(Remote) collaborative code development ,
GitHub collaborative workflow

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Collaborative code development

- Teamwork for research software development
- GithHub collaborative workflow
- Remote code development

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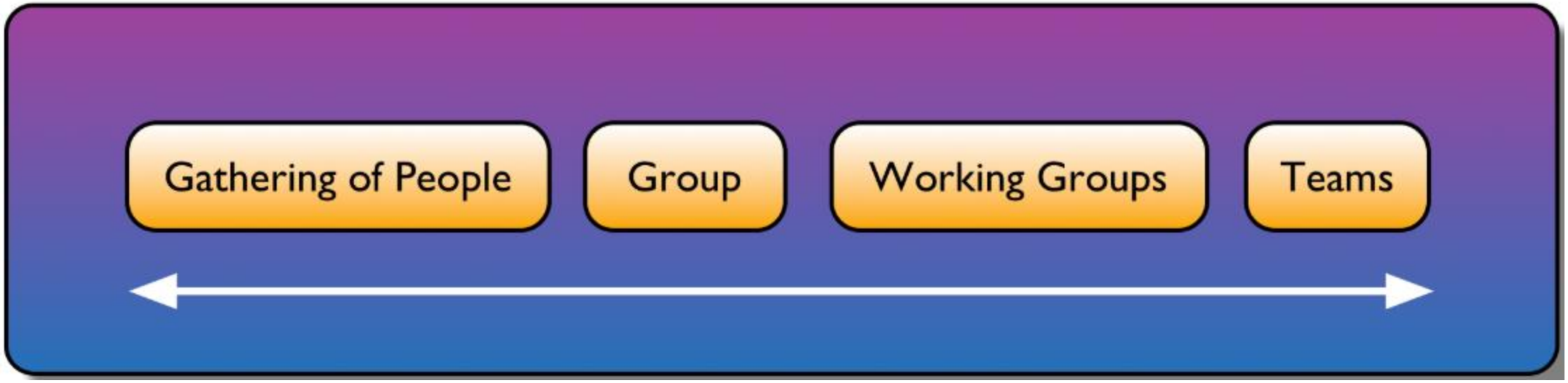
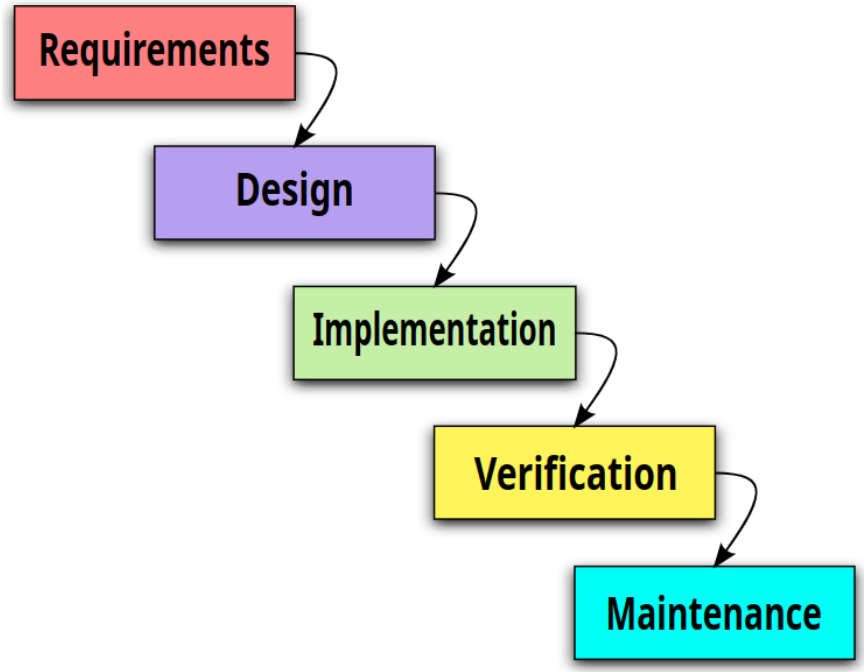
Teamwork for research software development

Why work in teams?



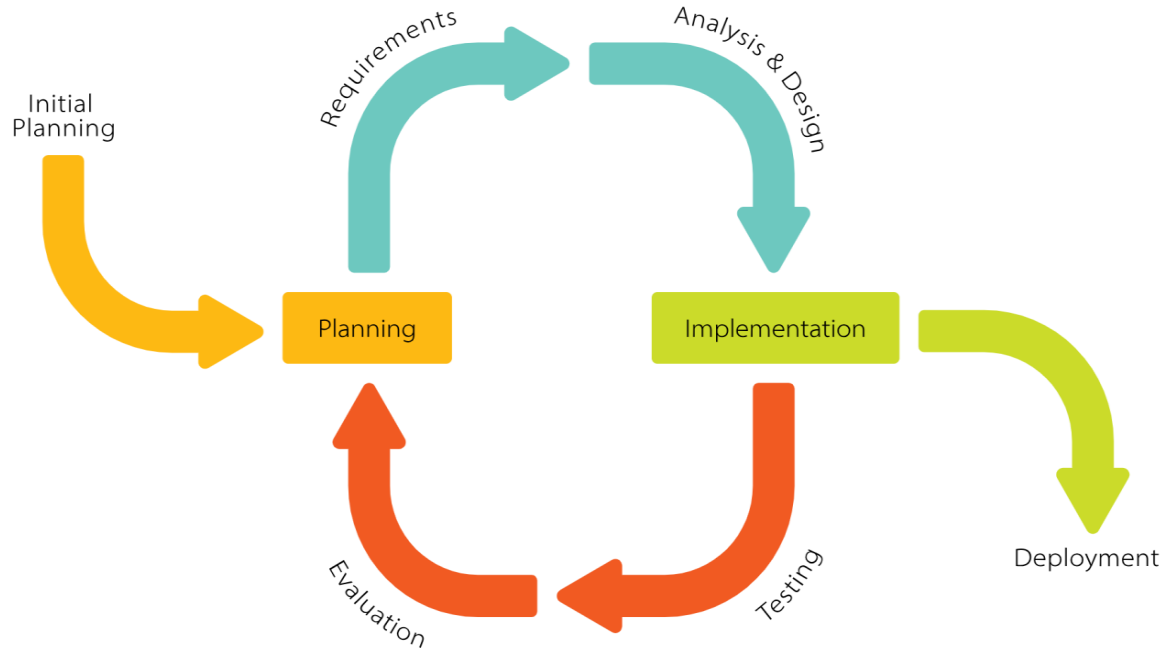
Teamwork for research software development

How to work in teams?



Waterfall model

vs



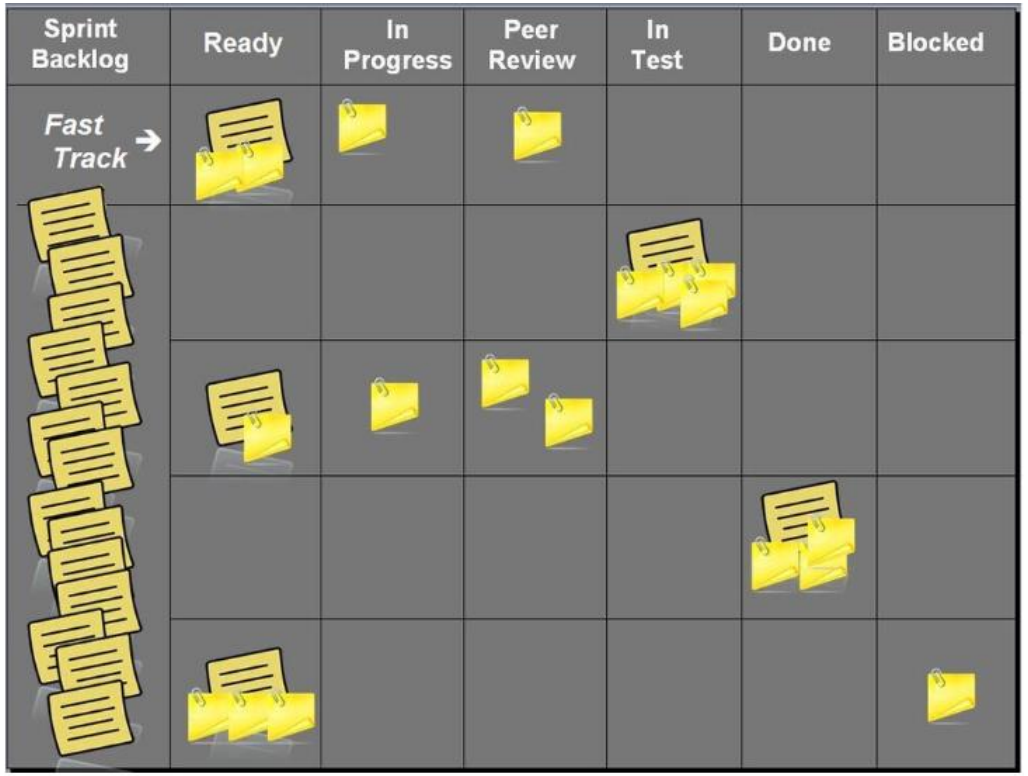
Iterative model

Teamwork for research software development

How to implement a teamwork?

Common Agile methods: Scrum, Kanban, ScrumBan

- Initial planning:
  - What?
  - How?
  - Who?
- Organizing meetings: planning, update, review, retro
- Tracking the process:
  - To Do, Doing, Done.
  - To Do, In Progress, Review, Done.
  - To Do, In Progress, Demo, Done.
  - Committed, Analysed, In Progress, Done.
  - Ready, Estimate, Development, Test, Done.



Teamwork for Research Software Development
https://esciencecenter-digital-skills.github.io/teamwork-for-research-software-development

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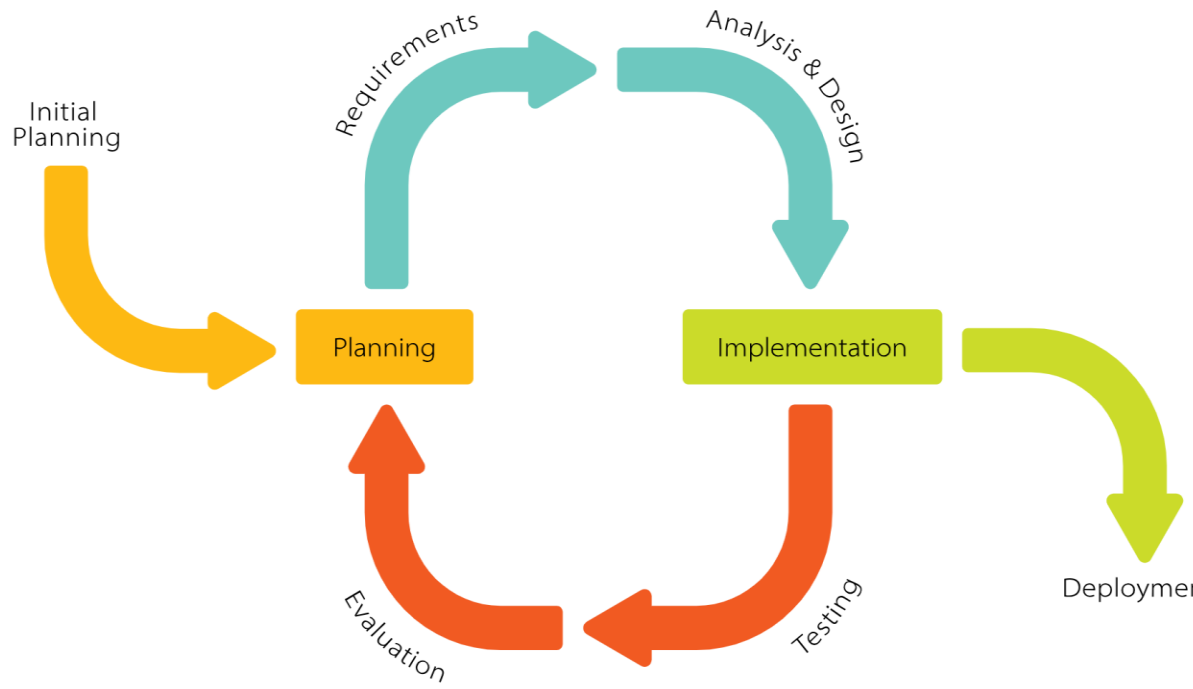
GithHub collaborative workflow

How to set up a collaborative workflow?

Initial planning:

- Create a github repository for each tool
- **Who:** Invite people to the repository
- **What**: Submit issues and sub-issues
- **How:** Setup a project



Iterative model

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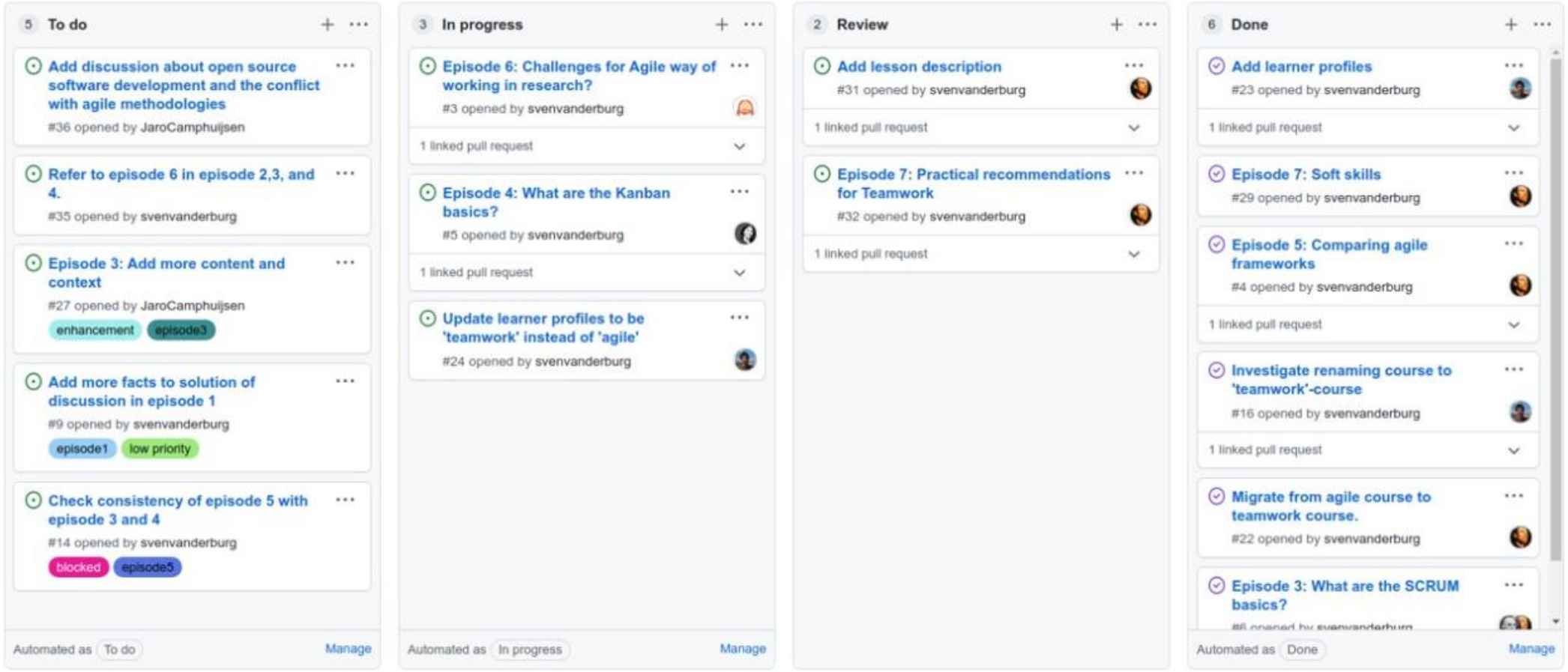
GithHub collaborative workflow

Setup a GitHub project?

Example Agile methods: ScrumBan



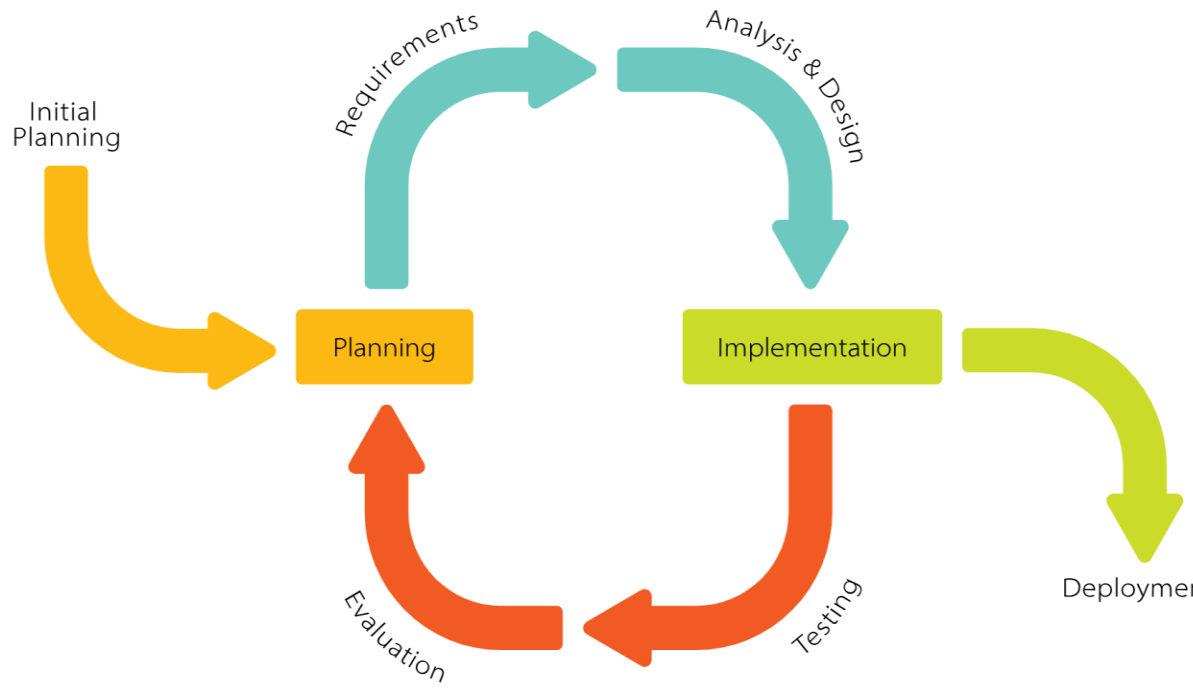
Best practices for Projects
https://docs.github.com/en/issues/planning-and-tracking-with-projects/learning-about-projects/best-practices-for-projects

GithHub collaborative workflow

How to develop code?

Implementation:

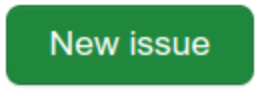
- Continuous Integration
- Update meetings



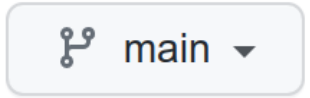
Iterative model

GithHub collaborative workflow

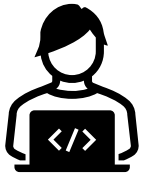
Continuous Integration



Submit/ pick an issue

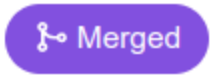


Create a branch



Develop and test

Submit a pull request



Review and merge

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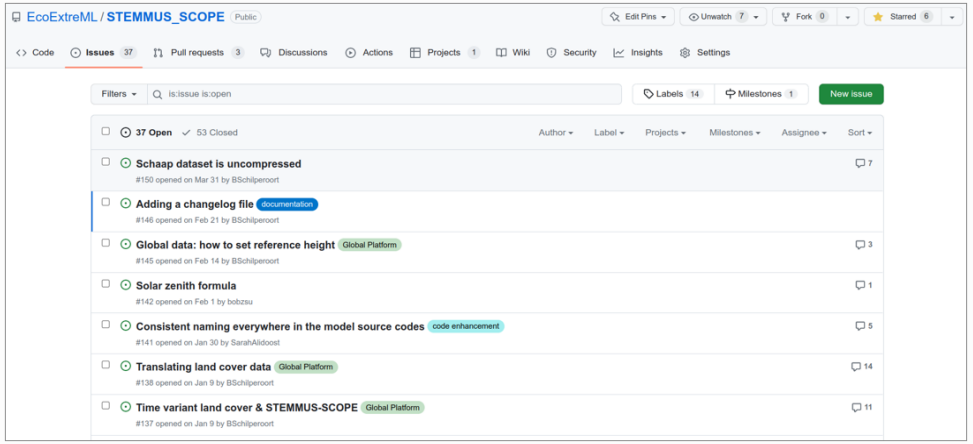
Submit / pick an issue

- Share ideas
- Ask questions
- Report a bug



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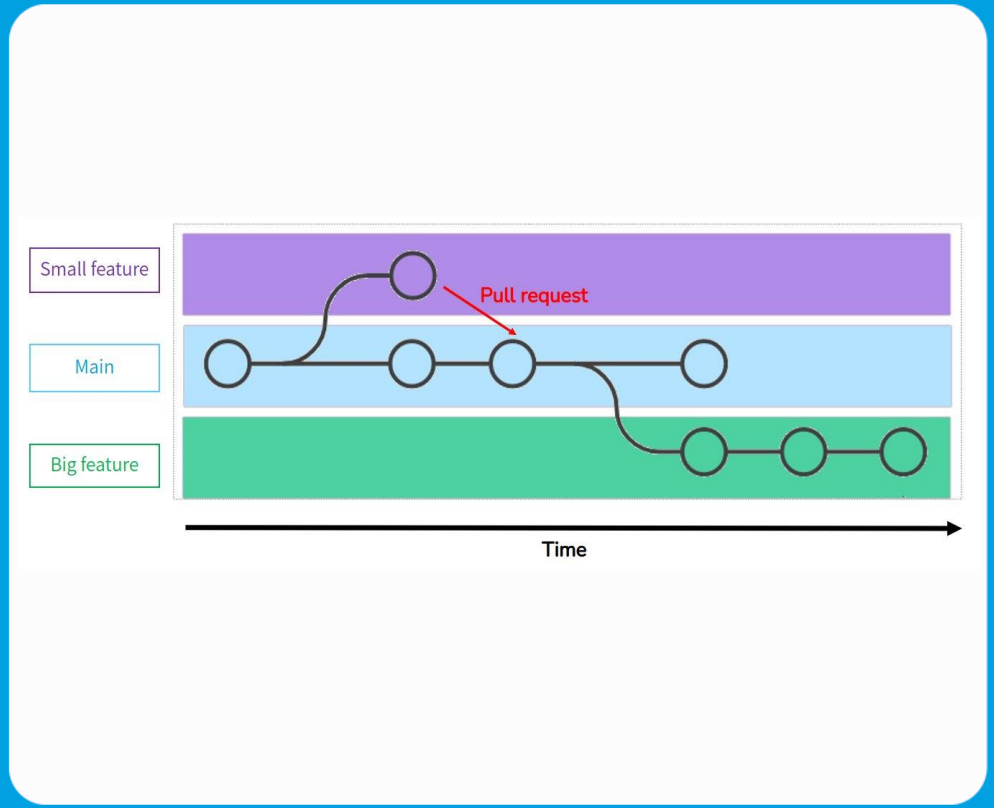
Create a branch

- git checkout main
- git pull
- git checkout –b <branch_name>



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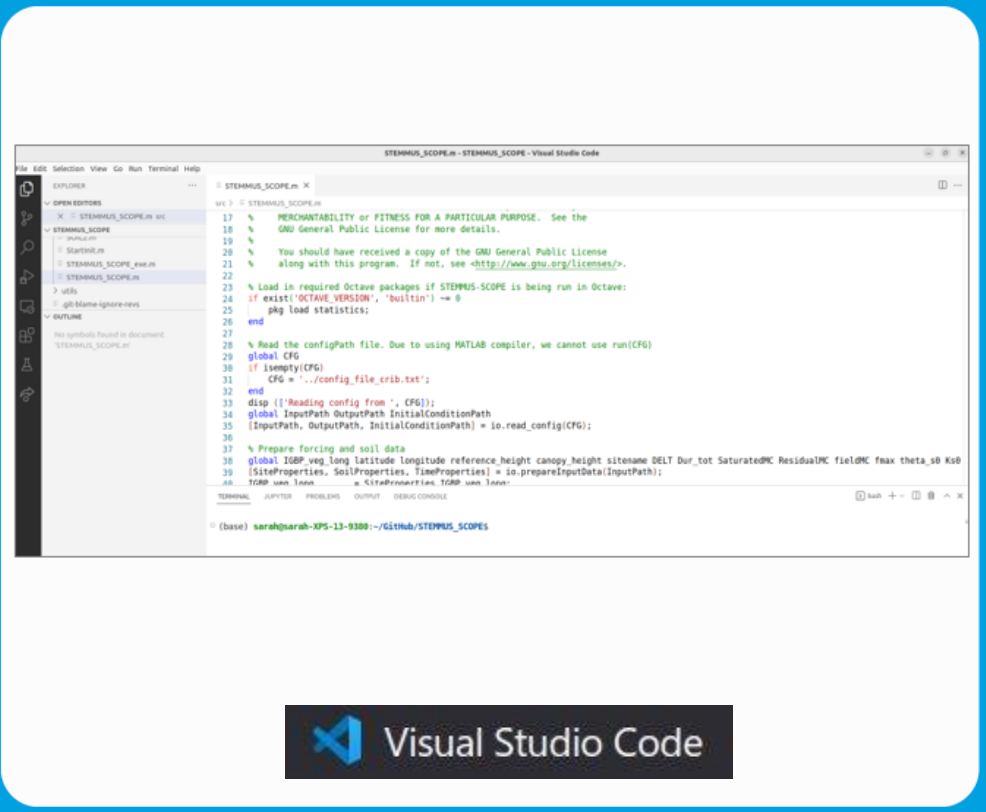
Develop and test

- A code editor, a terminal, a file browser not a notebook
- Change and test
- Commit and push



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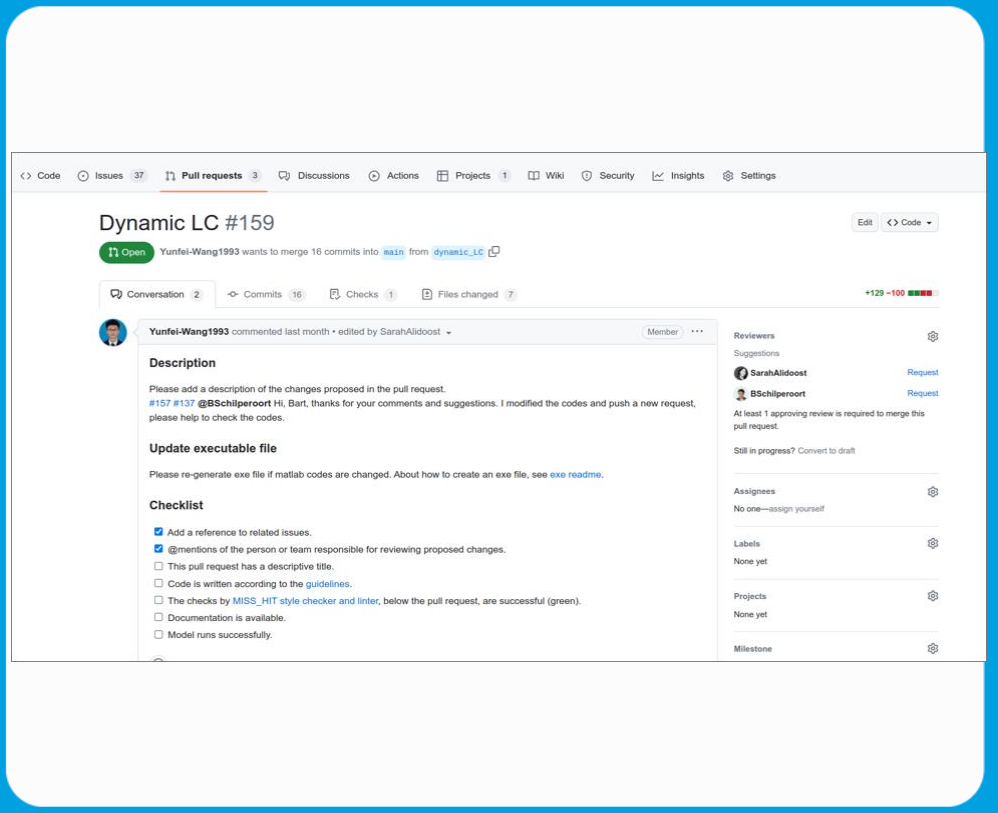
Submit a pull request

- View changes
- Check list
- Ask for feedback



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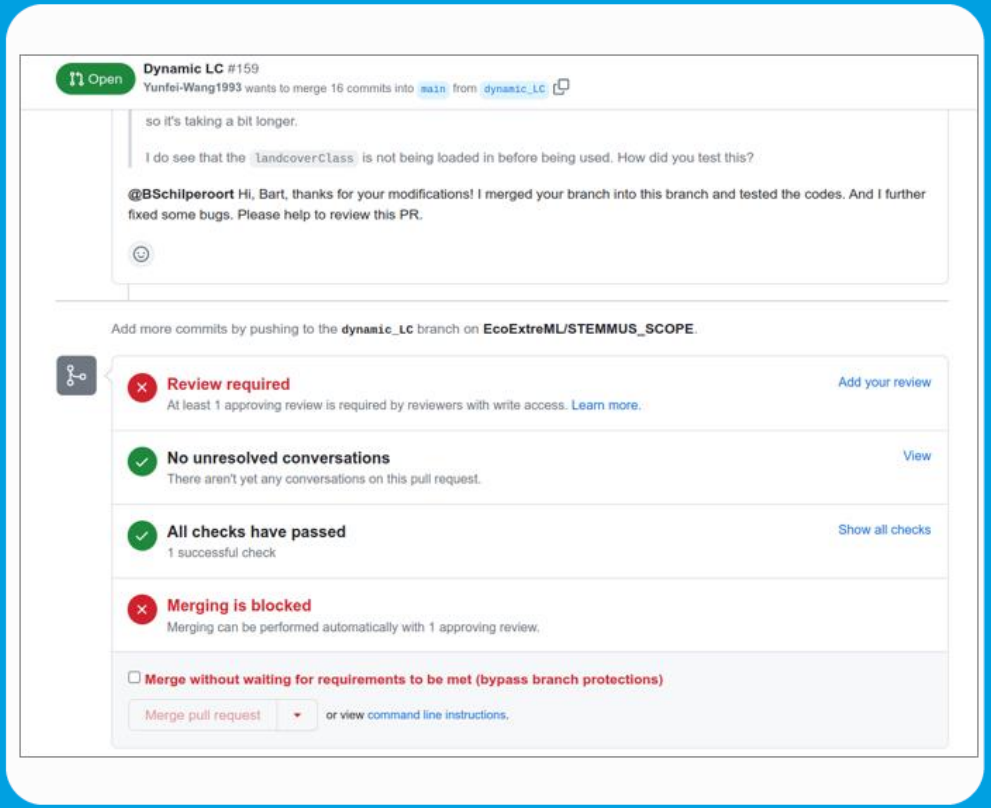
Review and merge

- View changes
- Check list
- Give feedback



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Remote code development

Setup update meetings:

daily stand-up, check-in/out moments, monthly meetings, ...

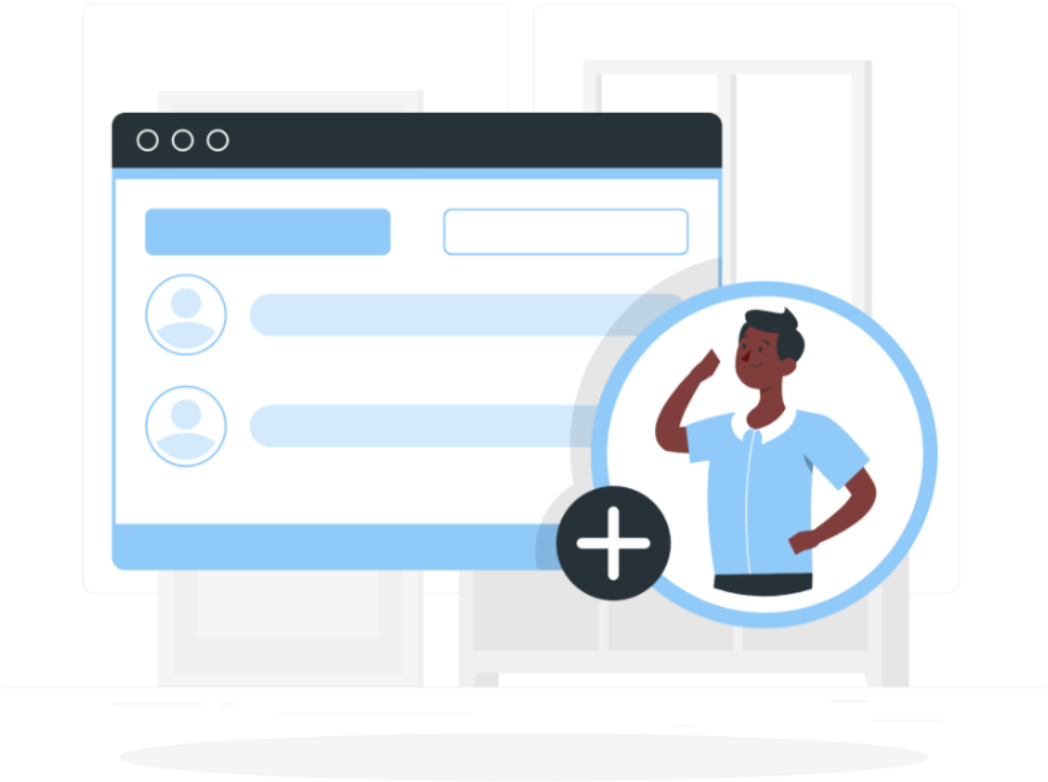
What I did,

What I will do,

Remote code development

Choose a communication channel:

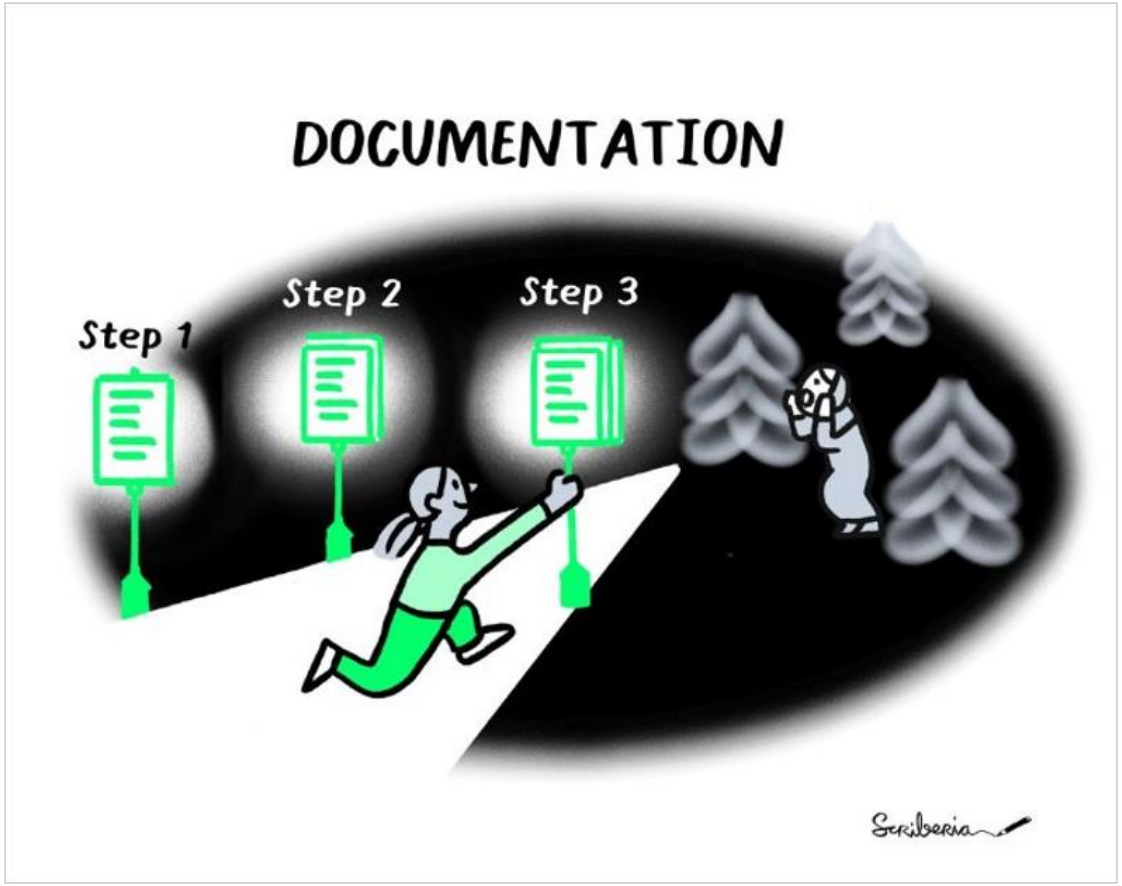
MS teams, slack, GitHub issue, GitHub discussion page, ...



Remote code development

Add guides:

readme.md, contributing.md, pull request templates, issue templates, ...



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Remote code development

Use automate testing (advanced):

GitHub action workflow, unit tests

1

Write tests in test_*.py files

2

Store files in "tests" folder

3

Install pytest and its dependencies from pyproject.toml file

4

Run tests locally

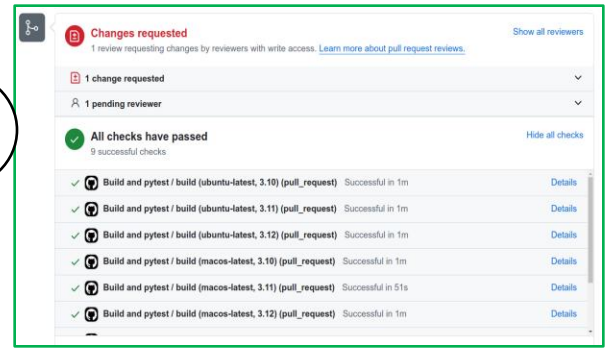
5

Setup GitHub Actions workflow .yml file

6

Start the workflow e.g. after a commit

7



Check the results of actions online

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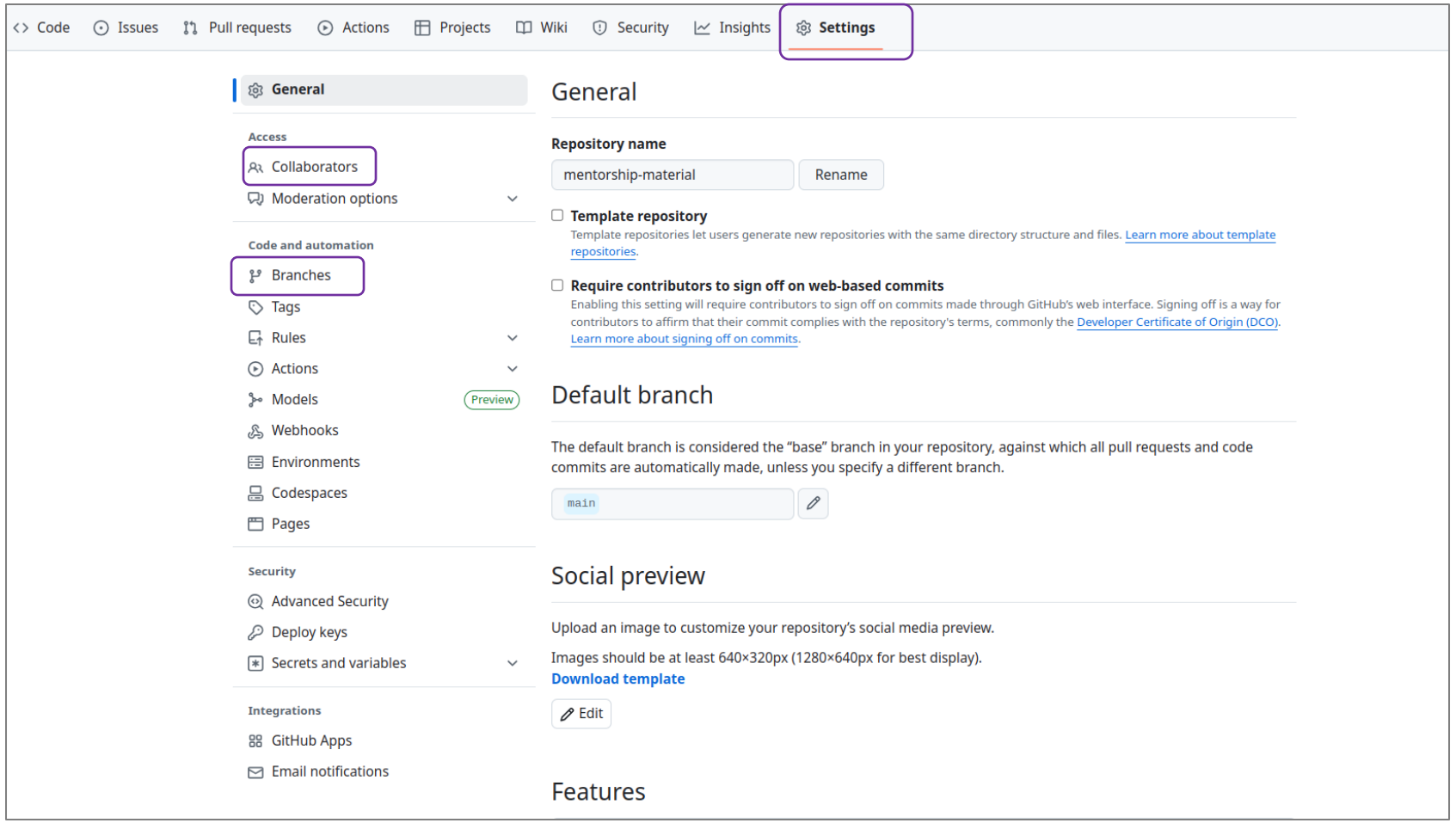
Remote code development

Use GitHub facilities:

branch protection, merge permissions, team access



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Check out the references at :

https://github.com/SarahAlidoost/mentorship-material/blob/main/Reference.md