Make `git` happen

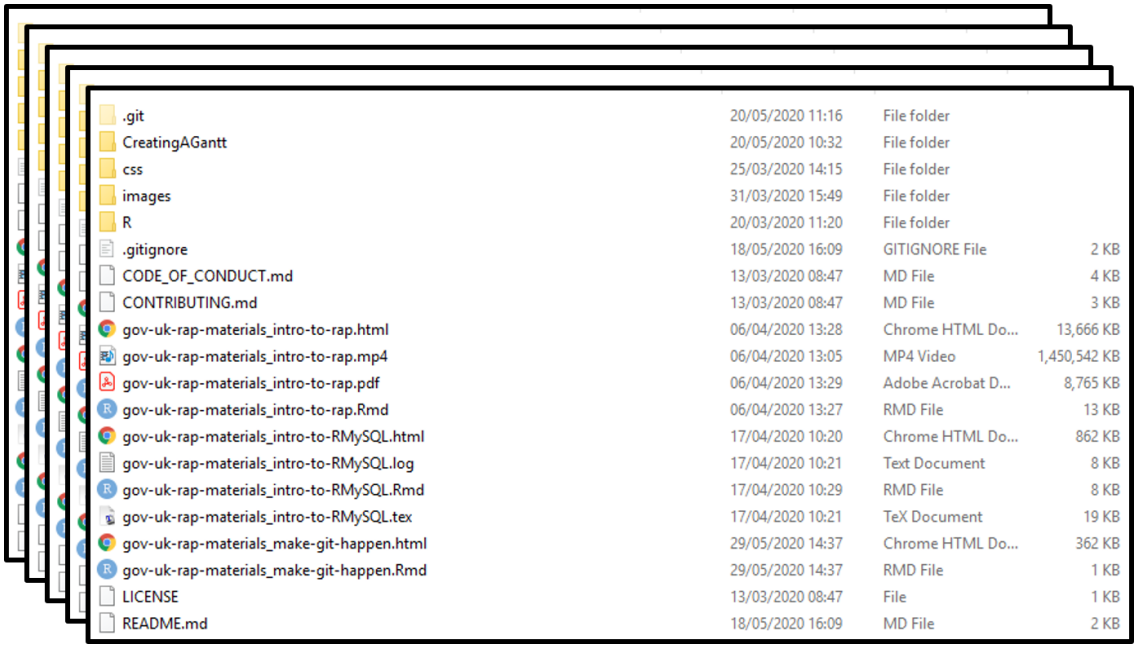
Joseph Crispell

01 Jun 2020

What is git?

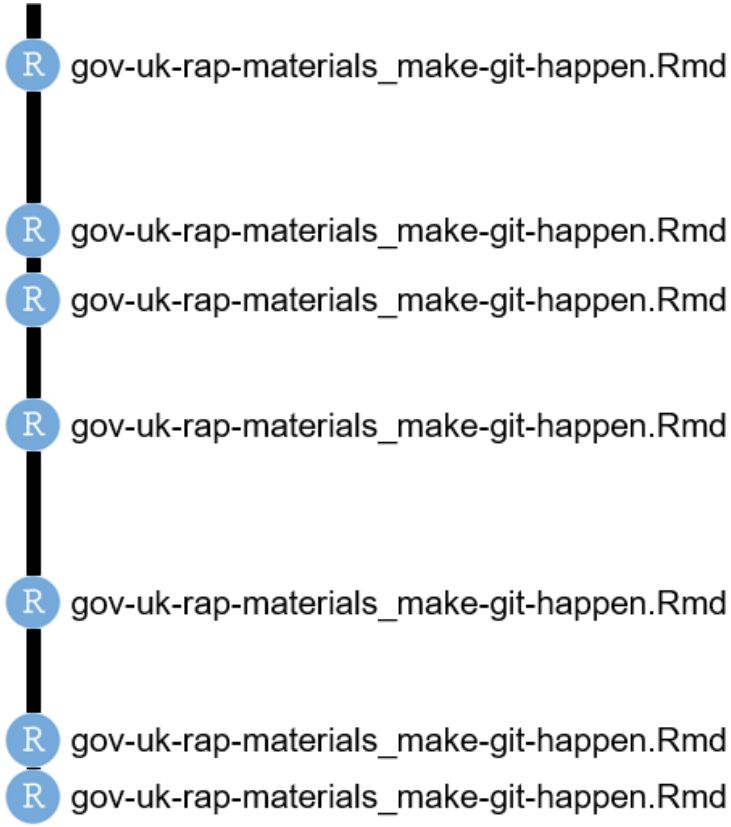
"You use Git to take snapshots of all the files in a folder."

Alice Bartlett

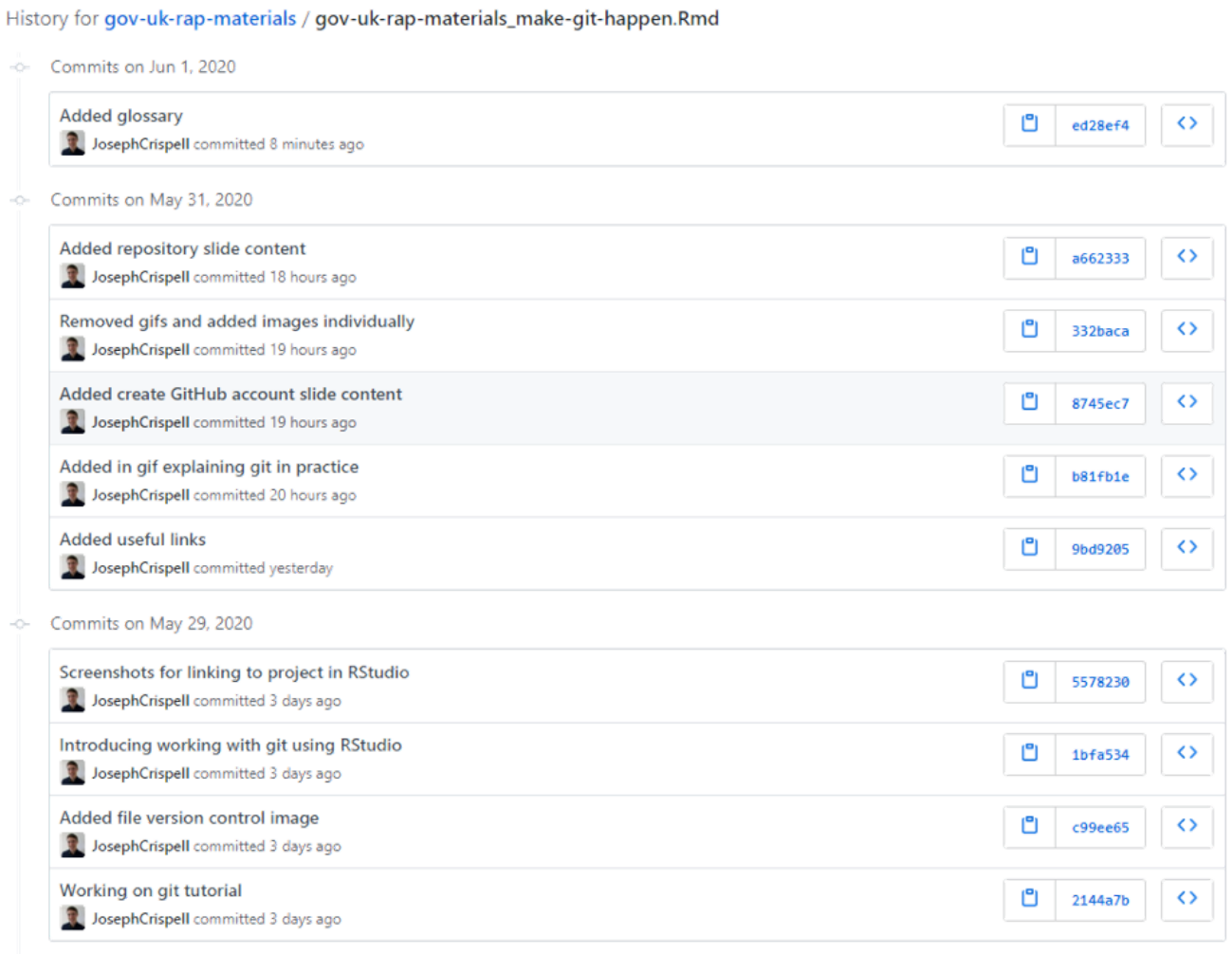


Snapshots in time

- AnIntroductionToGithub.Rmd
- AnIntroductionToGithub_05-04-20.Rmd
- AnIntroductionToGithub_05-04-20_edited.Rmd
- AnIntroductionToGithub_15-04-20.Rmd
- AnIntroductionToGithub_15-04-20_JC.Rmd
- MakeGitHappen_25-05-20.Rmd
- MakeGitHappen_25-05-20_FINAL.Rmd

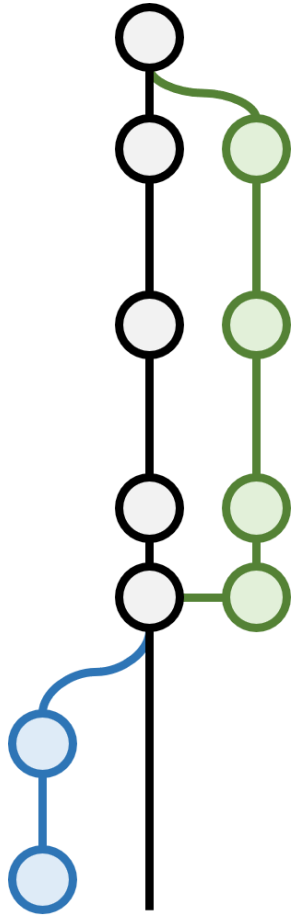


Snapshots in time



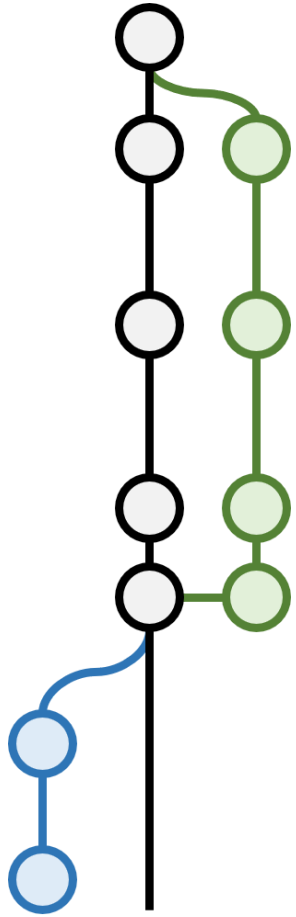
Three key concepts

- **Repository** - your project folder
- **Commit** - a snapshot of your folder
- **Branch** - a working version of your folder

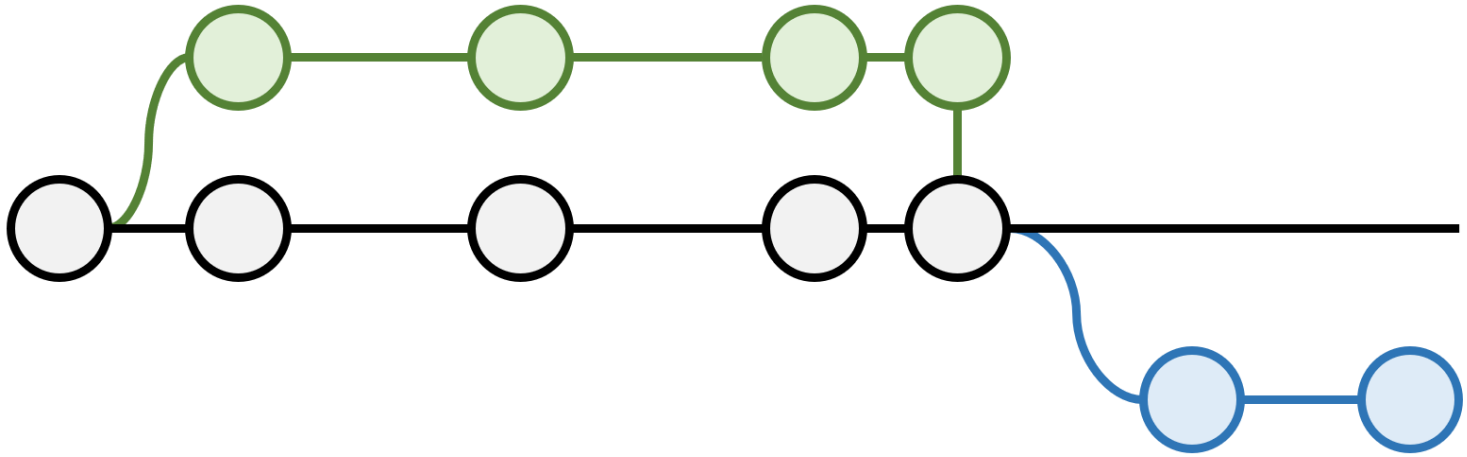


Three key concepts

- **Repository** - your project folder
- **Commit** - a snapshot of your folder
  - We use `push` to send the snapshots online
  - And `pull` to retrieve an updated snapshot
- **Branch** - a working version of your folder



Work `git`!



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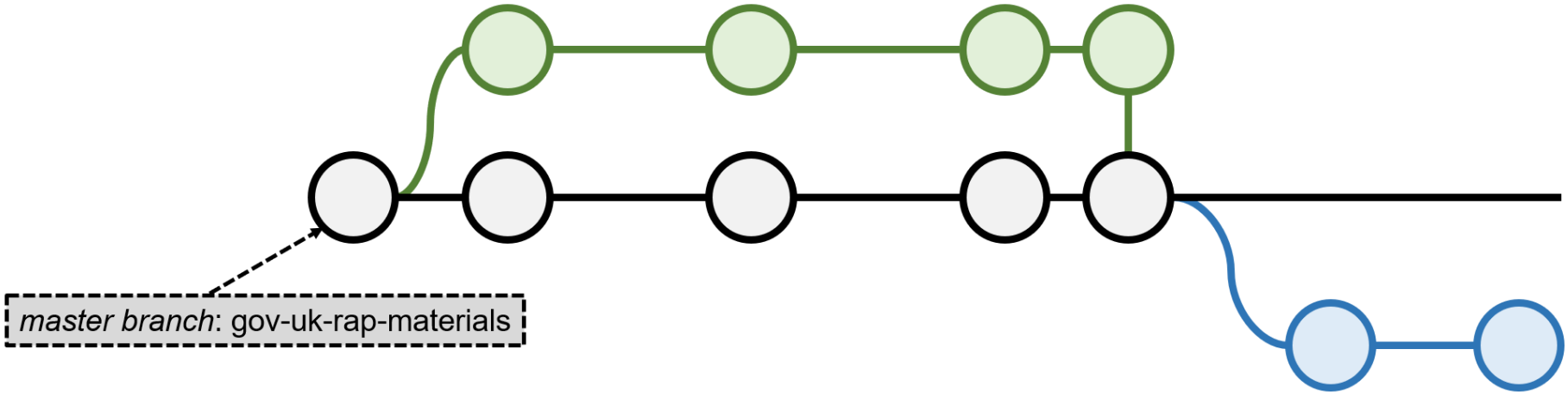

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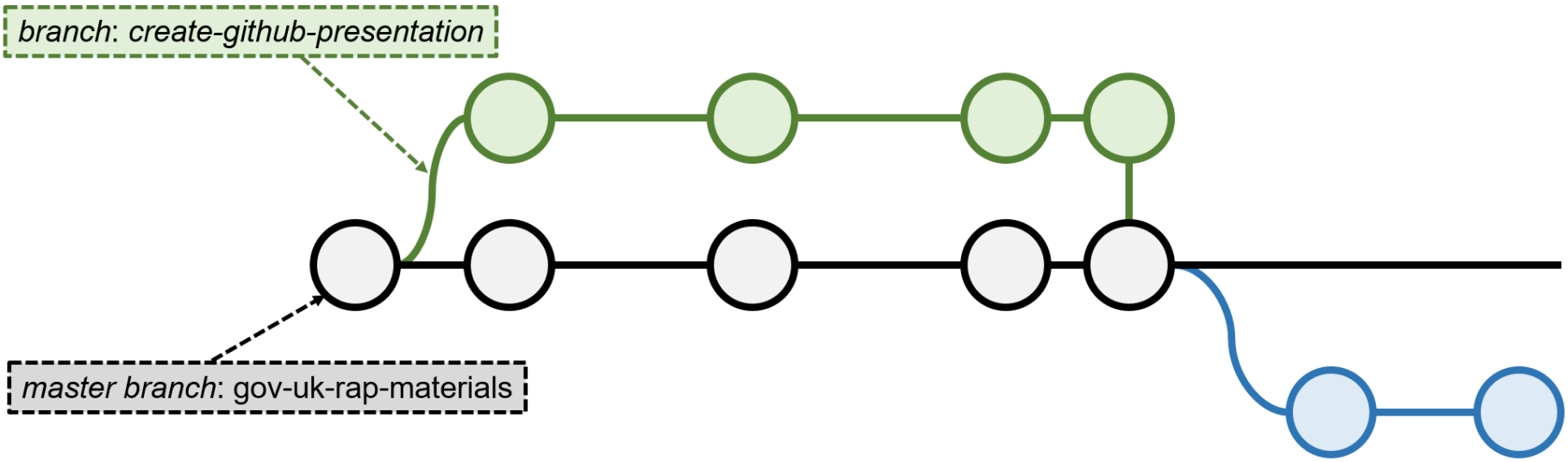
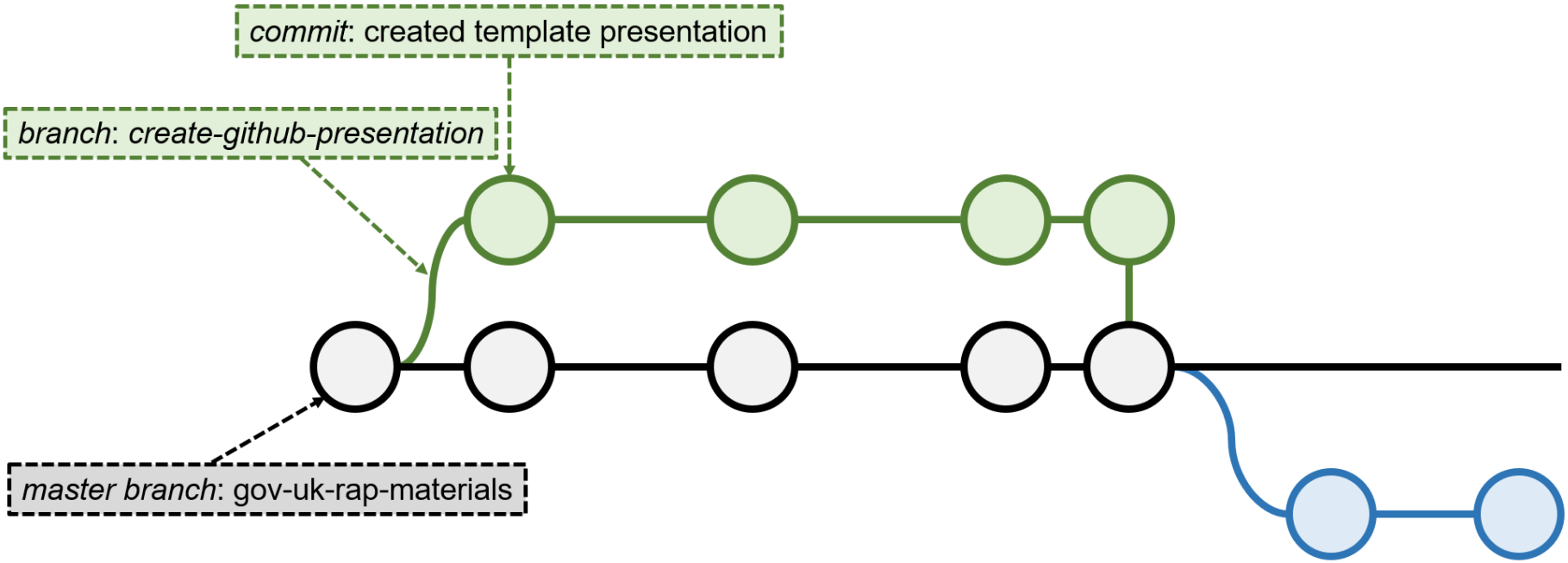
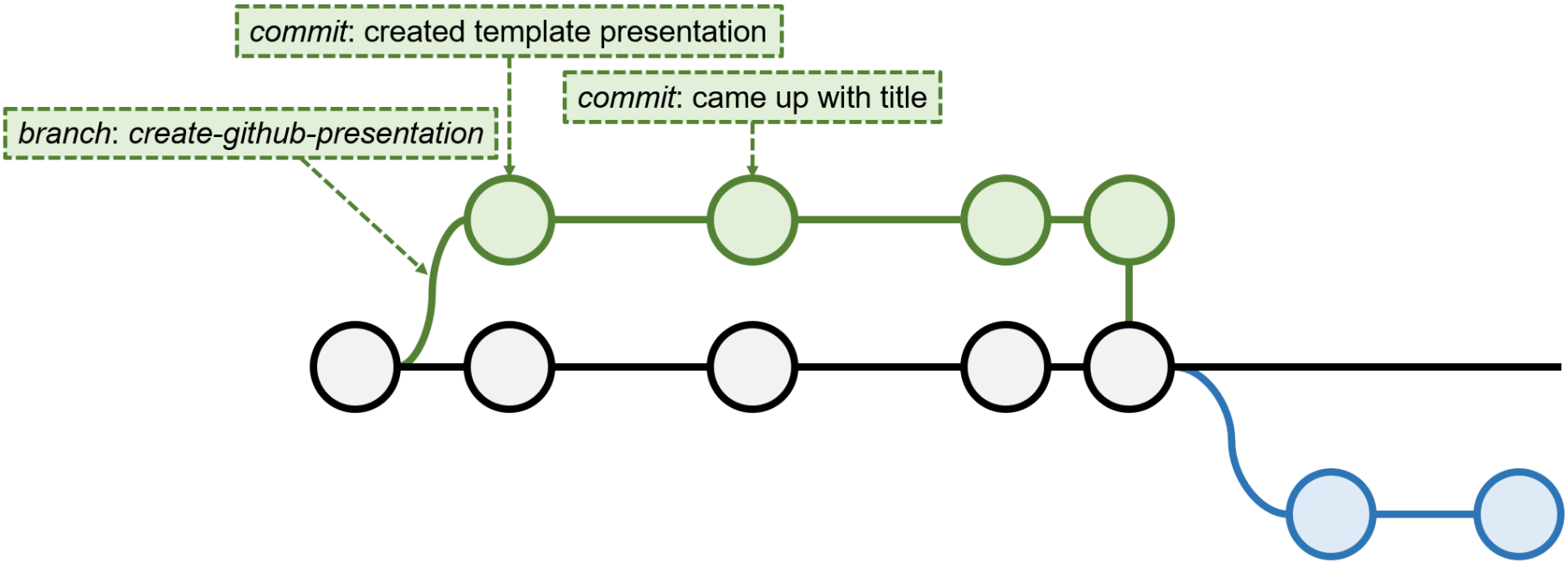

branch: create-github-presentation
master branch: gov-uk-rap-materials

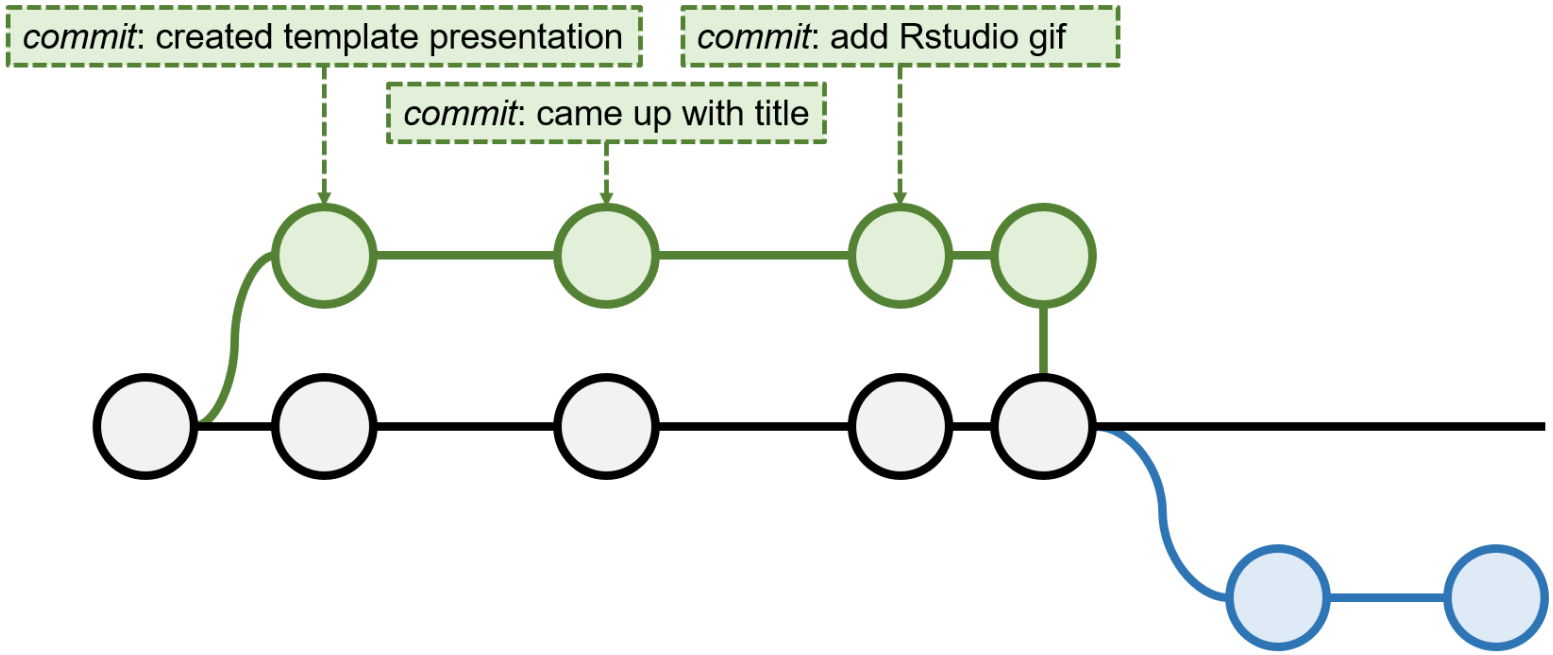
Work `git`!


commit: created template presentation
branch: *create-github-presentation*
master branch: gov-uk-rap-materials

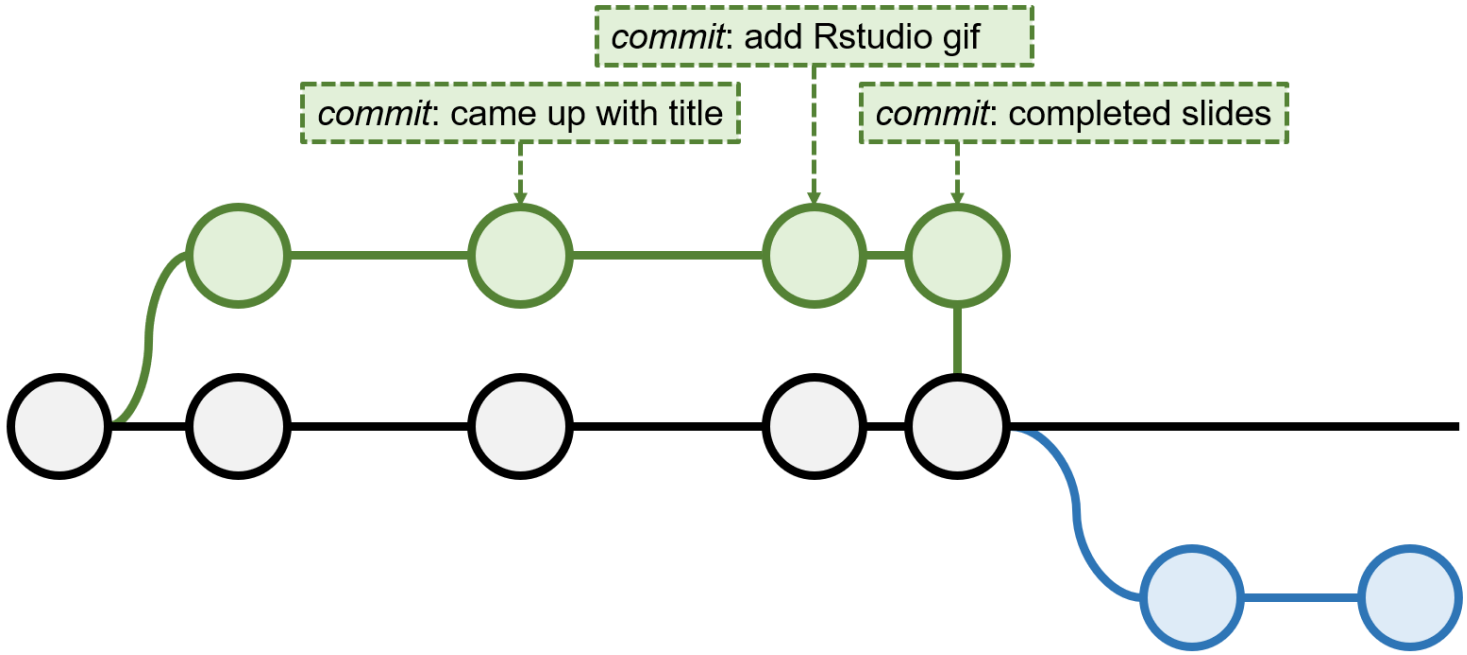
Work `git`!


commit: created template presentation
commit: came up with title
branch: *create-github-presentation*

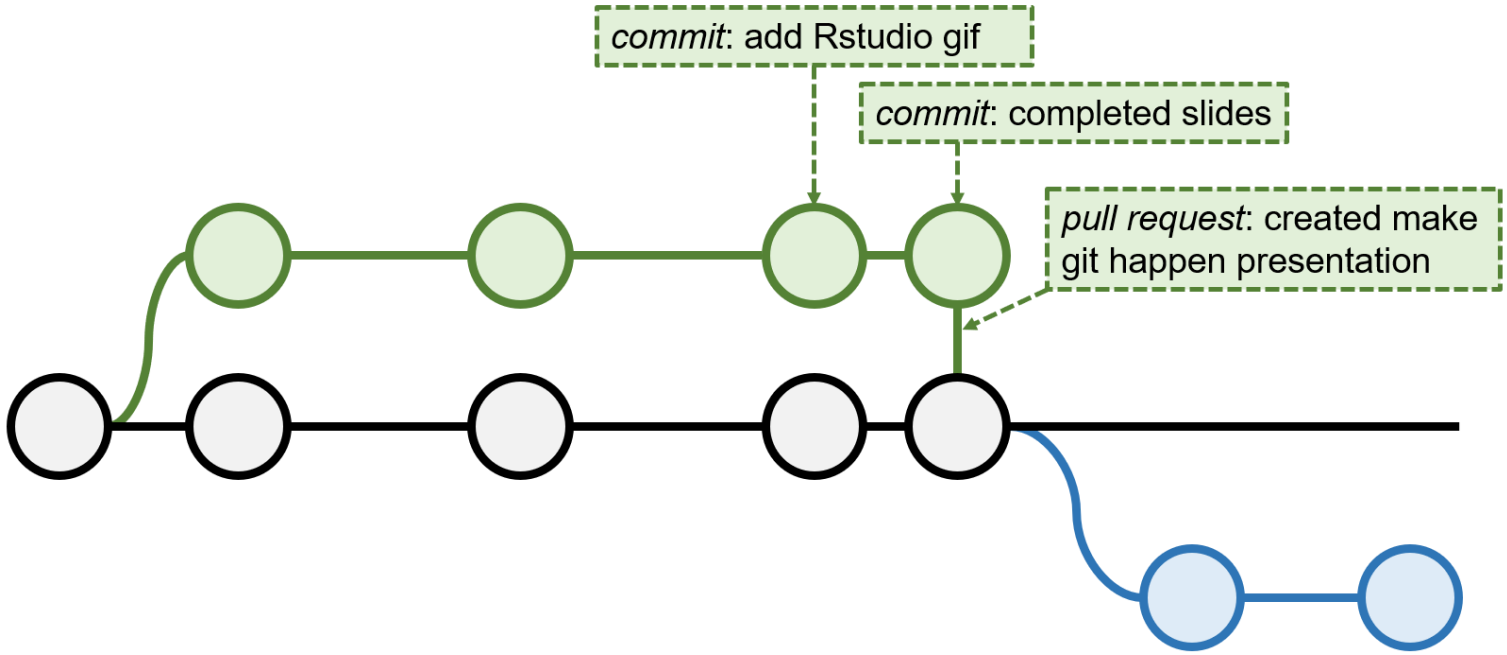
Work `git`!


commit: created template presentation
commit: add Rstudio gif
commit: came up with title

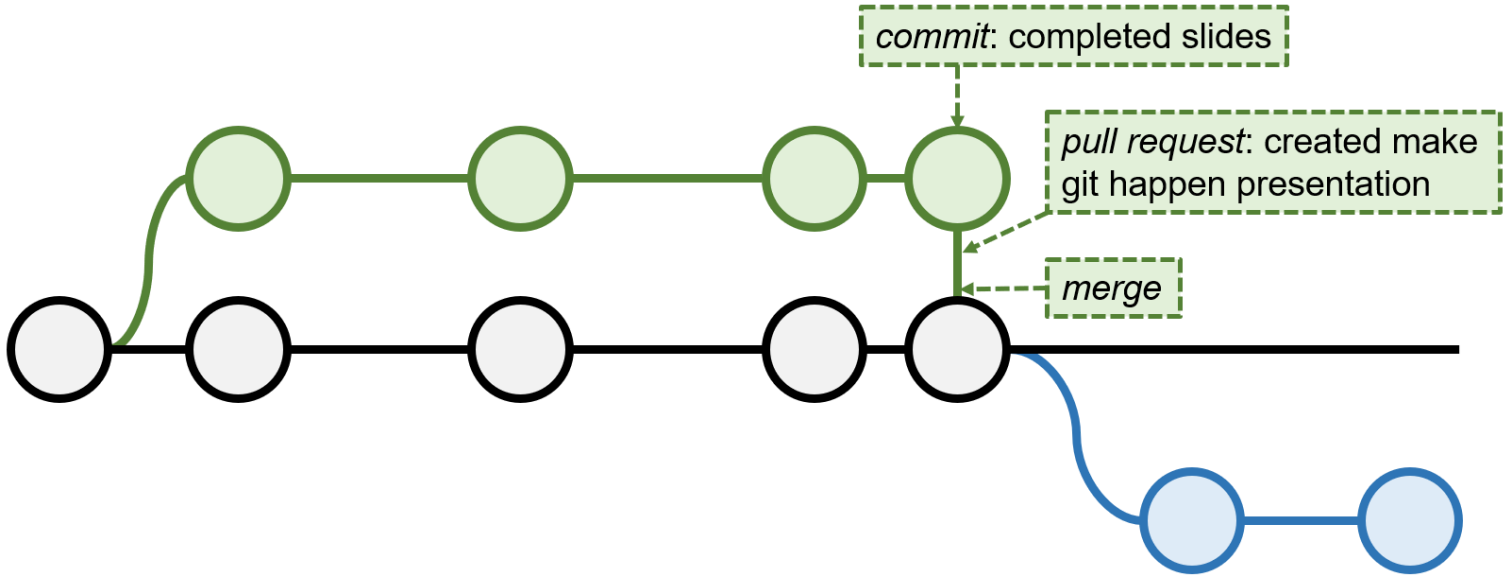
Work `git`!


commit: add Rstudio gif
commit: came up with title
commit: completed slides

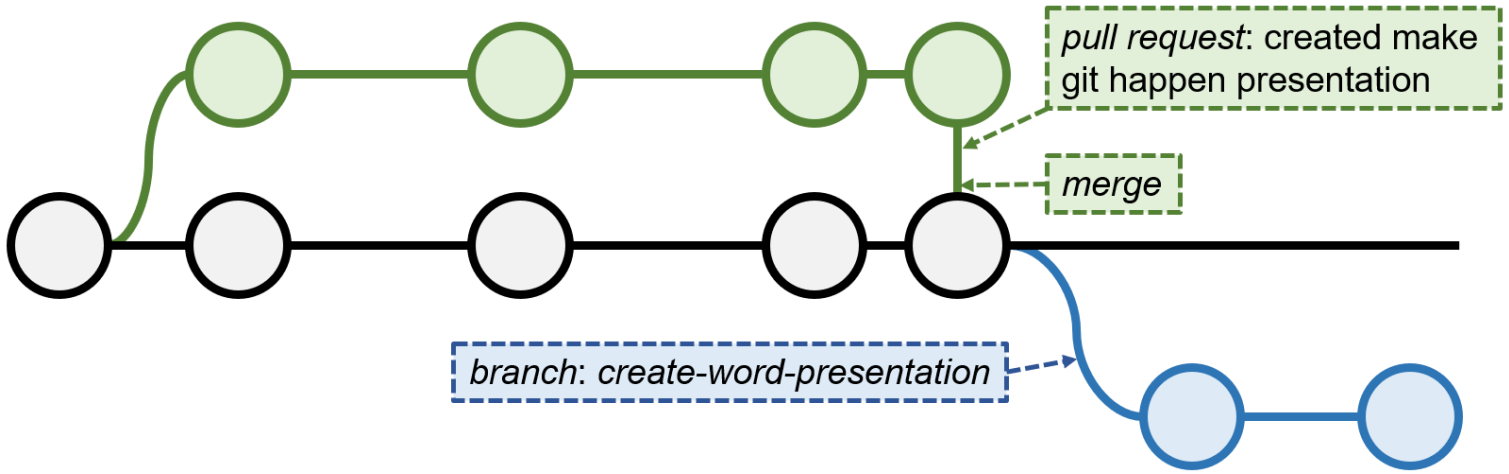
Work `git`!


commit: add Rstudio gif
commit: completed slides
pull request: created make git happen presentation

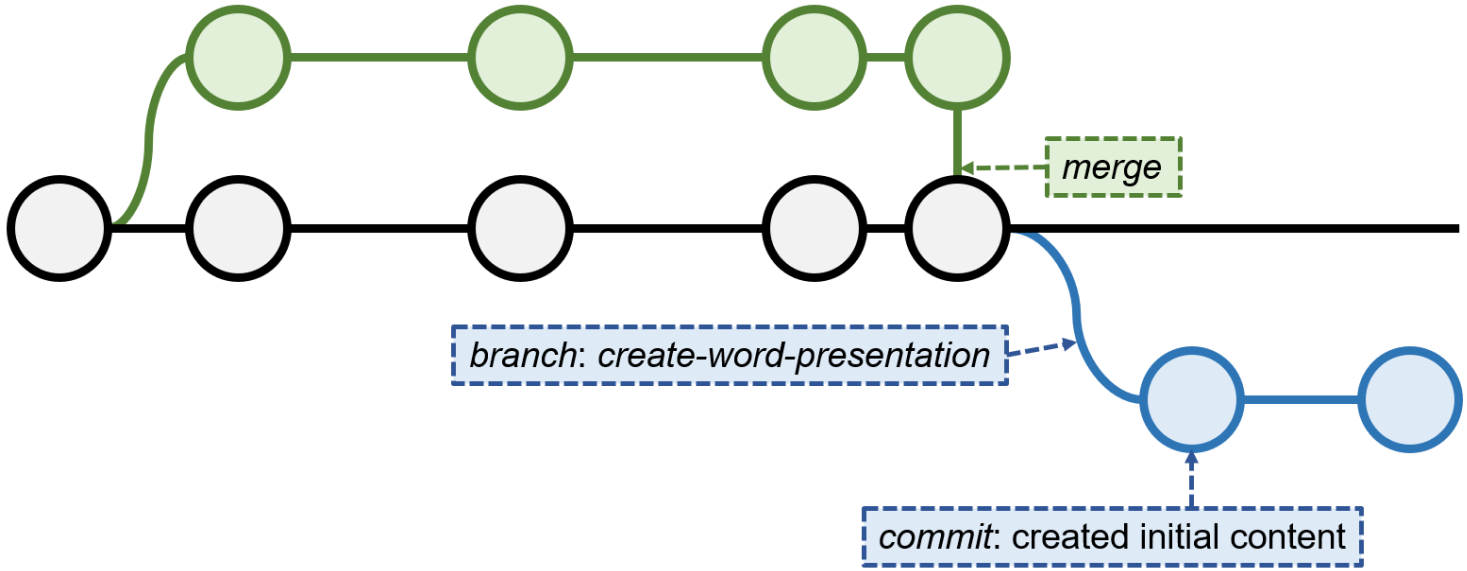
Work `git`!


commit: completed slides
pull request: created make git happen presentation
merge

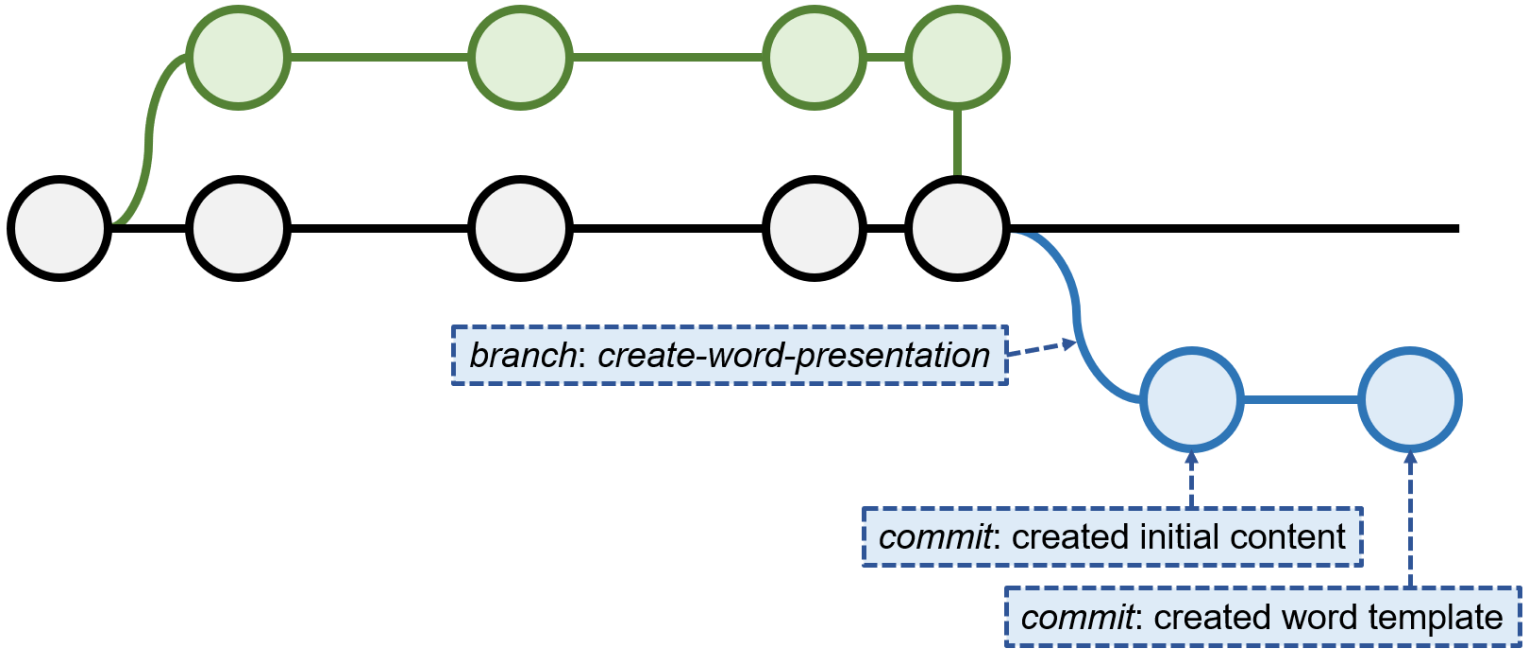
Work `git`!


pull request: created make
git happen presentation
merge
branch: *create-word-presentation*

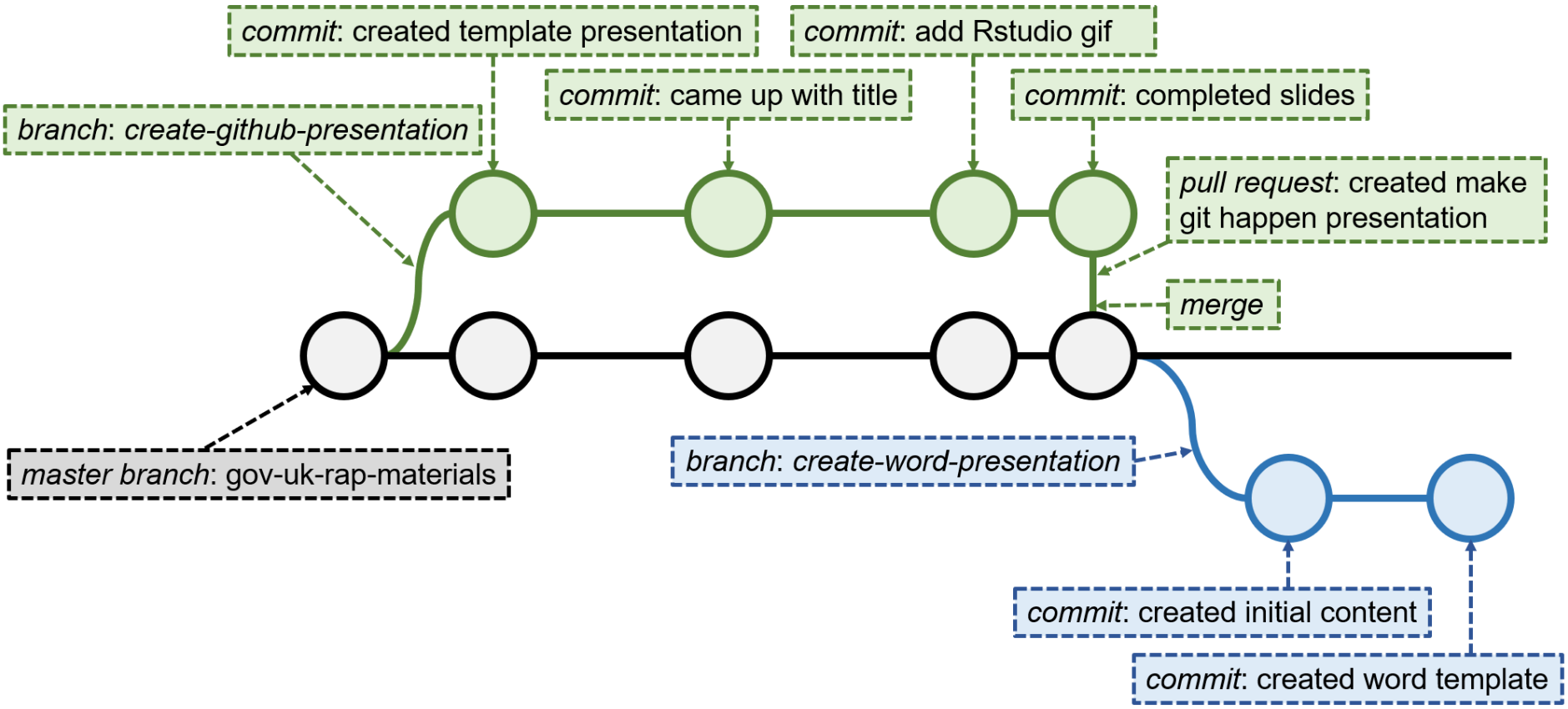
Work `git`!


merge
branch: create-word-presentation
commit: created initial content

Work `git`!


branch: create-word-presentation
commit: created initial content
commit: created word template

Work `git`!


commit: created template presentation
commit: add Rstudio gif
commit: came up with title
commit: completed slides
branch: *create-github-presentation*
pull request: created make git happen presentation
merge
master branch: gov-uk-rap-materials
branch: *create-word-presentation*
commit: created initial content
commit: created word template

Installing `git`

- For Windows, download the executable here
- On a mac type `git --version` in your terminal
- On linux machines type `sudo apt install git-all` in your terminal

Note that you may need admin rights on your computer, without these you'll need to request an install.

Create a GitHub account

GitHub offers a range of account types. A free account is available for organisations and individuals.

Even if you're in an institution, create a personal GitHub account to keep track of you own work.

You'll find more information, and links for creating an account, here.

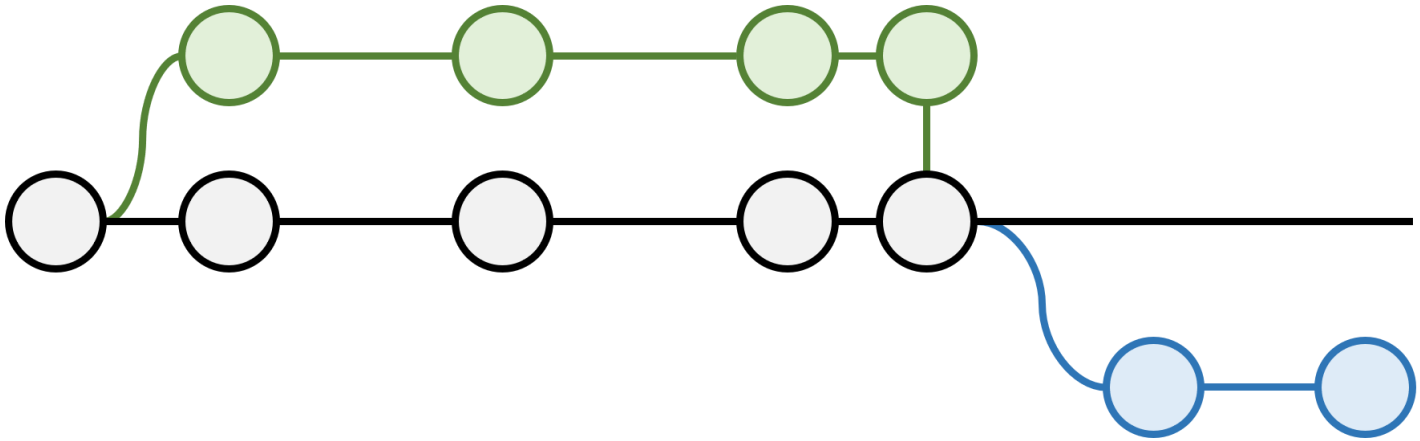
Create a repository

- Follow the instructions here to create your first repository
- Some key files to include:

  `README` - ideally format this as a markdown `md` file (more info here and here)

  `LICENSE` - how you want people to re-use your code (info)

  `.gitignore` - names of any files in your project you don't want on GitHub (templates)

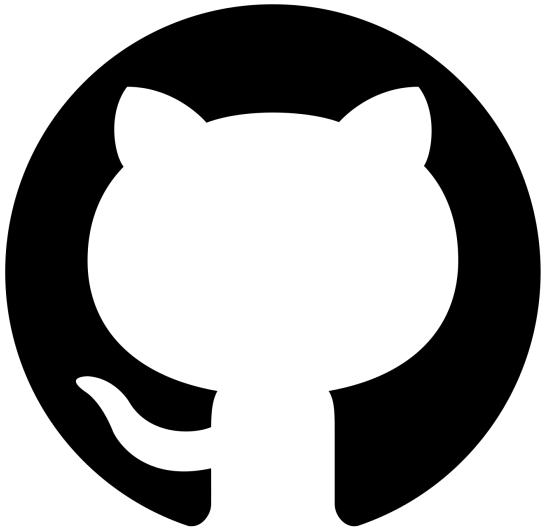


Linking to RStudio

- Rstudio does a lot of the hard work for you
- You can use the terminal, if you like
- Here are some screenshots showing you how to link a GitHub repository to RStudio

`git` the most out of GitHub

- Manage your work on a project using the Projects tab
- Track your tasks using issues
- Document your project using a wiki
- Host a website on GitHub, check out these jekyl themes



Useful resources

- Introduction to GitHub presentation (slides and video)
- All you need to know about GitHub in their help pages
- Detailed book about git, GitHub and R (here)
- Detailed overview of RStudio, git and GitHub (here)
- A game to help us think about git branches (here)
- ONS GitHub introductory course (here)

`git` glossary

Command	Definition
`git status`	Check current status of local repository - is it up to date?
`git branch`	List existing branches
`git branch [branchName]`	Create new branch
`git branch -d [branchName]`	Delete branch
`git checkout [branchName]`	Switch to branch
`git push -u [branchName]`	Push a branch online
`git add [FileName]`	Stage file for committing
`git commit -m [message]`	Commit staged changes to GitHub. Always add meaningful message.
`git push`	Push committed changes to GitHub
`git pull`	Pull changes from GitHub to local repository