GitHub workflow

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Why should you care?

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1. Help make changes in the code more transparent (important for open source!)
2. Reviewing helps to avoid bugs
3. Link issues to resolution

Agenda

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1. Branch out
2. Committing changes
3. Creating and reviewing PRs
4. Merge conflicts
5. Issue linking
6. Additional ressources

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0. The very basics

What you will need

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- Install git for Windows https://git-scm.com/download/
- Install PyCharm (or another IDE) https://www.jetbrains.com/pycharm/download/
- Create a GitHub account

Cloning a remote repository

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- open a terminal with **`git`** (you can use **`git bash`** if on windows)
- **`cd`** to navigate to directory where the repository should be
- copy github HTTPS address
- `git clone <address>`
- open the project in your IDE
- follow any additional steps, like setting up your virtual environment

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1. Branches

Working on a repository

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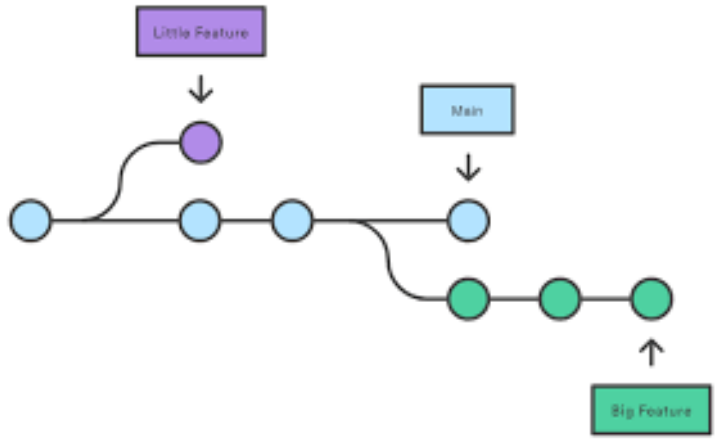
- never work directly on the main branch -> fork off a branch and **merge** back in
- `git checkout main`
- `git pull`
- `git checkout -b <name>` -> new branch
- there are some conventions like `feature/<name>` or `fix/<name>`



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2. Committing changes

Making commits

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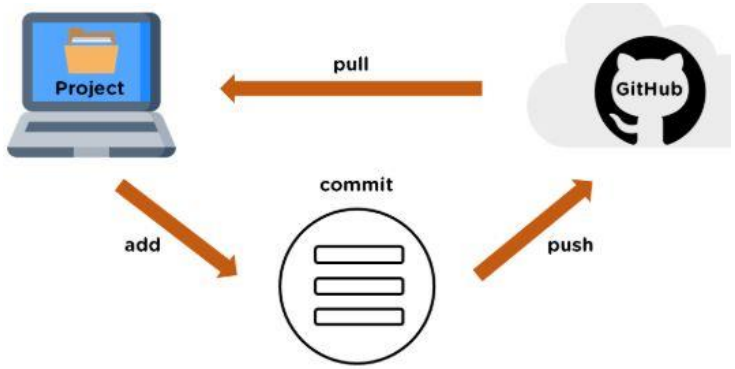
- commits reflect a **set of changes** to one or more files
- go together with a **commit message**
- better to err on the small side -> **commit often**
- they are local changes until they are pushed
- once they are pushed,
  - other people can pull them
  - you have a backup of your work



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3. Creating and reviewing PRs

Preparing for review: Rebasing

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- you'd like to leave a neat PR for your colleague to review
- no pressure to have a super neat history from the beginning
- `git log` – check commits made to the branch
- `git rebase -i main` – move branch on top of other branch and edit commits in branch

! `git push -f` when rewriting commit history

Pro tip: `git config --global rebase.autosquash true` to automatically sort commits for interactive rebase

Preparing for review: Resetting

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- motivation: you'd like to leave a neat PR for your colleague to review
- no pressure to have a super neat history from the beginning
- `git log` – check commits made to the branch
- `git reset --soft <commit>` – undo changes until specified commit but keep changes made to files
- make new, meaningful commits

- `git stash` / `git stash pop` – put away local changes temporarily / get them back

Merging changes into the code

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- create pull request (PR)
- can be reviewed commit by commit or at once
- merge into main branch (usually)

→ pull main branch so that new branches reflect the changes

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4. Merge conflicts

Dealing with merge conflicts

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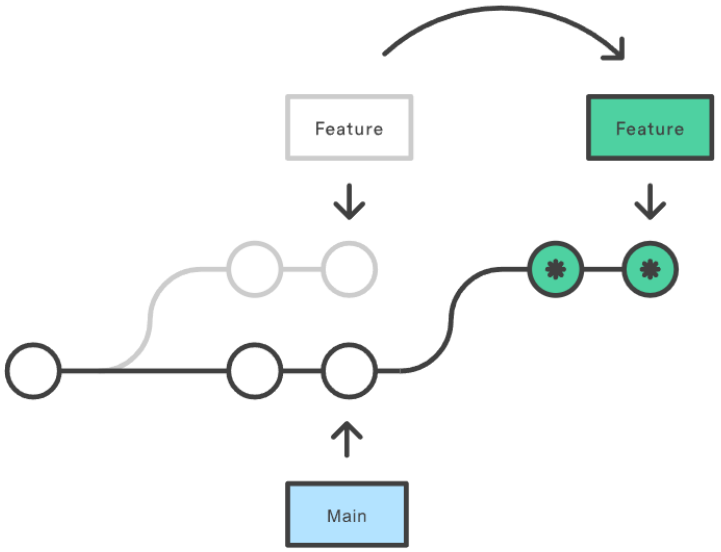
- open a PR to merge your changes
- if you have modified a file that has also been modified on main, you will run into merge conflicts
- `git rebase (-i) main` -> move branch on top of current state of main
- the rebase will stop on any merge conflicts and wait for them to be resolved
- `git rebase --continue`



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5. Issue linking

Issues

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- todos can be managed over git issues
- can be linked to pull requests to track development
- can be automatically closed using magic words like *fix*, *solve*, *close*
- templates can be used to create issues

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6. Templates, GitHub actions, pre-commit and more

RLI Super-repo

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- Git - Super-Repo Documentation
- templates for issues, PRs
- pre-commit setup
- GitHub actions
- etc...

Licence

Please quote as:
"GitHub workflow basics (2025-05-20)"

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