Git Practical Session / Workflow

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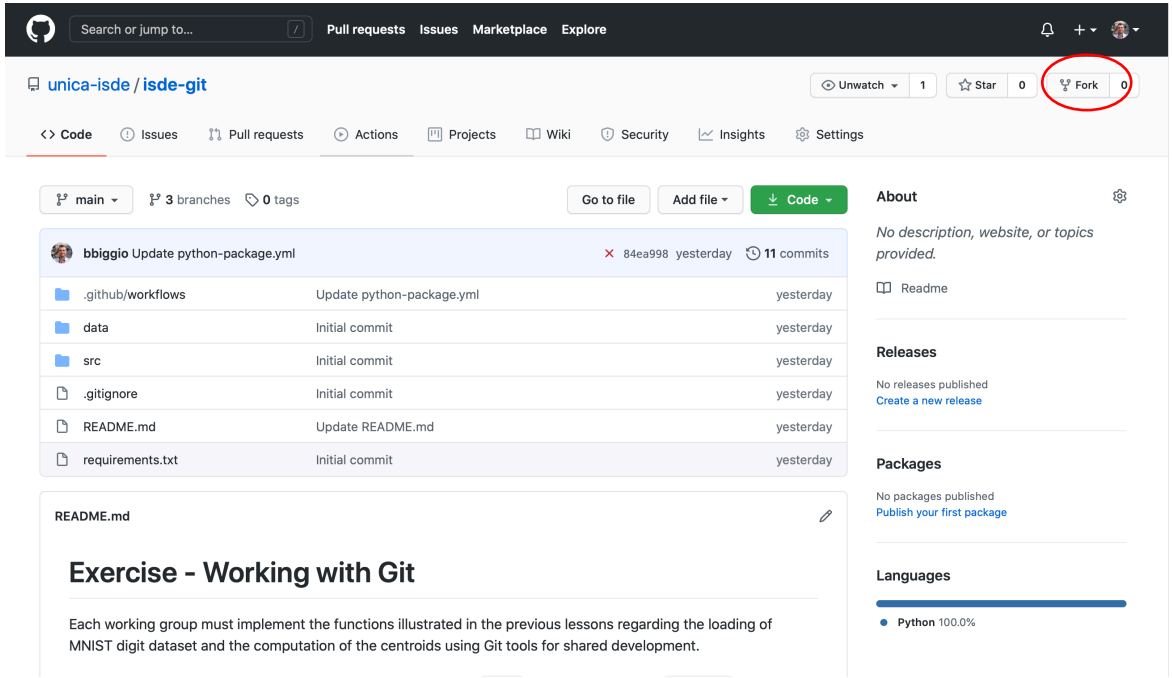
Git Workflow

- We will solve the Git exercise proposed in https://github.com/unica-isde/isde-git
- We will use a simplified Git workflow and we will see its integration with PyCharm
- The basic workflow for **Git** is as follows
  1. Fork the project (create a new master project)
  2. Create an issue in Git
     - Each issue has a separate identifier (e.g., #1)
  3. Create a branch associated to the issue to address the required changes
  4. Initial Implementation / testing, commit and push
  5. Create a merge/pull request associated to the aforementioned issue/branch
  6. Refine implementation / testing until completed
  7. Merge the branch to the master and close the corresponding issue and merge/pull request

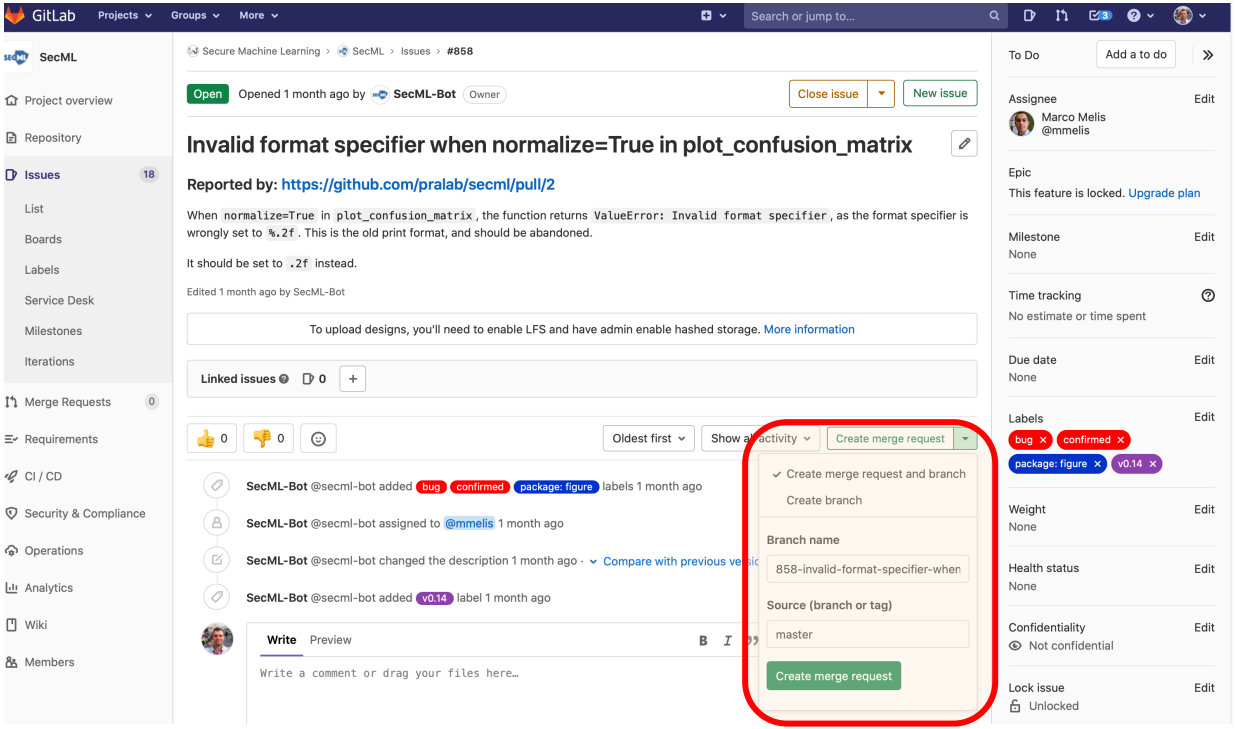
Fork the Project

- Go to https://github.com/unica-isde/isde-git
- Click the *Fork* button
- This will create a copy of the project into your user home in GitHub
- Go to your forked project and create a new issue (next slide)



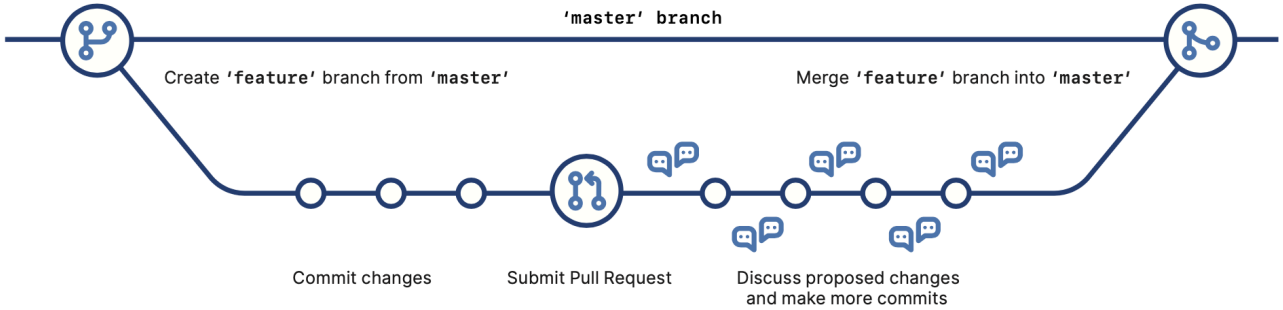
GitLab WorkFlow

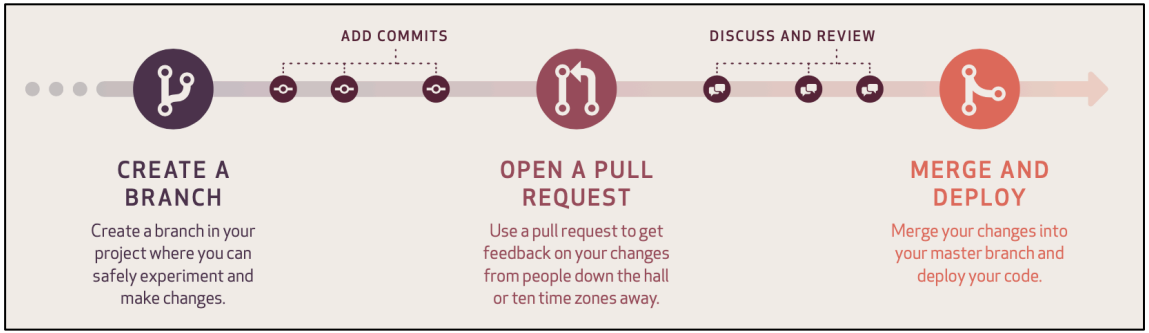
1. Fork Project
2. Open Issue
3. Create Branch and Merge Request
4. Work & Discuss
5. Merge



GitHub Workflow

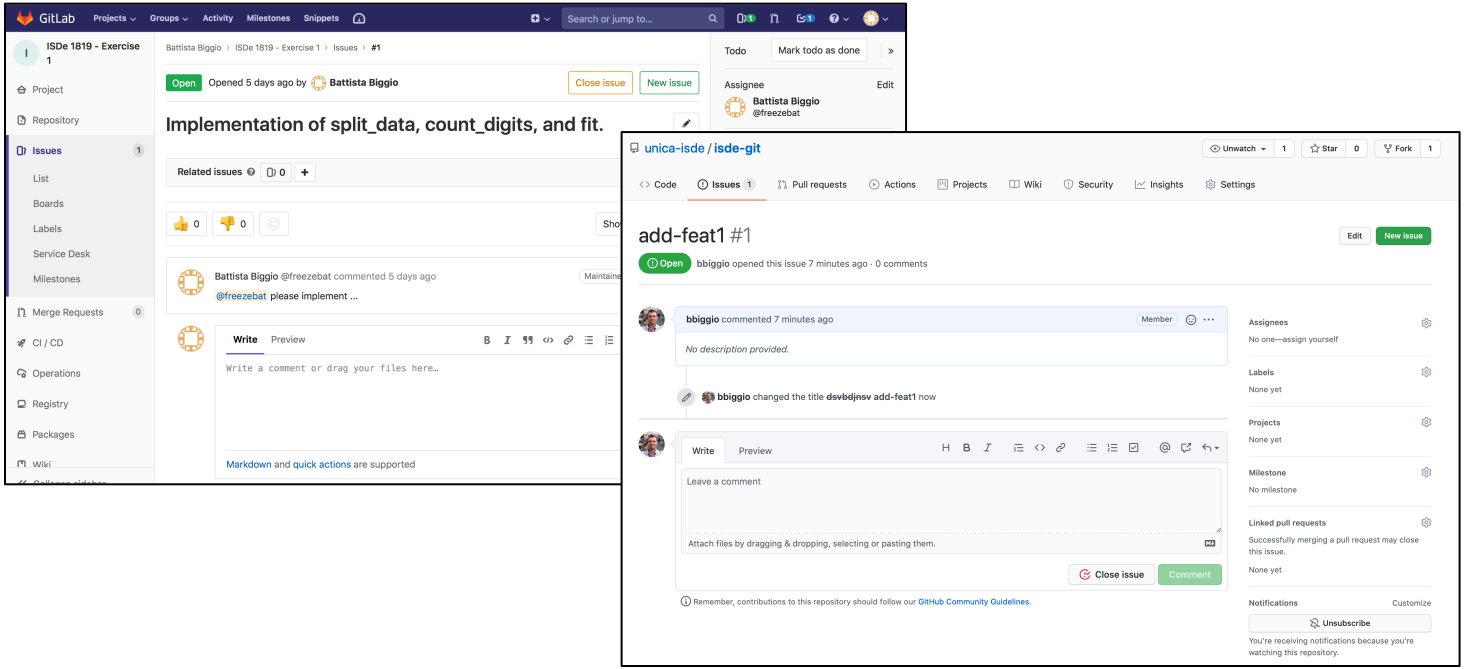
- **Main difference w/ GitLab**: no direct/one-to-one connection between issues and branches





Create a New Issue

- Create a new issue and a corresponding branch; recall however that the exercise required creating a different issue for each function to be implemented (3 in total)

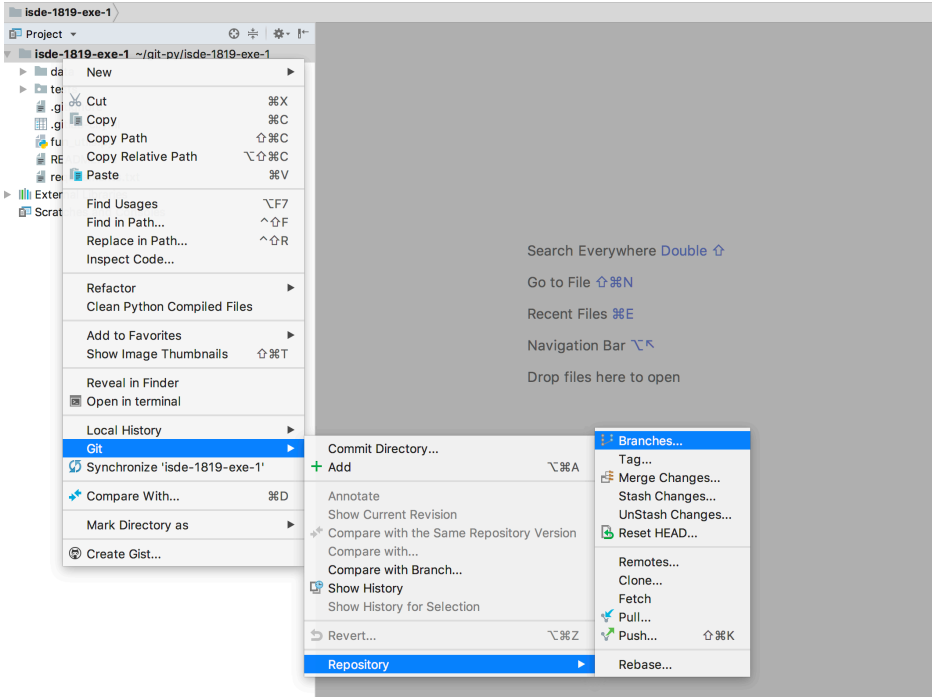


Create the Corresponding Branch

- Open Pycharm, and create a new project by checking out your forked project from Git
  - Use *checkout from version control*, select *Git*, and copy-paste the URL from the project page
  - The URL is something like: [https://github.com/*your-username*/isde-git.git](https://github.com/your-username/isde-git.git)

- Create a new branch from the Git menu (or from the Git webpage)
  - Name it using the convention *issue_id-branch_name*
  - e.g., 1-split_and_fit

- Push the branch to the remote repository



Implement, Test, Commit & Push

- Implement the required functions
- Check if they pass the tests, otherwise keep working on them to fix the problems
- Commit (and keep coding if necessary)
  - Recall that *commit* only affects your local repository
- Push when finished
  - Pushes the changes to the remote branch

Create the Merge/Pull Request

Active branches

1-split_and_fit
4c432370 · New branch to address issue #1 · 41 seconds ago

0 1 Merge request Compare

master default protected
7ae9a64f · Update README.md · 1 month ago

New Merge Request

From **1-split_and_fit** into **master** Change branches

Title: WIP: New branch to address issue #1

Remove the `WIP:` prefix from the title to allow this **Work In Progress** merge request to be merged when it's ready.

Add description templates to help your contributors communicate effectively!

Description

Write Preview

```
Closes #1
```

Markdown and quick actions are supported Attach a file

Merging the Request and Closing the Issue

- Remove the «WIP» prefix from the merge request (GitLab) or comment that you finished on the pull request (GitHub)
  - This means: we are now done with this issue and ready to merge

- Merge the branch *1-split_and_fit* to the master/main

- Close the corresponding issue/merge request

That's it! This was a simple exercise to demonstrate how to use Git and a very basic Git workflow. You should follow this workflow in your home assignments, also using the Git Board to prioritize and track issues.

Homework: open another issue to document the code using docstrings, and then merge that to the master. Generate the docs locally on your machine (no need to upload them to the repository)

Recap: GitHub and Gitlab Cheat Sheets

- GitHub Cheat Sheet (basic commands, workflow)
  - https://education.github.com/git-cheat-sheet-education.pdf

- GitLab Cheat Sheet (basic commands, workflow)
  - https://about.gitlab.com/images/press/git-cheat-sheet.pdf