

## Exercise on Git

You work on a research paper with two fellow students. To collaborate effectively, the team has decided to use Git and Markdown, using Pandoc to generate outputs such as pdf, tex, html, or docx. As part of the project, complete the following steps and enter the required commands.

You have created a README.md file in an empty directory. Initialize a git repository, and create a commit containing this file:

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Briefly summarize the state of the three git sections afterwards:

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You work on the REAMDE.md, CONTRIBUTING.md and paper.md files. All changes should be part of the next commit (do not yet create the commit):

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You decide that the paper.md changes should be part of a separate commit. Use the appropriate operations to accomplish this:

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At some point, you notice that the paper.md file is in two sections (to be committed and not staged for commit), as indicated by git status:

On branch main

Your branch is up to date with 'origin/main'.

Changes to be committed:

(use "git restore --staged <file>..." to unstage)

modified: paper.md

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git restore <file>..." to discard changes in working directory)

modified: paper.md

Explain what this means and whether this is a valid state.

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The team plans to develop a section of the paper in a separate branch. This can be accomplished based on the following operations:

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The deadline for your work is in one week. To complete the project in time, sections one (introduction) and five (discussion) must be developed in parallel. Draw the Git graph with appropriate branch names:

One day before the deadline, many commits were added to the main branch and the branches for sections one and five are behind. Before merging, these branches should be up-to-date with the recent changes in main:

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Your colleague Anna has completed the introduction all by herself and updated the branch for section one by running

`git rebase main && git push -f.`

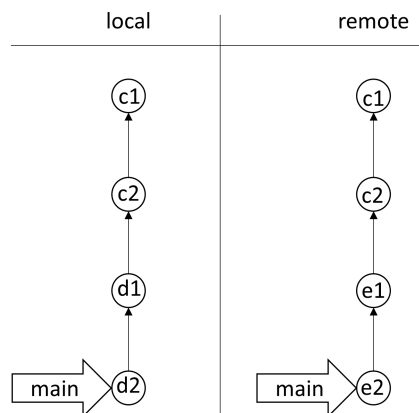
Explain whether this is a suitable approach for the other branch, which contains work by Nicole, Tim, and Sandy.

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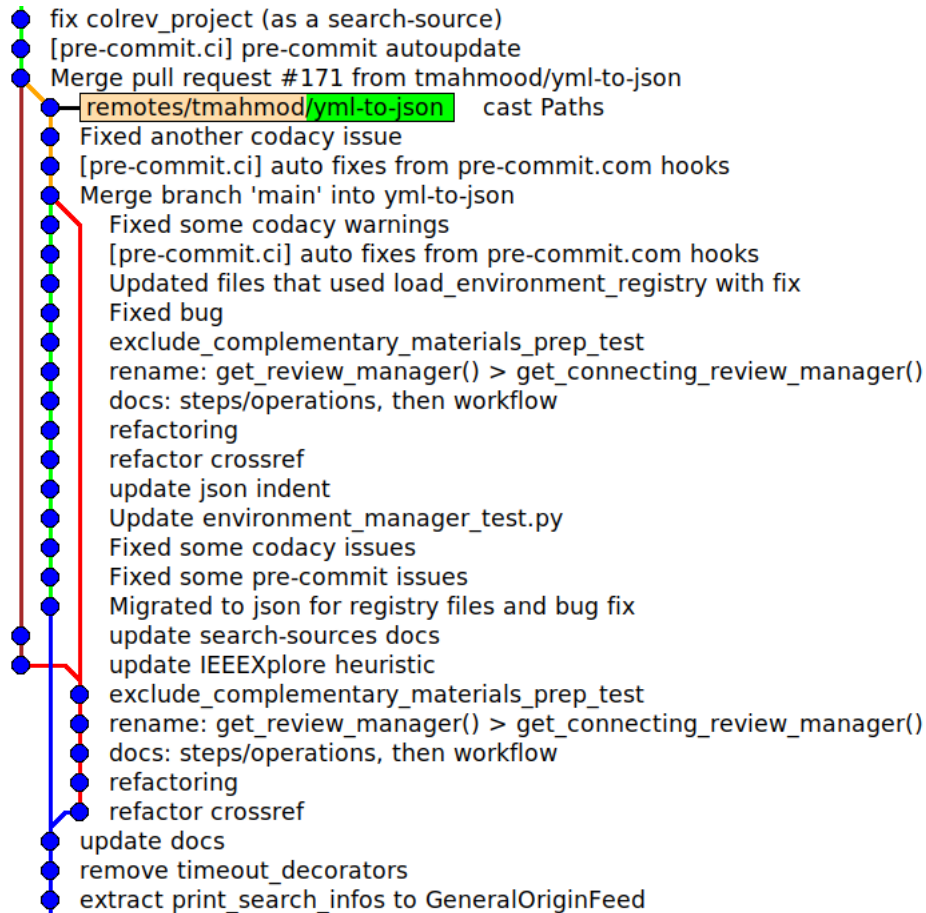
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The state of the local and remote discussion branches is the following:



Running `git pull` gives you an error, which states that you "Need to specify how to reconcile divergent branches". Identify the diverging commits and draw the git graph after completing `git pull -rebase`:

In another project, gitk shows the following overview of commits and branches (most recent on top). HEAD currently points to main.



Provide the git commands leading to this graph (similar to `learn-git-branching`). You can use "3x commit" to create three commits in a row.