

Software Product Design and Development I

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A detailed map of the North Atlantic Ocean and surrounding landmasses. The map shows the eastern coast of North America, including the United States and Canada, and the western coast of Europe, including the United Kingdom, Ireland, and Scandinavia. The Gulf of Mexico and the Caribbean Sea are visible to the south of North America. The Mediterranean Sea and the Red Sea are visible to the south of Europe. Major cities like New York, London, Paris, and Rome are labeled. A red pin is located in the North Atlantic, near the Azores. The map also shows the Gulf of California and the Gulf of Guinea.

Administration

- Background Information survey.
- Go to - <https://johnxu21.github.io/teaching/CS472/>

CSC 472/672 AND OTHER COURSES

- Prerequisites:
 - CS 326 - Programming Languages, Concepts and Implementation
 - CS 370 - Operating Systems
- Follow-up Class - CSC 473/673 – Optional class



Software Product Design and Development I

High Quality Software

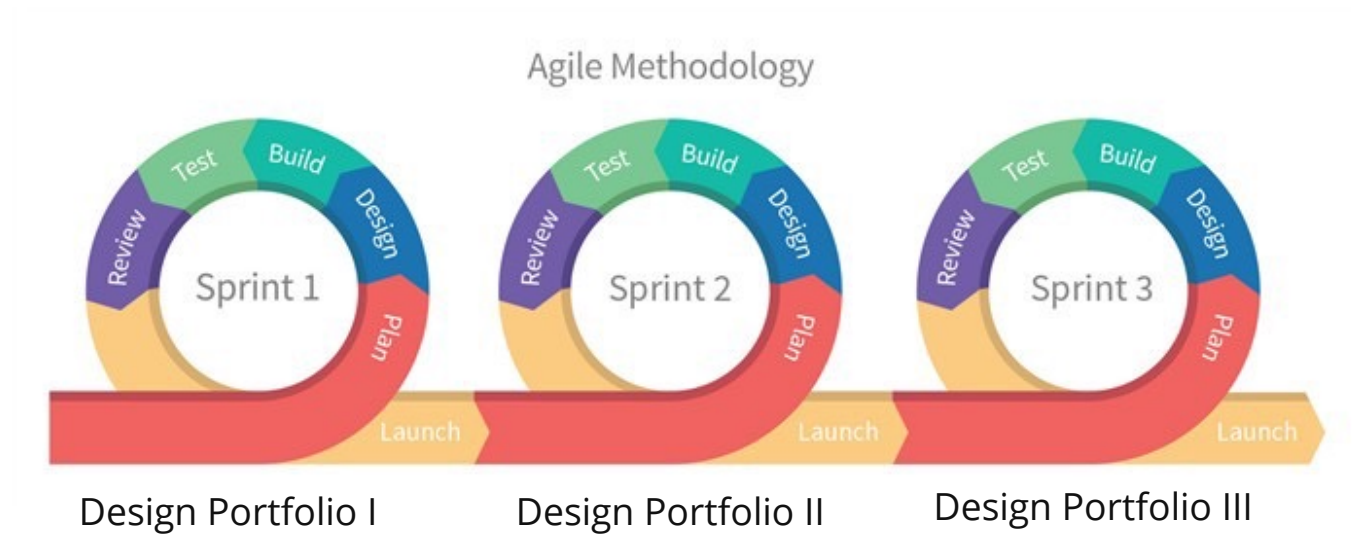
Flexible

Reusable

Maintainable



Collaboratively



Minimum Viable product (MVP)

- During the DP we will focus on developing a MVP
- An MVP is the minimal thing that you can do to test a value hypothesis and gain learning and understanding
- MVP is focust on learning, not delivery
- At the end of each MVP, you decide whether to pivot or persevere
- Let us explain this with an example

Minimum Viable product (MVP)

Customer wants a red car

Iteration 1



Iteration 2



Iteration 3

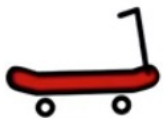


Iteration 4



- Customer got exactly what they asked for
 - the dev team was just following a plan.
- Team does not understand the value of MVP

No feedback



Valuable feedback on every iteration

- Customer got what they desired
 - Worked iteratively with the dev team.
- developed something a little bit different but it's closer to what the customer really wanted.
- Giving the customer what they really want is the main purpose of delivering an MVP.
- A minimal viable product is a tool for learning.

apache / kafka Public

Watch 1.1k Fork 11.3k Star 21.5k

Pull requests 953 Open ✓ 11,016 Closed

ijuma KAFKA-13418: Support key updates with TLS 1.3 (#11966) 5aed178 12 hours ago 9,874 commits

R: Adding kafka-storage.bat file (similar to kafka-storage.sh) fo... 16 days ago

R: Fix class comparison in 'AlterConfigPolicy.RequestMetadata... 8 days ago

Contributors 884

1.7k

+ 873 contributors

Languages

- Java 74.2%
- Scala 22.7%
- Python 2.7%
- Shell 0.2%
- Roff 0.1%
- Batchfile 0.1%

config MINOR

connect KAFKA

core MINOR

docs KAFKA

examples

generator/src

gradle

jmh-benchmarks

licenses MINOR: Add missing licenses and update versions in LICENSE-binary...

Apache Kafka is a distributed event store and stream-processing platform

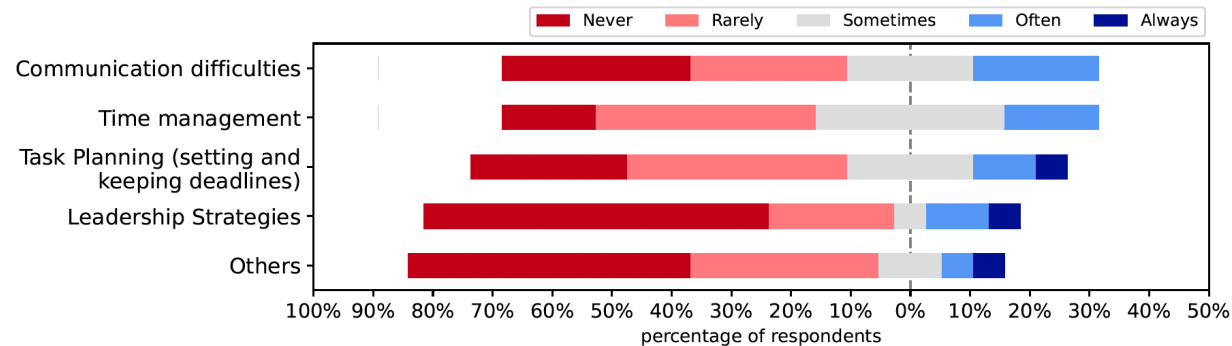
“People-related factors tend to be the greatest challenges—not technology.”

George Spafford,
Senior Director Analyst
at Gartner

Survey Results – Team Challenges

Qn.6: Please rank the following challenges that could have impeded effective teamwork.

Qn.7: If your ranking for "Others" in Qn.7 above was 4 or 5, kindly provide us what it represents.



[R2]. **Others** -- People simply not doing work. We only had **about half of our group** contribute anything meaningful to the project. The half of the group that were not participating made it hard for the group to progress collaboratively.



What is social coding?

- Open source practice - Open Source for Inner Source
- All repositories are public
- Everyone is encouraged to contribute
- Contribute back via Pull Requests

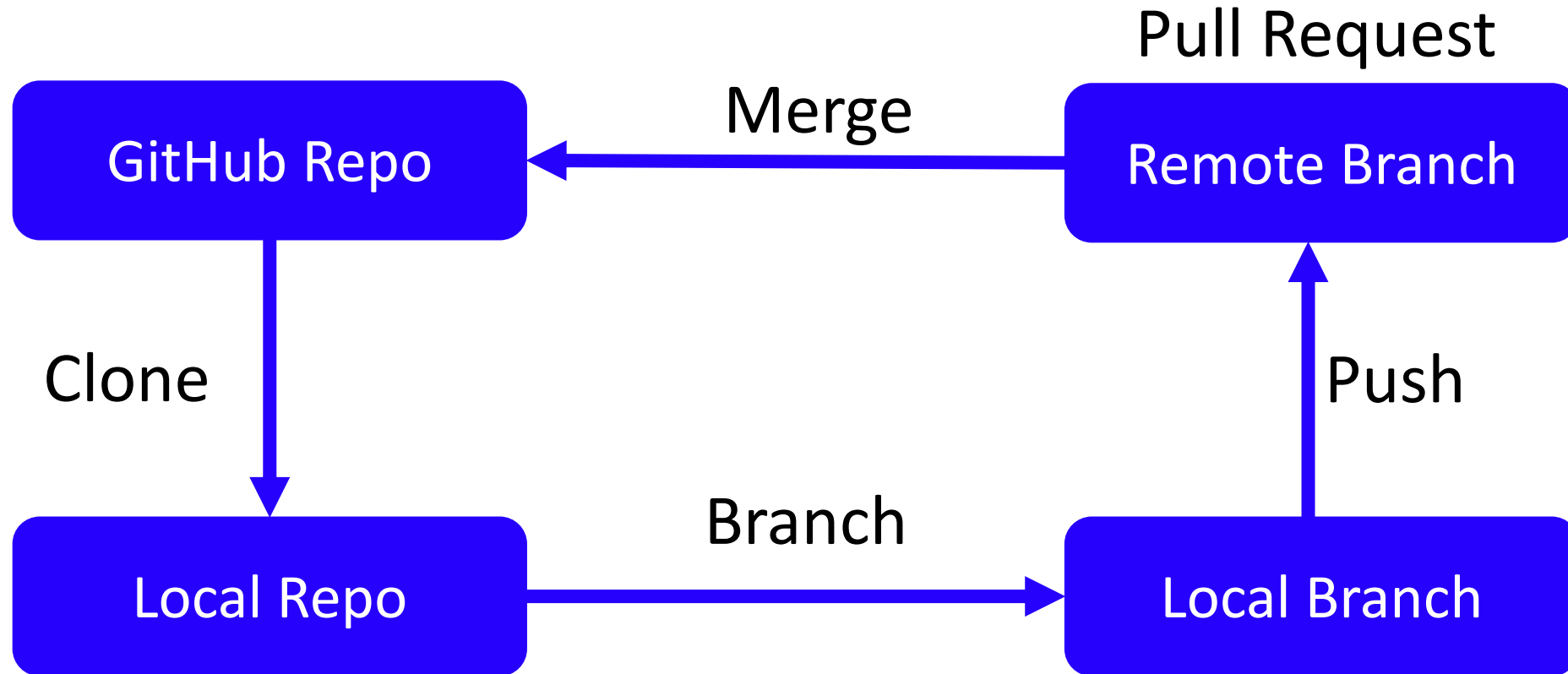
Git repository guidelines

- Create a repository for a project
- Create a new branch for every issue
- Use a Pull Requests to merge to main
- Every Pull Request is an opportunity for code review



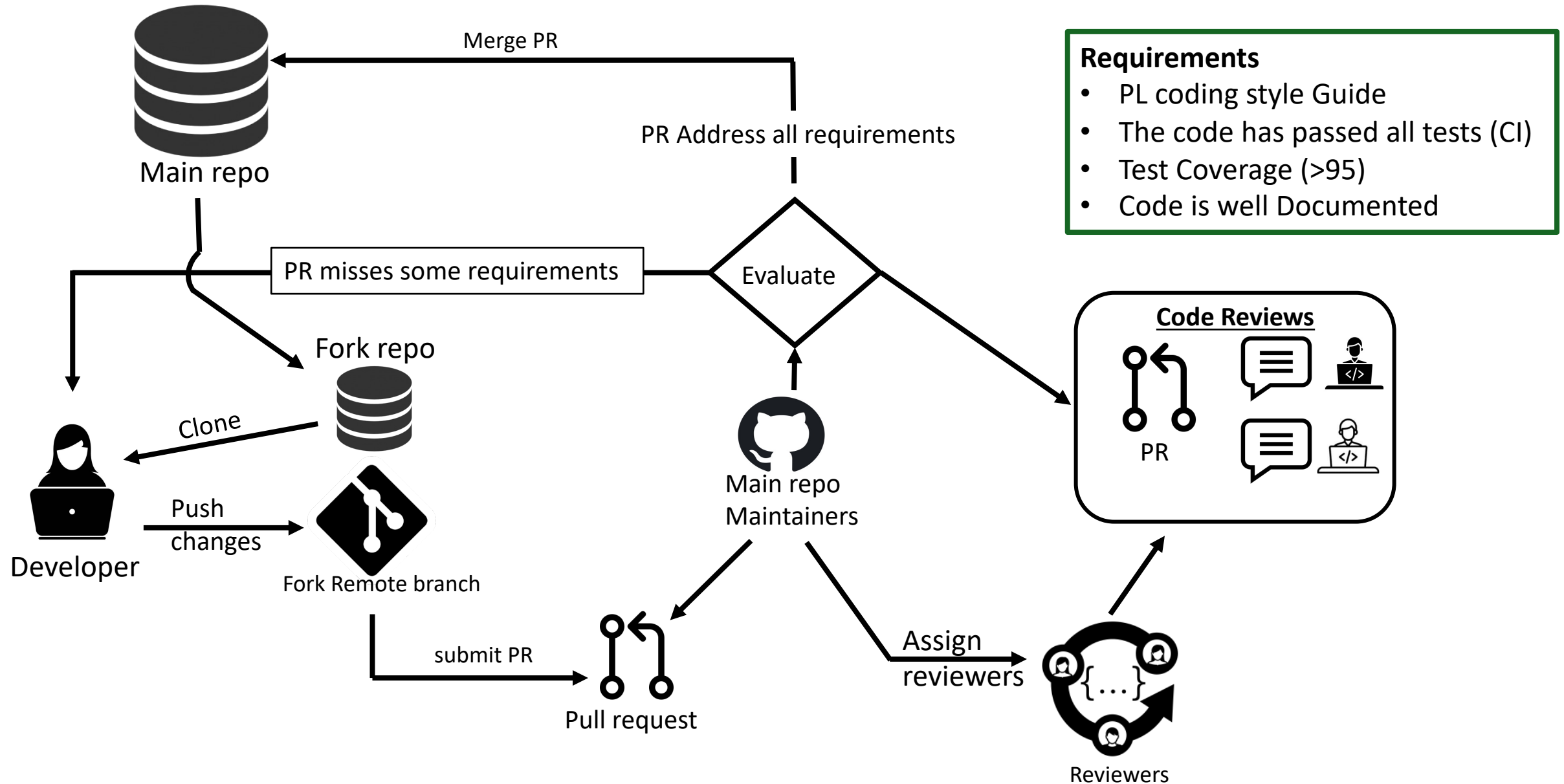
Git Feature branch workflow

Git feature branch workflow



We will employ the git feature branch workflow in our team project

A simple Code Review Workflow



Best Practices Pull Requests Documentation

<https://github.com/Graylog2/graylog2-server/pull/14284>

Concatenate query strings of queries/search types properly when exporting.

#14284

Merged dennisoelkers merged 5 commits into `master` from `fix/issue-14268` 2 weeks ago

Conversation 2 Commits 5 Checks 1 Files changed 6 +29 -12

dennisoelkers commented last month · edited · Member

Note: This needs to be backported to 4.3 and 5.0.

Description

Motivation and Context

This PR is fixing an issue related to exporting a search type. When both the search type and the query contain query strings, they are being concatenated, by simply combining them with an `AND`. For simple query strings this works, but it changes the logic for more complicated ones (e.g. when query string1 is `foo OR bar` and the second is also `foo OR bar`, the resulting query string `foo OR bar AND foo OR bar` has a different meaning, due to the stronger binding of the logical AND.

With this PR, concatenating two query strings wraps them in braces too, so `foo OR bar` concatenated to itself ends up as `(foo OR bar) AND (foo OR BAR)`, which returns the same, correct results.

Fixes [#14268](#).

`/jenkins-pr-deps Graylog2/graylog-plugin-enterprise#4502`

How Has This Been Tested?

Screenshots (if appropriate):

Types of changes

- ☒ Bug fix (non-breaking change which fixes an issue)
- ☐ New feature (non-breaking change which adds functionality)
- ☐ Refactoring (non-breaking change)
- ☐ Breaking change (fix or feature that would cause existing functionality to change)

Checklist:

- ☒ My code follows the code style of this project.
- ☐ My change requires a change to the documentation.
- ☐ I have updated the documentation accordingly.
- ☒ I have read the **CONTRIBUTING** document.
- ☒ I have added tests to cover my changes.

Reviewers

danotorrey ✓

ryan-carroll-graylog ✓

Assignees

No one assigned

Labels

None yet

Projects

None yet

Milestone

No milestone

Development

Successfully merging this pull request may close these issues.

☒ Blank CSV dashboard export

Notifications

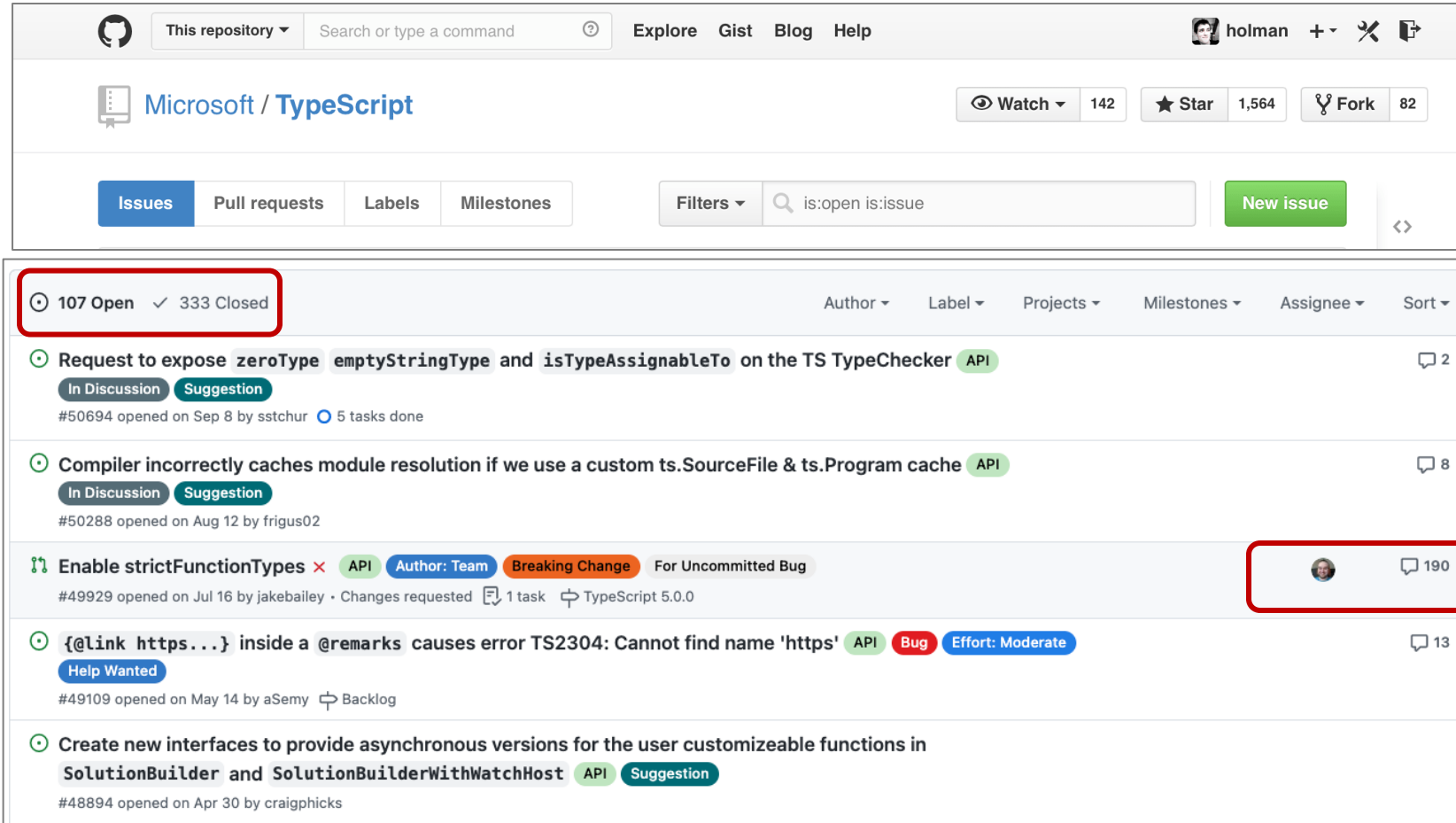
Customize

Subscribe

You're not receiving notifications from this thread.

3 participants

Issue Tracker - GitHub



The screenshot shows the GitHub interface for the Microsoft/TypeScript repository. At the top, there's a navigation bar with the GitHub logo, a search bar, and links to Explore, Gist, Blog, and Help. Below this, the repository name 'Microsoft / TypeScript' is displayed, along with statistics for Watch (142), Star (1,564), and Fork (82). The 'Issues' tab is selected, showing a list of open issues. The first issue is 'Request to expose zeroType, emptyStringType and isTypeAssignableTo on the TS TypeChecker', marked as a 'Suggestion'. The second issue is 'Compiler incorrectly caches module resolution if we use a custom ts.SourceFile & ts.Program cache', also a 'Suggestion'. The third issue is 'Enable strictFunctionTypes', marked as a 'Breaking Change' and 'For Uncommitted Bug'. The fourth issue is '{@link https...} inside a @remarks causes error TS2304: Cannot find name 'https'', marked as a 'Bug' and 'Help Wanted'. The fifth issue is 'Create new interfaces to provide asynchronous versions for the user customizable functions in SolutionBuilder and SolutionBuilderWithWatchHost', marked as a 'Suggestion'. A red box highlights the '107 Open' and '333 Closed' issue counts at the top left of the issues list. Another red box highlights the user profile picture and comment count (190) for the third issue.

107 Open 333 Closed

Request to expose `zeroType` `emptyStringType` and `isTypeAssignableTo` on the TS TypeChecker API

In Discussion Suggestion

#50694 opened on Sep 8 by sstchur 5 tasks done

Compiler incorrectly caches module resolution if we use a custom `ts.SourceFile` & `ts.Program` cache API

In Discussion Suggestion

#50288 opened on Aug 12 by frigus02

Enable `strictFunctionTypes` API Author: Team Breaking Change For Uncommitted Bug

#49929 opened on Jul 16 by jakebailey • Changes requested 1 task TypeScript 5.0.0

{@link `https...`} inside a @remarks causes error TS2304: Cannot find name 'https' API Bug Effort: Moderate

Help Wanted

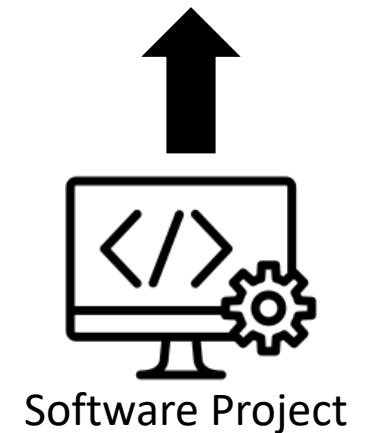
#49109 opened on May 14 by aSemy Backlog

Create new interfaces to provide asynchronous versions for the user customizable functions in `SolutionBuilder` and `SolutionBuilderWithWatchHost` API Suggestion

#48894 opened on Apr 30 by craighpicks

Issues

- Use cases
- Problems to solve
- Features to add
- Documentation to add



Testing

“If it is worth building, it is worth testing.

If it is not worth testing, why are you wasting your time working on it?”

Scott Ambler, agiledata.org

Importance of test coverage

- High test coverage gives you confidence that your code works as expected
- Test coverage reports can reveal which lines of code were not tested

Python cmd tool

```
$ coverage report -m
```

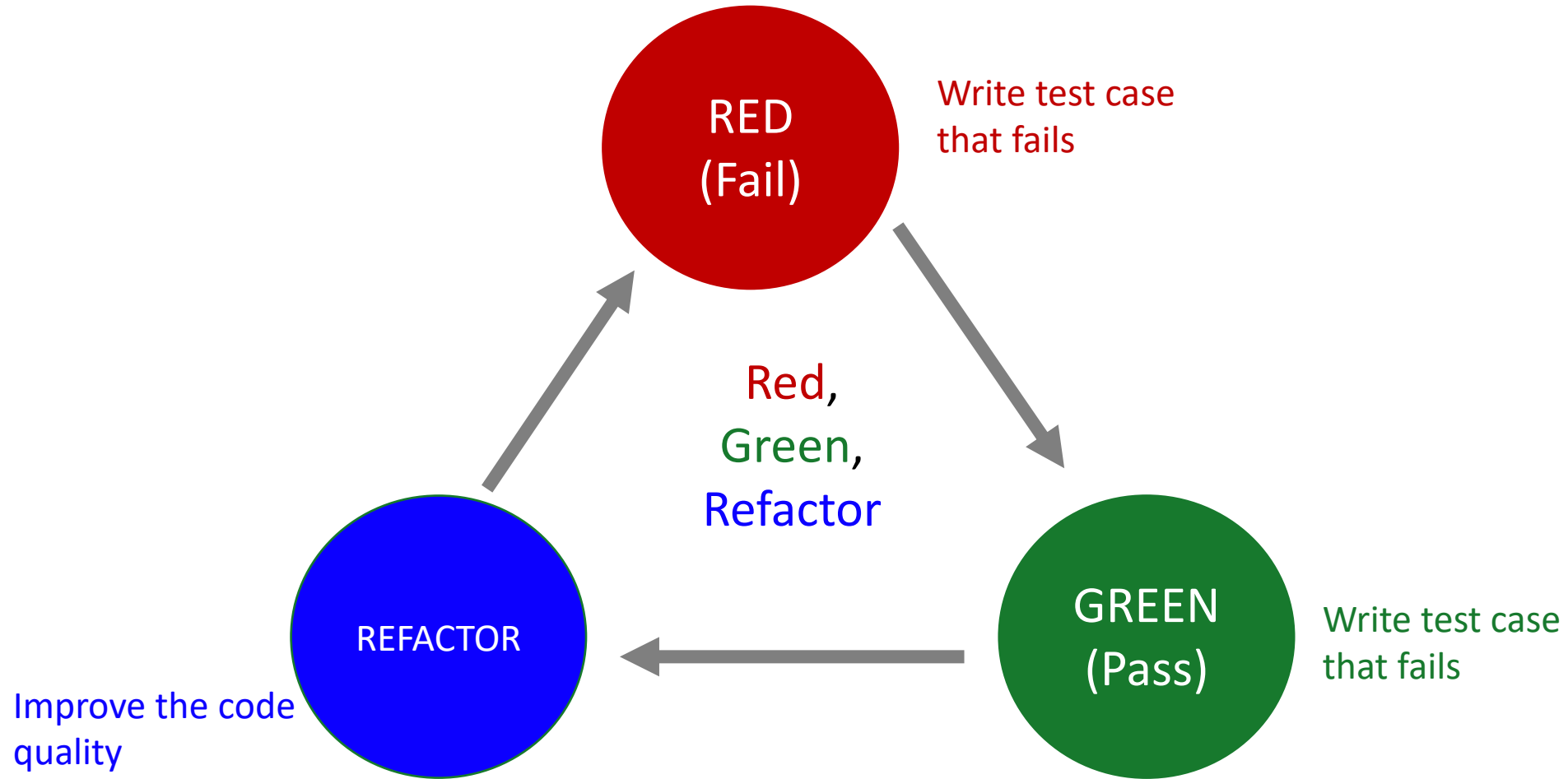
Name	Stmts	Miss	Cover	Missing
server.py	81	5	94%	62, 66, 167-169

Total
lines of
code

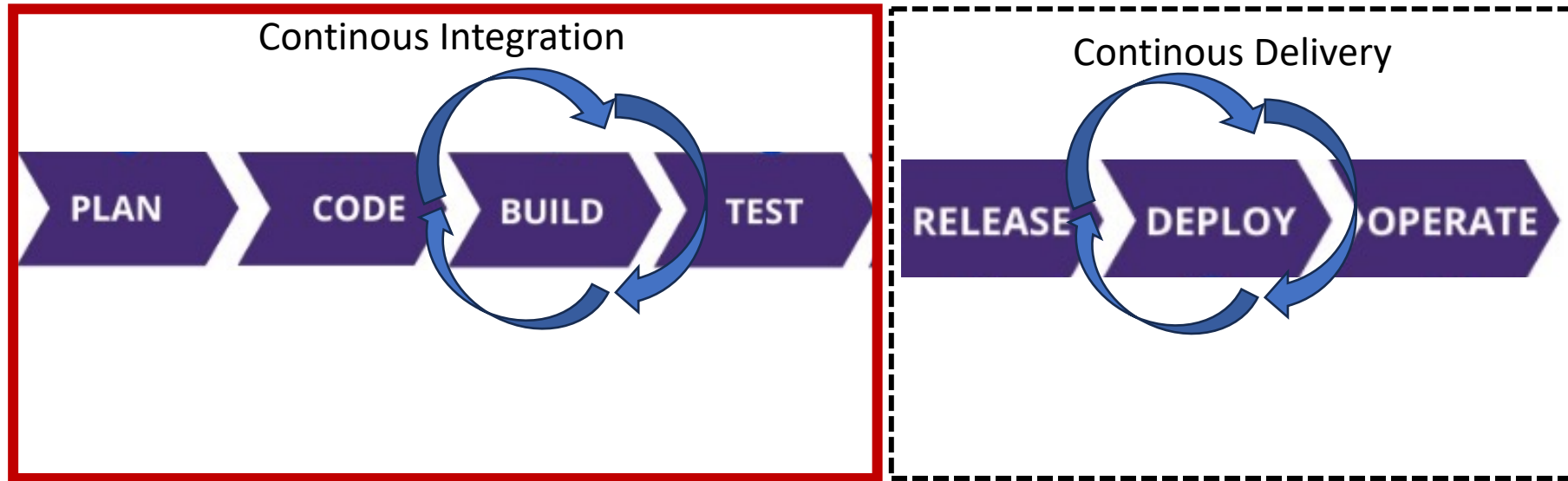
lines
without
test cases

Lines without test cases

TDD workflow

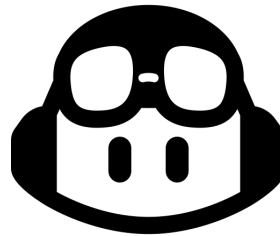


CI/CD pipeline



Using LLMs to perform specific SDLC activities

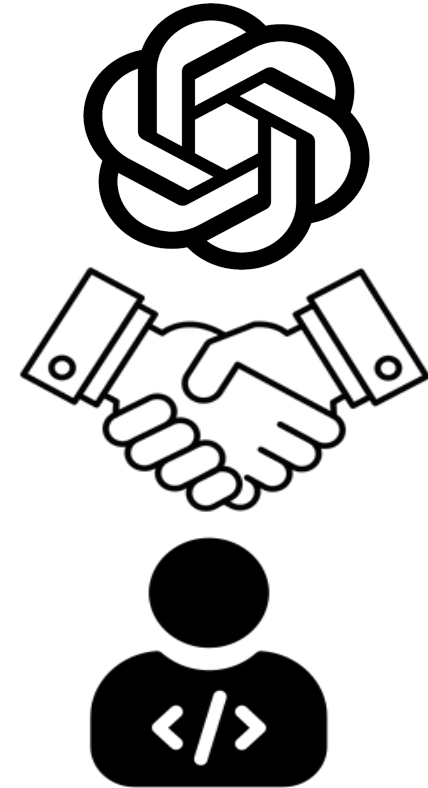
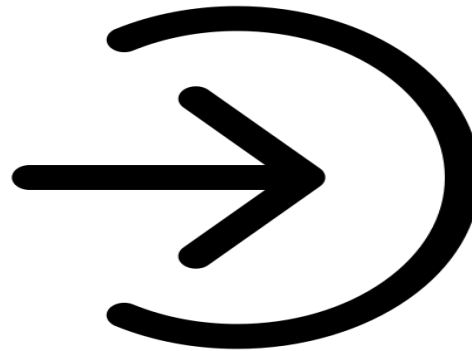
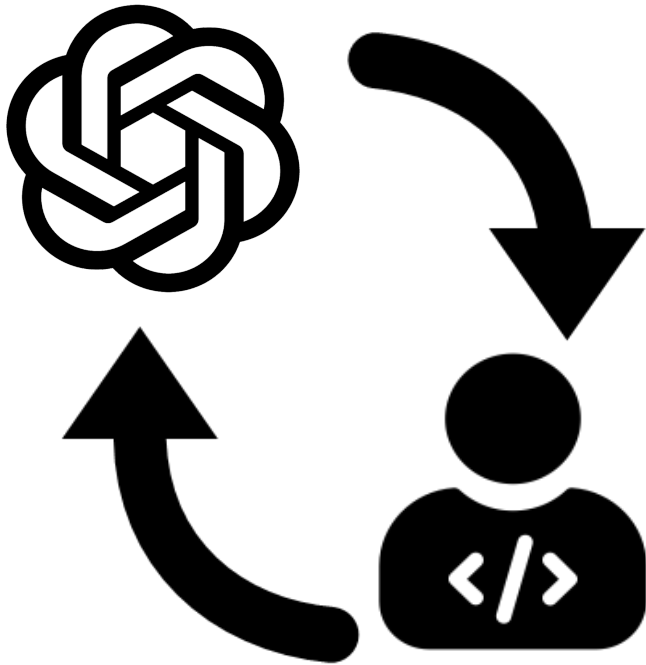
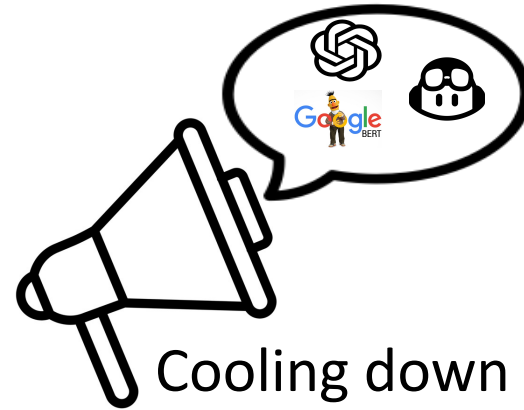
Large Language Models (LLMs)



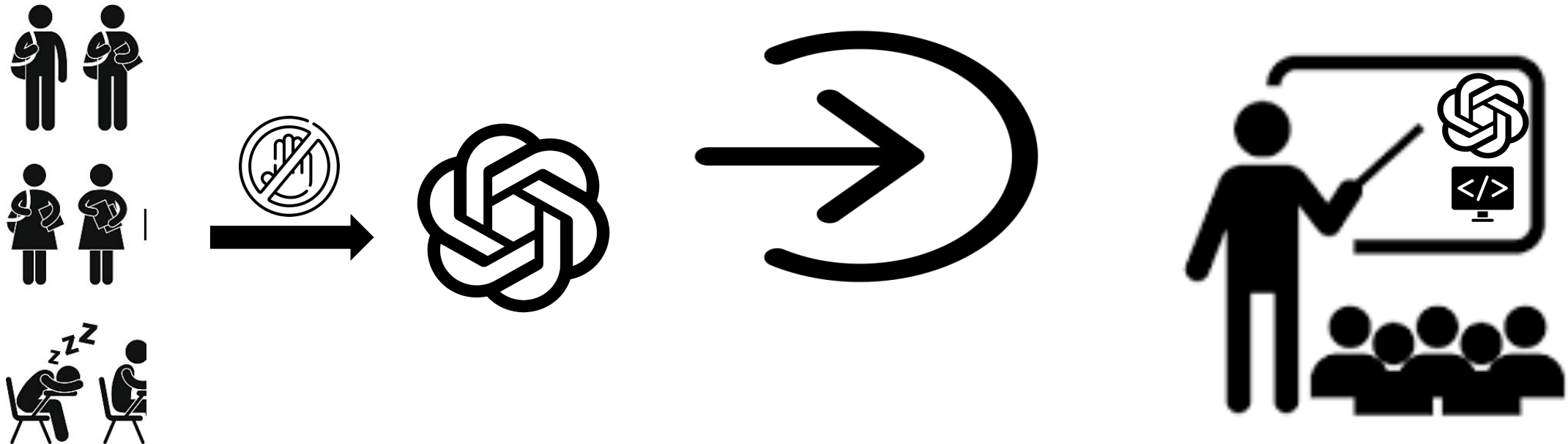
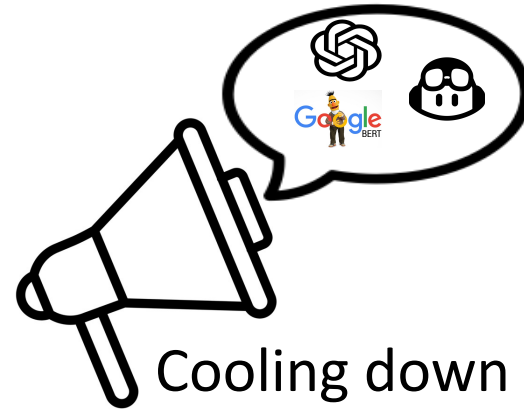
Will Our Students Not Need to Know How to Write Anymore?

- Only if our students won't know how to think, then they won't need to know how to write.

The Hype around LLMs for Software Development



The Hype around LLMs for Software Development



What SE Tasks have been addressed to date using LLM4SE

SE Activity	SE Task		Total
Requirements engineering	Anaphoric ambiguity treatment (3)	Requirements term identification (1)	11
	Requirements classification (3)	Coreference detection (1)	
	Requirement analysis and evaluation (2)	Traceability automation (1)	
Software design	GUI retrieval (1)	Software specification synthesis (1)	3
	Rapid prototyping (1)		
Software development	Code generation (62)	Agile story point estimation (1)	136
	Code completion (16)	API documentation smell detection (1)	
	Code summarization (10)	API entity and relation extraction (1)	
	Code understanding (7)	Code optimization (1)	
	Code search (5)	Code example recommendation (1)	
	Program synthesis (5)	Control flow graph generation (1)	
	API recommendation (2)	Data analysis (1)	
	API synthesis (2)	Identifier normalization (1)	
	Code comment generation (2)	Instruction generation (1)	
	Code representation (2)	Type inference (1)	
	Method name generation (2)	Others (11)	
Software quality assurance	Test generation (8)	Bug localization (1)	24
	Vulnerability detection (7)	Failure-inducing test identification (1)	
	Test automation (4)	Flaky test prediction (1)	
	Verification (2)		
Software maintenance	Program repair (23)	Duplicate bug report detection (1)	58
	Code review (6)	Decompilation (1)	
	Debugging (4)	Program merge conflicts repair (1)	
	Bug report analysis (3)	Sentiment analysis (1)	
	Code clone detection (3)	Tag recommendation (1)	
	Logging (2)	Vulnerability repair (1)	
	Bug prediction (1)	Commit classification (1)	
	Bug triage (1)	Traceability recovery (1)	
	Bug report replay (1)	Others (6)	
Software management	Effort estimation (1)		1

Hou et al. LLMs for SE: A Systematic Literature Review

- <https://arxiv.org/pdf/2308.10620.pdf>
- Analyzed 229 research papers on the subject
- Read Section 6 of the paper to find which papers have addressed the SE tasks.

Assessment

