list of checks for Kubernetes pod level checks
- Links to resources for understanding liveness, readiness, and startup probes
- Update made to description with more details on what each probe should verify
- Request for help with readiness/startup probe
- Question about time expectation for completing the issue
- Confirmation that readiness and startup probes are needed
- Offer to work on the issue
- Concerns about all 3 probes hitting the same endpoint and dependency on Triton server's liveness for `/healthz` endpoint
- Suggestion to add separate liveness probe/alerting for Triton server
- Strong suggestion to pull `/healthz` endpoint until a more appropriate solution can be created
- Status update on finding correct liveness/readiness probes for Triton server

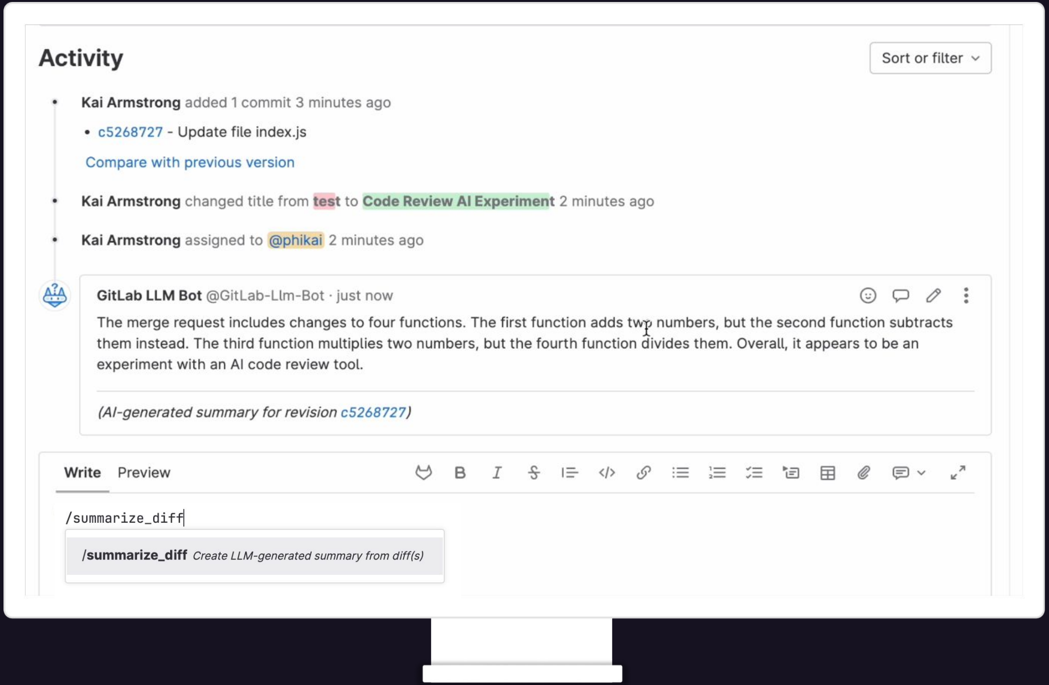
Note: UX may not represent final design

GitLab Copyright 2023

For Everyone

Summarize MR Changes

Drive alignment and understanding of changes



Kai Armstrong added 1 commit 3 minutes ago

- c5268727 - Update file index.js

Compare with previous version

Kai Armstrong changed title from **test** to **Code Review AI Experiment** 2 minutes ago

Kai Armstrong assigned to @phikai 2 minutes ago

GitLab LLM Bot @GitLab-Llm-Bot · just now

The merge request includes changes to four functions. The first function adds two numbers, but the second function subtracts them instead. The third function multiplies two numbers, but the fourth function divides them. Overall, it appears to be an experiment with an AI code review tool.

(AI-generated summary for revision c5268727)

```
/summarize_diff
```

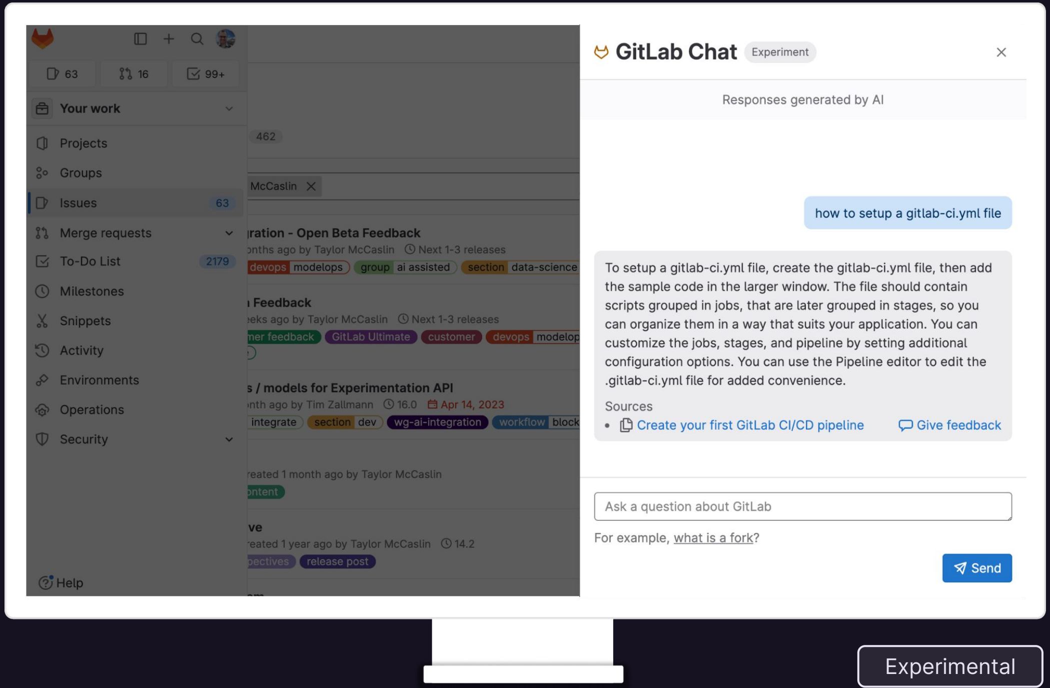
/summarize_diff *Create LLM-generated summary from diff(s)*

GitLab Copyright 2023

For Everyone

GitLab Chat

Ask questions rather than search for answers



how to setup a gitlab-ci.yml file

To setup a gitlab-ci.yml file, create the gitlab-ci.yml file, then add the sample code in the larger window. The file should contain scripts grouped in jobs, that are later grouped in stages, so you can organize them in a way that suits your application. You can customize the jobs, stages, and pipeline by setting additional configuration options. You can use the Pipeline editor to edit the .gitlab-ci.yml file for added convenience.

Sources

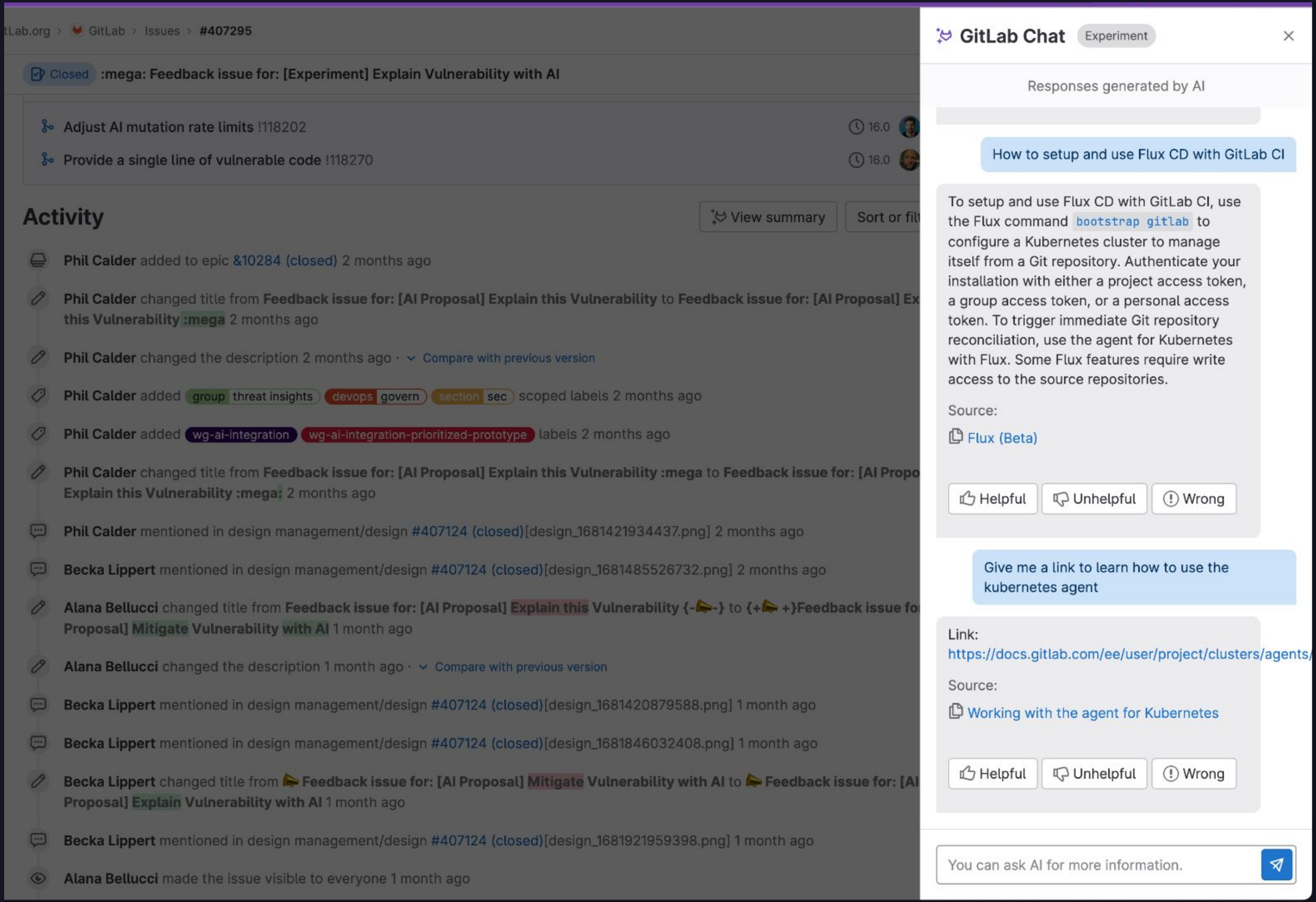
- Create your first GitLab CI/CD pipeline

Give feedback

For example, what is a fork?

Experimental

GitLab Copyright 2023



tLab.org › GitLab › Issues › #407295

Closed :mega: Feedback issue for: [Experiment] Explain Vulnerability with AI

Adjust AI mutation rate limits !118202 16.0

Provide a single line of vulnerable code !118270 16.0

Activity

Phil Calder added to epic &10284 (closed) 2 months ago

Phil Calder changed title from **Feedback issue for: [AI Proposal] Explain this Vulnerability** to **Feedback issue for: [AI Proposal] Ex this Vulnerability :mega** 2 months ago

Phil Calder changed the description 2 months ago · Compare with previous version

Phil Calder added group threat insights devops govern section sec scoped labels 2 months ago

Phil Calder added wg-ai-integration wg-ai-integration-prioritized-prototype labels 2 months ago

Phil Calder changed title from **Feedback issue for: [AI Proposal] Explain this Vulnerability :mega** to **Feedback issue for: [AI Propo Explain this Vulnerability :mega:** 2 months ago

Phil Calder mentioned in design management/design #407124 (closed)[design_1681421934437.png] 2 months ago

Becka Lippert mentioned in design management/design #407124 (closed)[design_1681485526732.png] 2 months ago

Alana Bellucci changed title from **Feedback issue for: [AI Proposal] Explain this Vulnerability {-📣-}** to **{+📣 +}Feedback issue fo Proposal] Mitigate Vulnerability with AI** 1 month ago

Alana Bellucci changed the description 1 month ago · Compare with previous version

Becka Lippert mentioned in design management/design #407124 (closed)[design_1681420879588.png] 1 month ago

Becka Lippert mentioned in design management/design #407124 (closed)[design_1681846032408.png] 1 month ago

Becka Lippert changed title from **📣 Feedback issue for: [AI Proposal] Mitigate Vulnerability with AI** to **📣 Feedback issue for: [AI Proposal] Explain Vulnerability with AI** 1 month ago

Becka Lippert mentioned in design management/design #407124 (closed)[design_1681921959398.png] 1 month ago

Alana Bellucci made the issue visible to everyone 1 month ago

GitLab Chat Experiment

Responses generated by AI

How to setup and use Flux CD with GitLab CI

To setup and use Flux CD with GitLab CI, use the Flux command `bootstrap gitlab` to configure a Kubernetes cluster to manage itself from a Git repository. Authenticate your installation with either a project access token, a group access token, or a personal access token. To trigger immediate Git repository reconciliation, use the agent for Kubernetes with Flux. Some Flux features require write access to the source repositories.

Source:

Flux (Beta)

Give me a link to learn how to use the kubernetes agent

Link:
https://docs.gitlab.com/ee/user/project/clusters/agents/

Source:

Working with the agent for Kubernetes

I’m a happy 🤩 CSM/CSE/Developer

GitLab Copyright 2023

GitLab Duo

The suite of AI capabilities powering your workflows

GitLab Copyright 2023

GitLab Duo: AI-assisted capabilities for everyone involved in the software development lifecycle

	Developer Teams	Security & Operations	For Everyone
Available features	**Code Suggestions** *AI paired programming*	**Explain This Vulnerability** *Remediate security issues*	**Issue Comment Summaries** *Understand and take action*
	Suggested Reviewers *Better code reviews*	**Generate Tests in MRs** *Automate repetitive tasks*	**GitLab Chat** *Get help fast*
	Summarize MR Changes Drive alignment and action	**Explain This Code** *Uplevel and understand*	**Value Stream Forecasting** *Predict the future*
	Summarize My MR Review *Get your point across*		
	Help with Git Commands *Natural language CLI assistant*		

Experimental Beta General Availability

GitLab Copyright 2023

GitLab AI Vision

AI-assisted features

Improved security

Faster deployments

Intelligent alerting

Enhanced quality assurance

Intelligent monitoring

Predictive analytics

10X Improvement

GitLab Copyright 2023

GitLab Duo
Capabilities coming Soon

- Generate Planning Descriptions
- Natural Language Chart Generation
- Suggest A Fix For Failed Tests
- CI/CD Pipeline Failure Resolution
- Suspicious Activity Alerting
- Vulnerability Report Summary
- Merge Request Assistance
- Natural Language CI Configuration

GitLab Copyright 2023

Data Science

Empower Business transformation by allowing customers to build and integrate data science workloads within GitLab

GitLab AI Roadmap:
Next step: ModelOps
Stay tuned

GitLab Copyright 2023

GitLab

Thank you for your attention

GitLab Copyright 2023

GitLab

Question time

Only simple questions :)

GitLab Copyright 2023