ADSII3ILV

Algorithms and Data Structures II

Assignments

Dr. Alessio Gambi

Goal of the assignments

- Give you a chance to apply some of the topics discussed in class on practical problems

• Effective **designer**	*You must design the right algorithms and pick suitable data structures to solve the given problems*
• Skilled **developer**	*Implement your ideas into running code*
• Good **tester**	*Check that your implementation does what it supposed to do (but not only in trivial cases!)*

Description of the assignments

- Assignment 1: This assignment is about applying some of the **algorithms** discussed in class to solve a practical problem.

- Assignment 2: This assignment is about solving an **optimization problem** using a **meta-heuristic**

The details of each assignment will be provided in due time!

Description of the assignment (2)

- Each assignment consists in
  - **Python (commented) code** that implements the solution
  - **Unit** and/or **system tests** that check the correctness of your solution
  - **Documentation** that explains your design choices (not the code!)
- Each assignment starts with a set of **clear** and **immutable interfaces**, an "empty" implementation, and possibly some illustrative **(public)** test cases
- Additional (public) test cases might be added during the assignment

Grading of the assignments

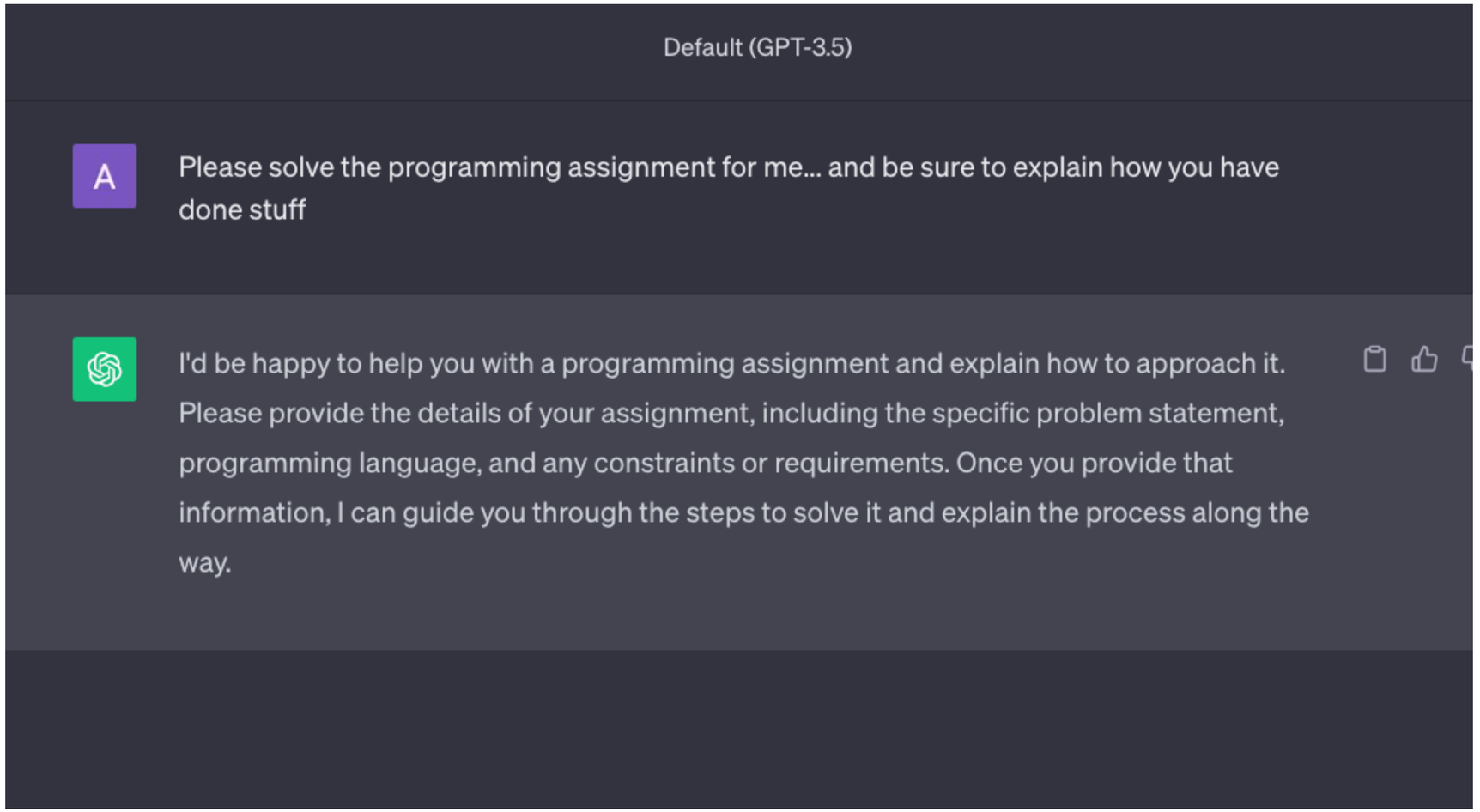
- Once the assignment is over, an additional set of **private** tests, common to all the submitted solutions, will be used to check functional requirements.
  - Private tests use the **given interfaces,** so **do not change** the interfaces!
- Correctness of the solution (e.g., passing/failing tests), adequacy of the test cases (e.g., code coverage), quality of the code (e.g., readability, comments), and quality of the documentation (e.g., clarity, brevity) are the basis for grading
  - Passing **all the public tests** is a hard requirement
- Some of the passing criteria are checked directly on GitHub every time you commit, others are done off-line by the lecturer

"Hey, can I copy your homework?"

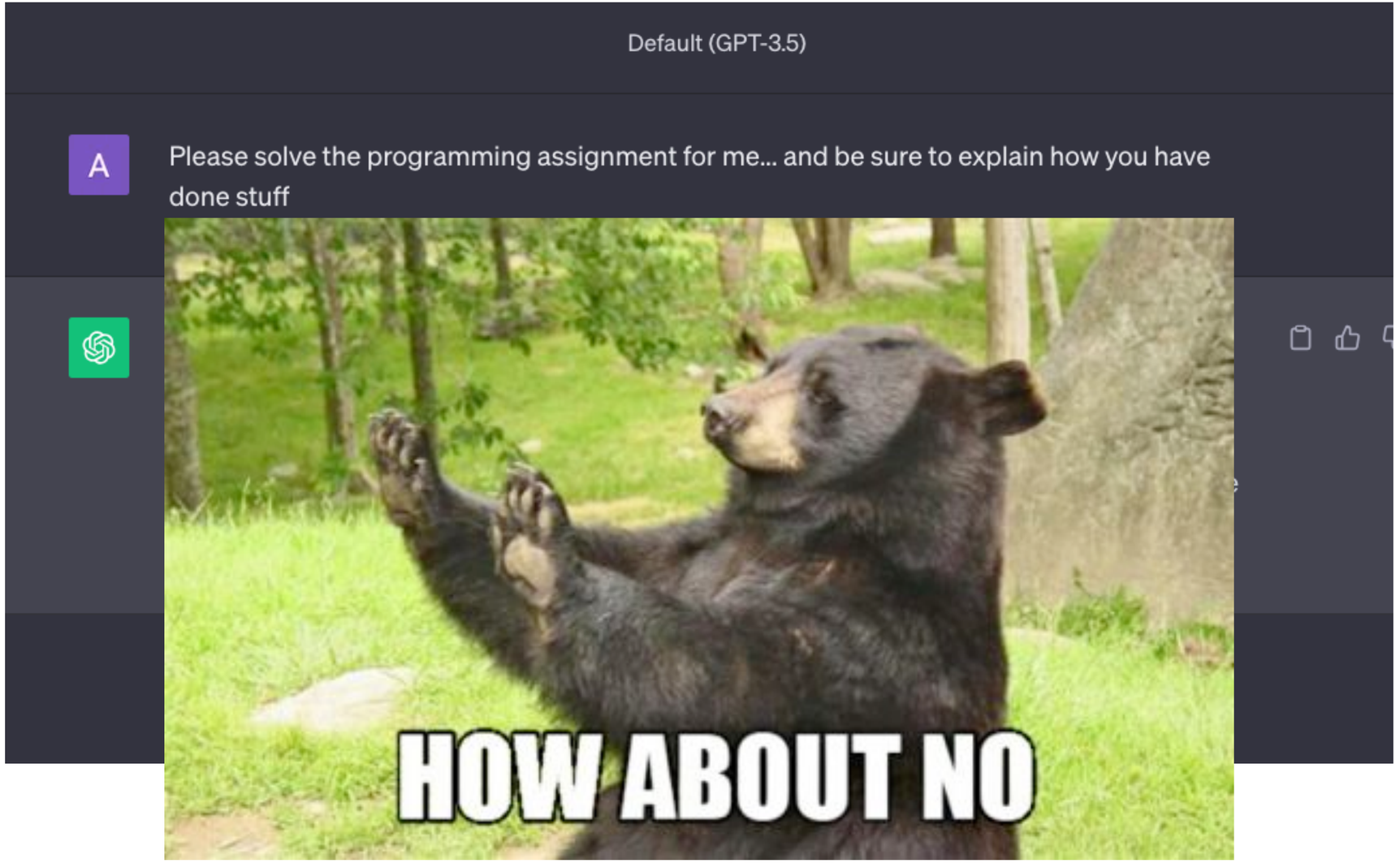
"Sure, just make it look diffrerent so that it doesn't look like you just copied it."

"Sure thing."

Plagiarism results in **directly failing** the class for **all** the involved parties!



The use of AI-based tool is **strongly discouraged** for preparing the solution... use at your discretion (and risk)



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AI-Based Tools can Support You

but they should not replace you

- You exercise because you need to practice, if you solve the program with a tool... you do not exercise enough
- AI-generated code is buggy, you still have to carefully review it
  - This is true also for test cases
- AI-based tools may be a source of inspiration and creativity
  - AI-based tools cannot write the documentation of your design for you... they simply have no idea why you did what you did
- AI-based tools may help you with syntax and libraries (e.g., for testing)
  - If you do not remember the commands, but you cannot rely on them to remember the concepts

- **In your documentation, you must always acknowledge the usage of AI-Based tools and explain why/how you used them.**

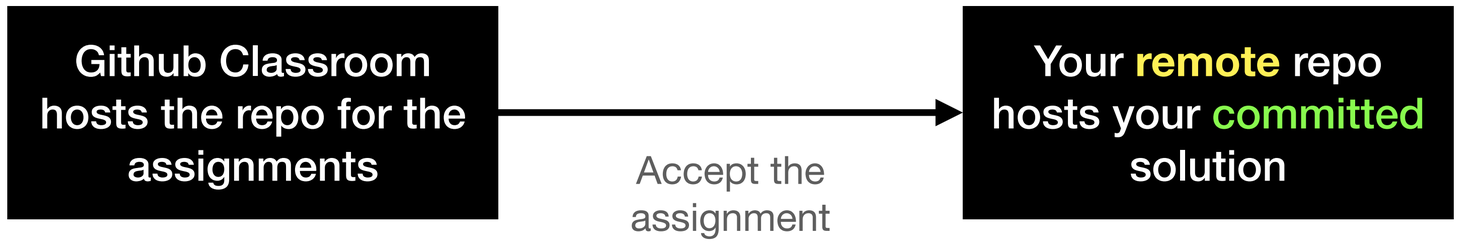
Technology and process: GitHub Classroom

https://classroom.github.com/

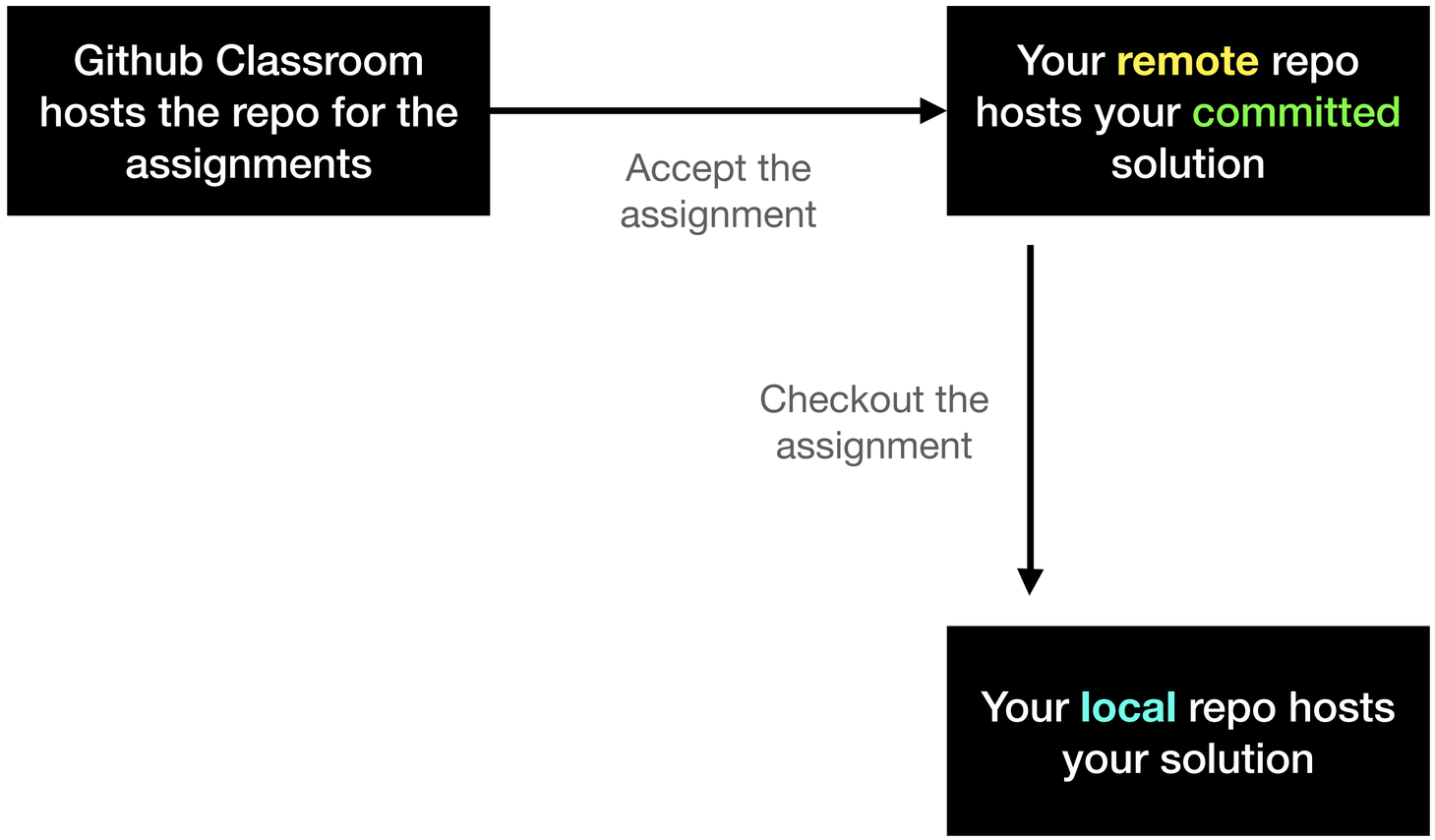
GitHub Classroom Workflow

Github Classroom hosts the repo for the assignments

GitHub Classroom Workflow



GitHub Classroom Workflow



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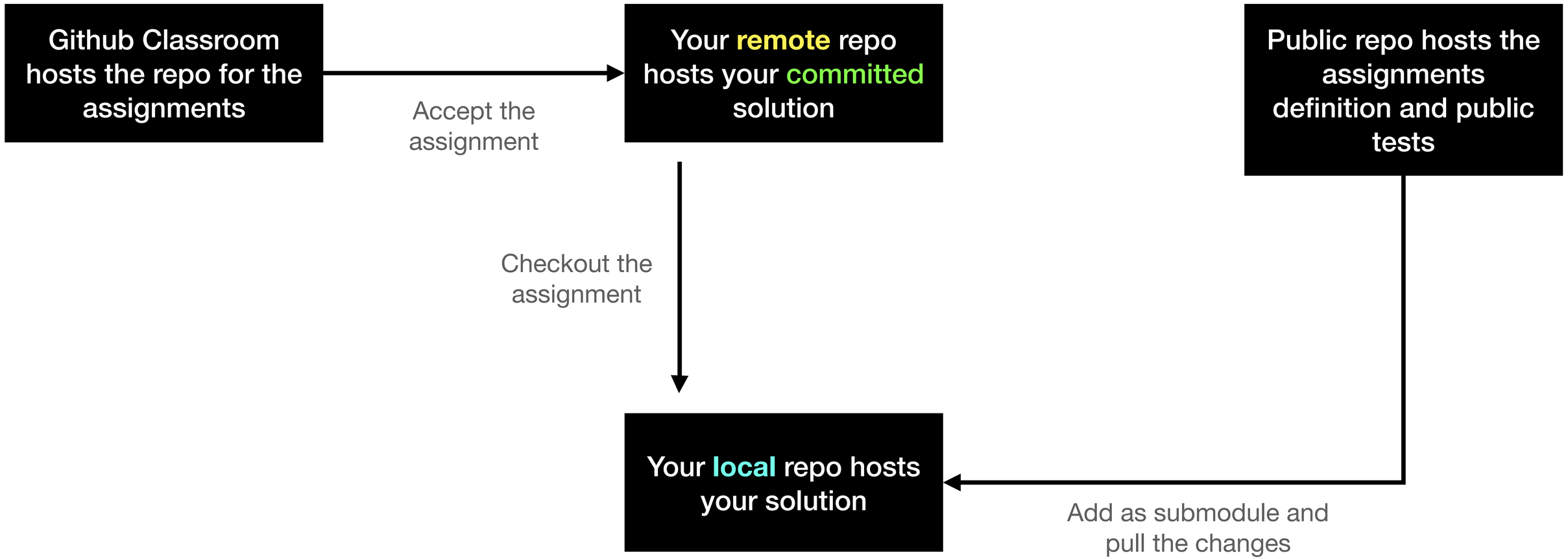

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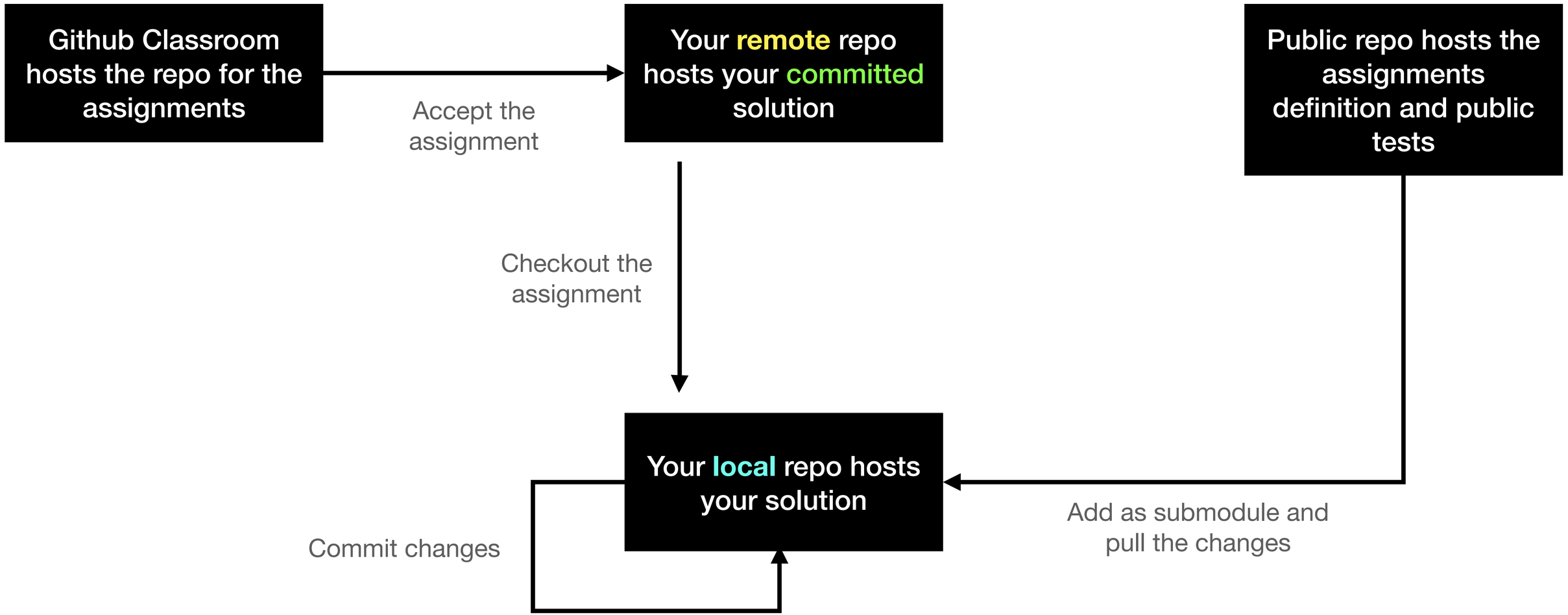

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