

# An introduction to Git

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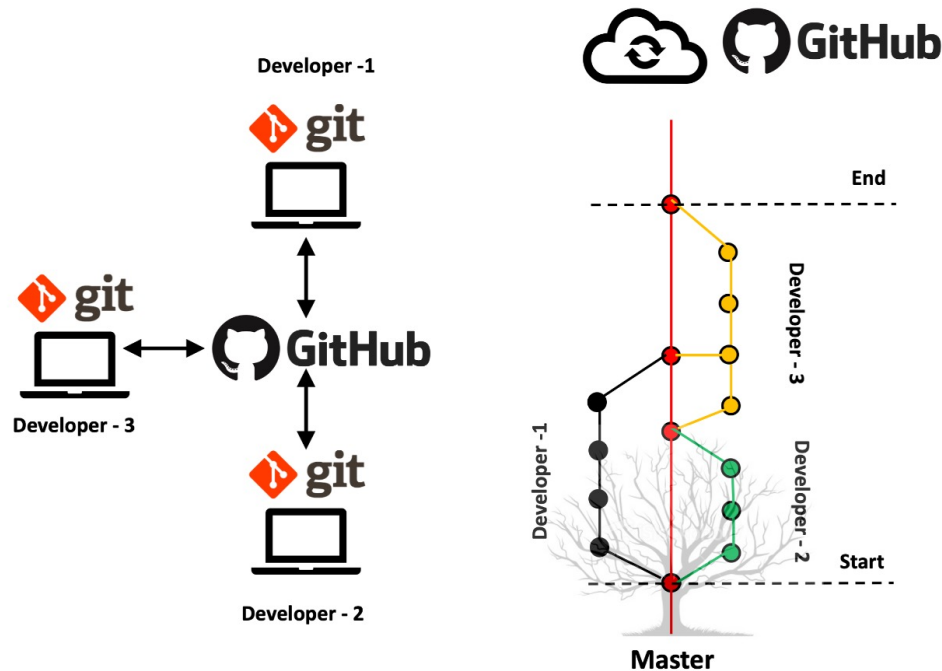
EMBL-EBI

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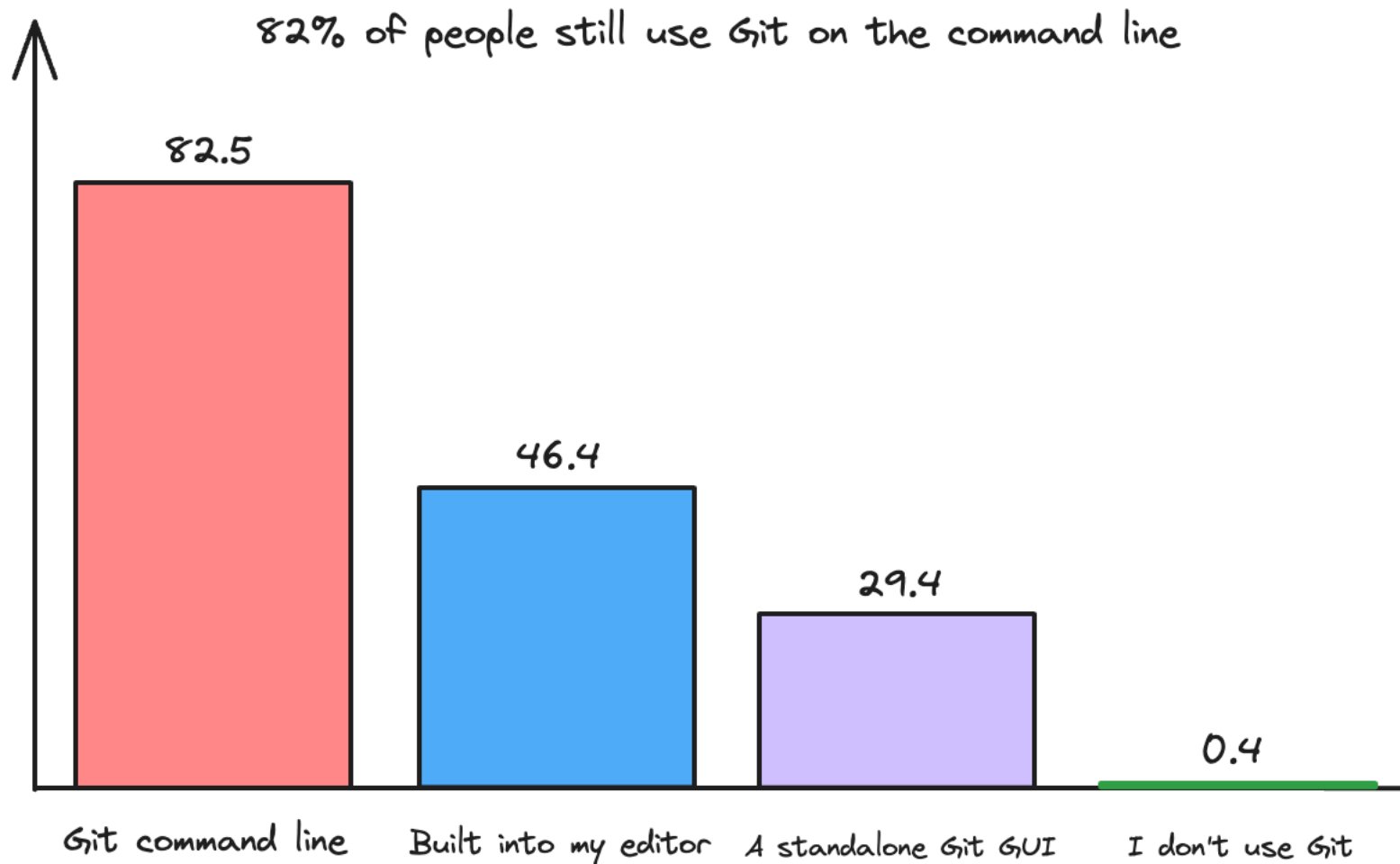
# Why do we need Git?

- Version control: Git allows you to track changes over time
- Collaboration: Git allows you to work collaboratively and simultaneously
- Backup and Recovery: Pushing Git repositories to platforms like GitHub or GitLab



Credit: Introduction To Git And GitHub (<https://wiener.me/?e=introduction-to-git-and-github-basic-of-git-and-ww-y87vjiE>)

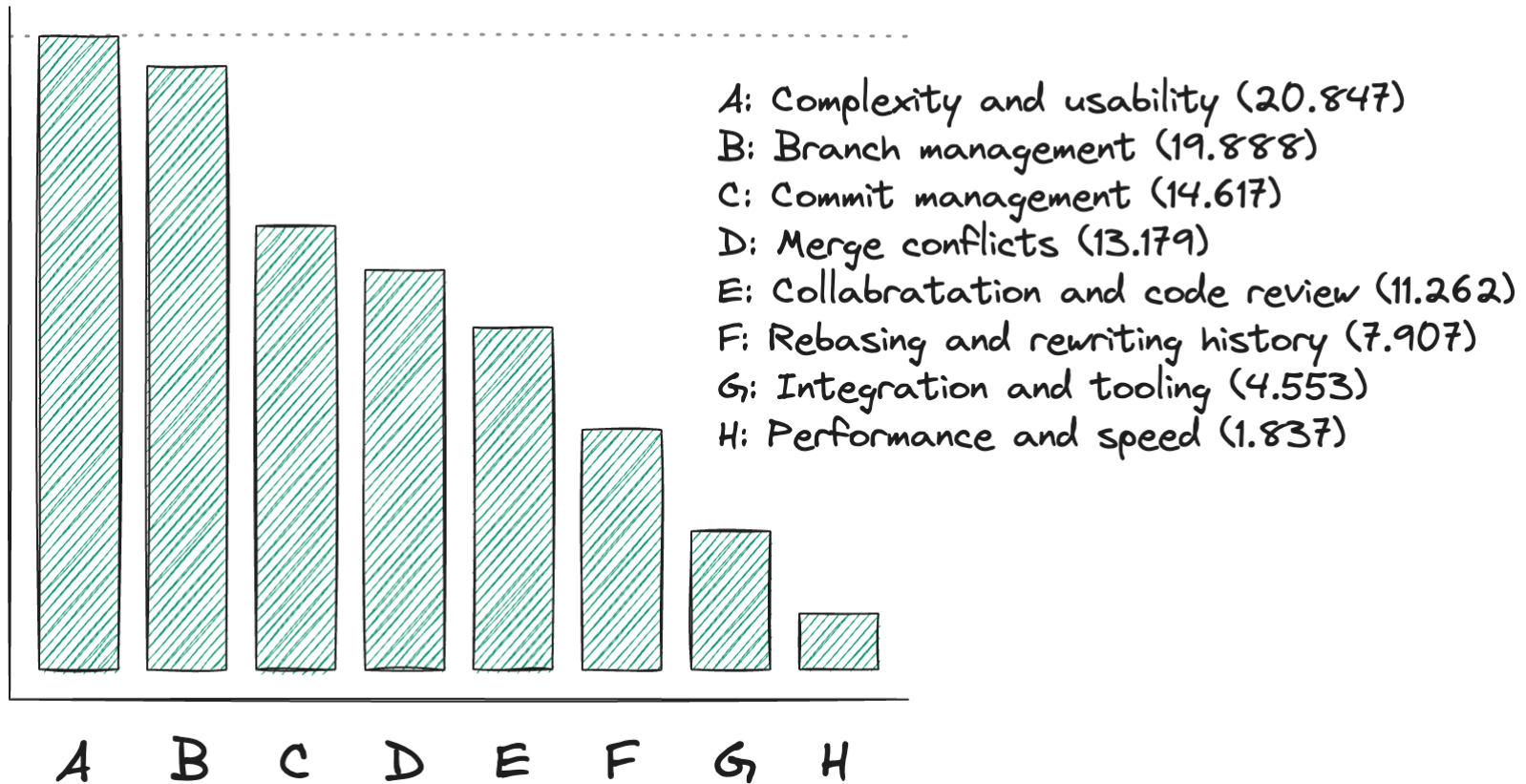
# How is Git Used?



Data from The Git Zeitgeist: <https://blog.gitbutler.com/git-zeitgeist/>;

Figure redrawn using Excalidraw: <https://excalidraw.com/>

# What is frustrating about Git?



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# Global information of your local Git

- `$ git config --global user.name 'Jiawei Wang'`
- `$ git config --global user.email jiawei.nohup.cc@gmail.com`
- `$ git config --global core.editor vim`
- Stored at `~/.gitconfig`

```
[user]
  email = jiawei.nohup.cc@gmail.com
  name = Jiawei Wang
[core]
  editor = vim
```

# Repository (repo): record changes in files

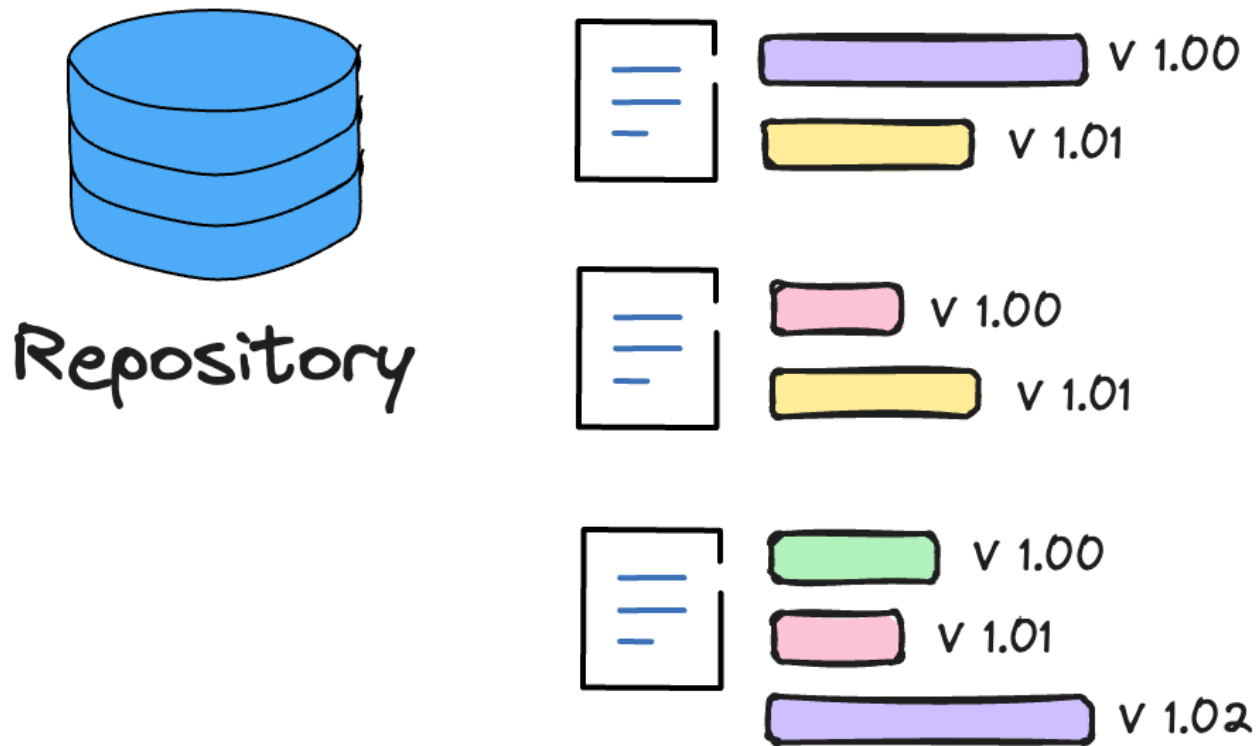


Figure redrawn using Excalidraw: <https://excalidraw.com/>;  
Originally from <https://www.youtube.com/watch?v=PN1k1CLXtlw&t=4205sx>

# Create a Git repository

## Creat Repository



#1: git init



#2: git clone

# Overview of how essential Git commands work

## Local

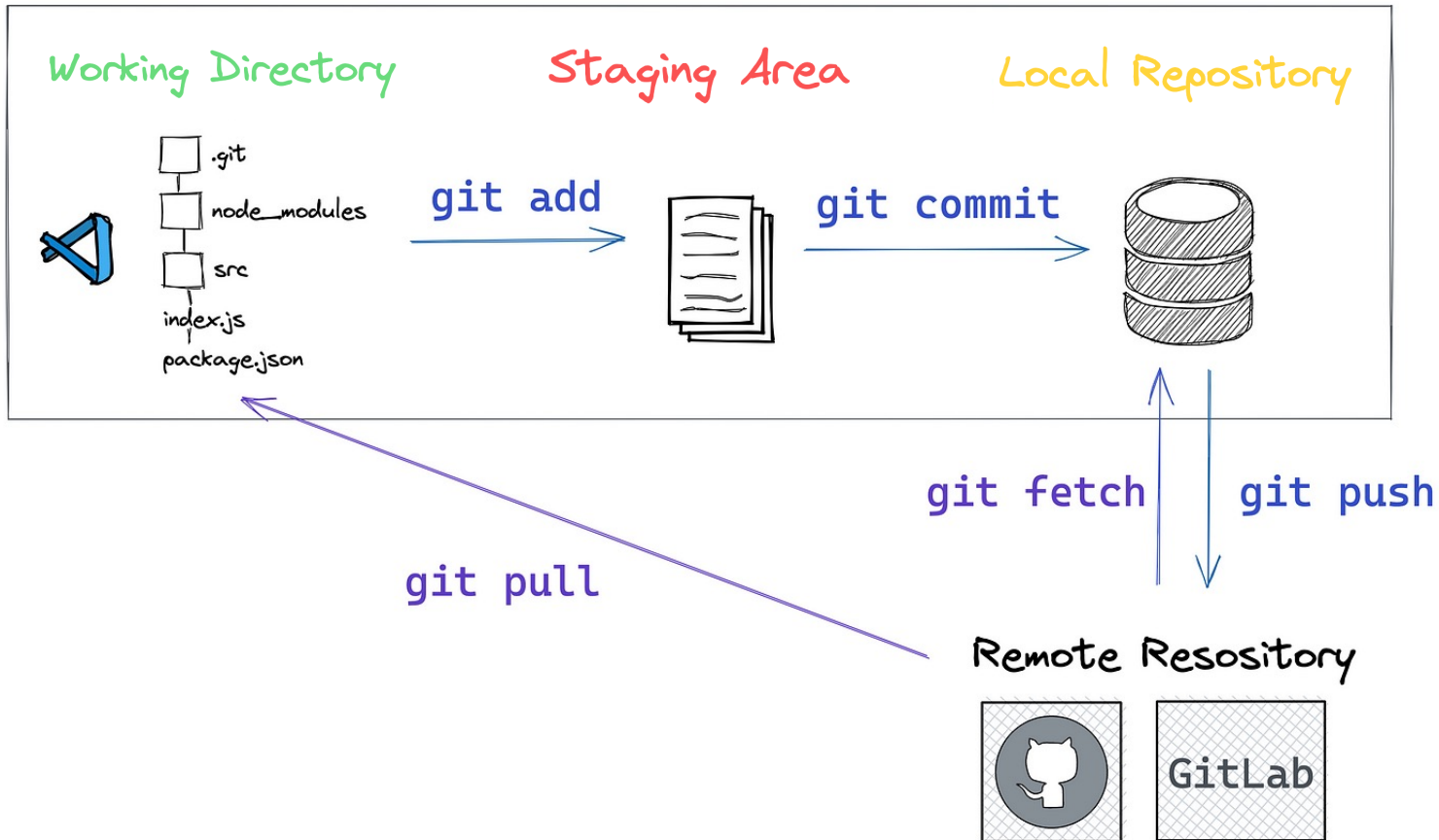


Image credit: You Can Understand Git & Git Commands with These Diagrams (<https://programming.earthonline.us/you-can-master-git-git-commands-with-these-diagrams-40a0b2f5cc42>); slightly modified.



# Git framework on how to create a local repository and add a local repository to GitHub using Git

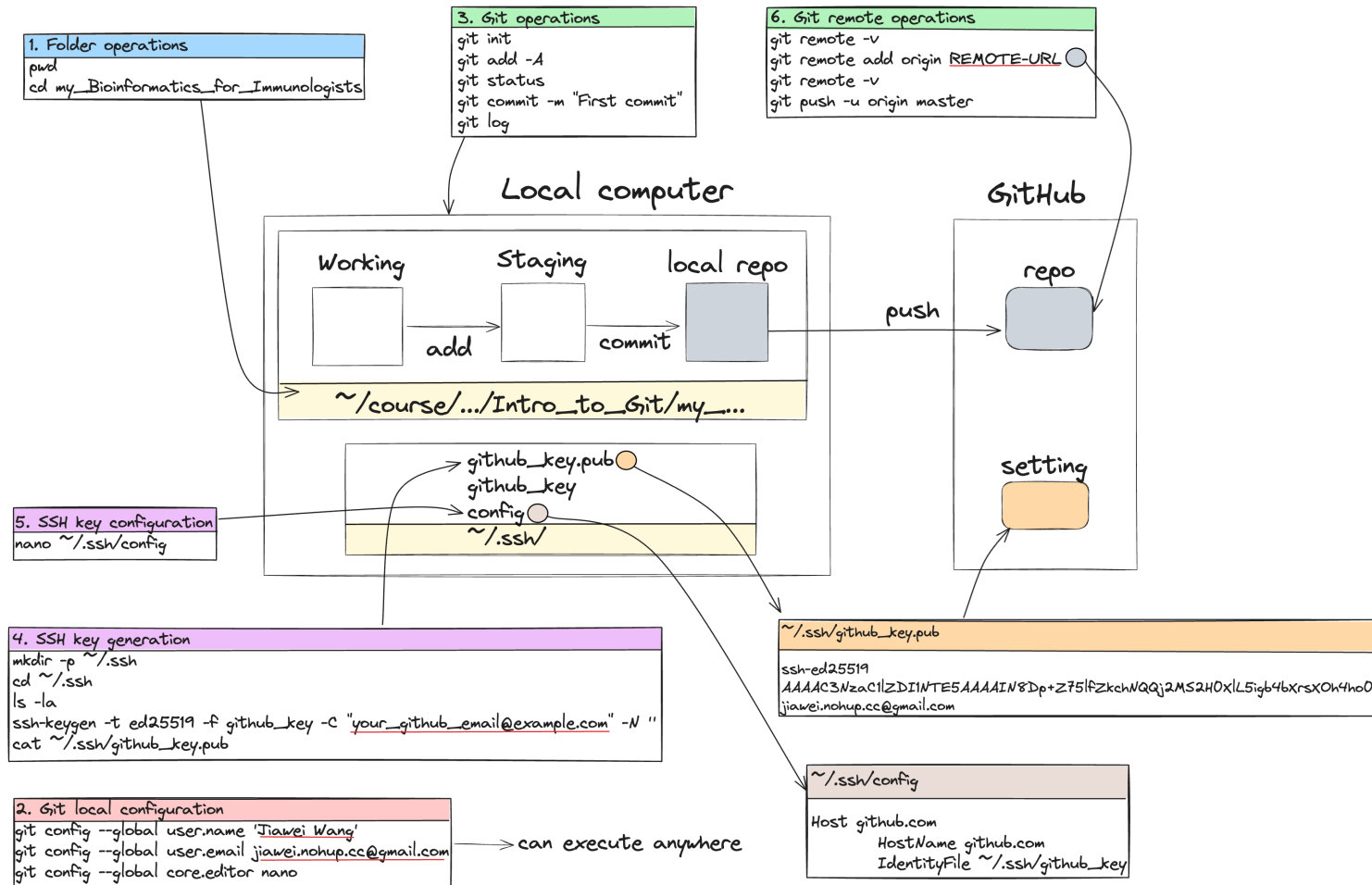


Figure generated using Excalidraw: <https://excalidraw.com/>

# Git local data management

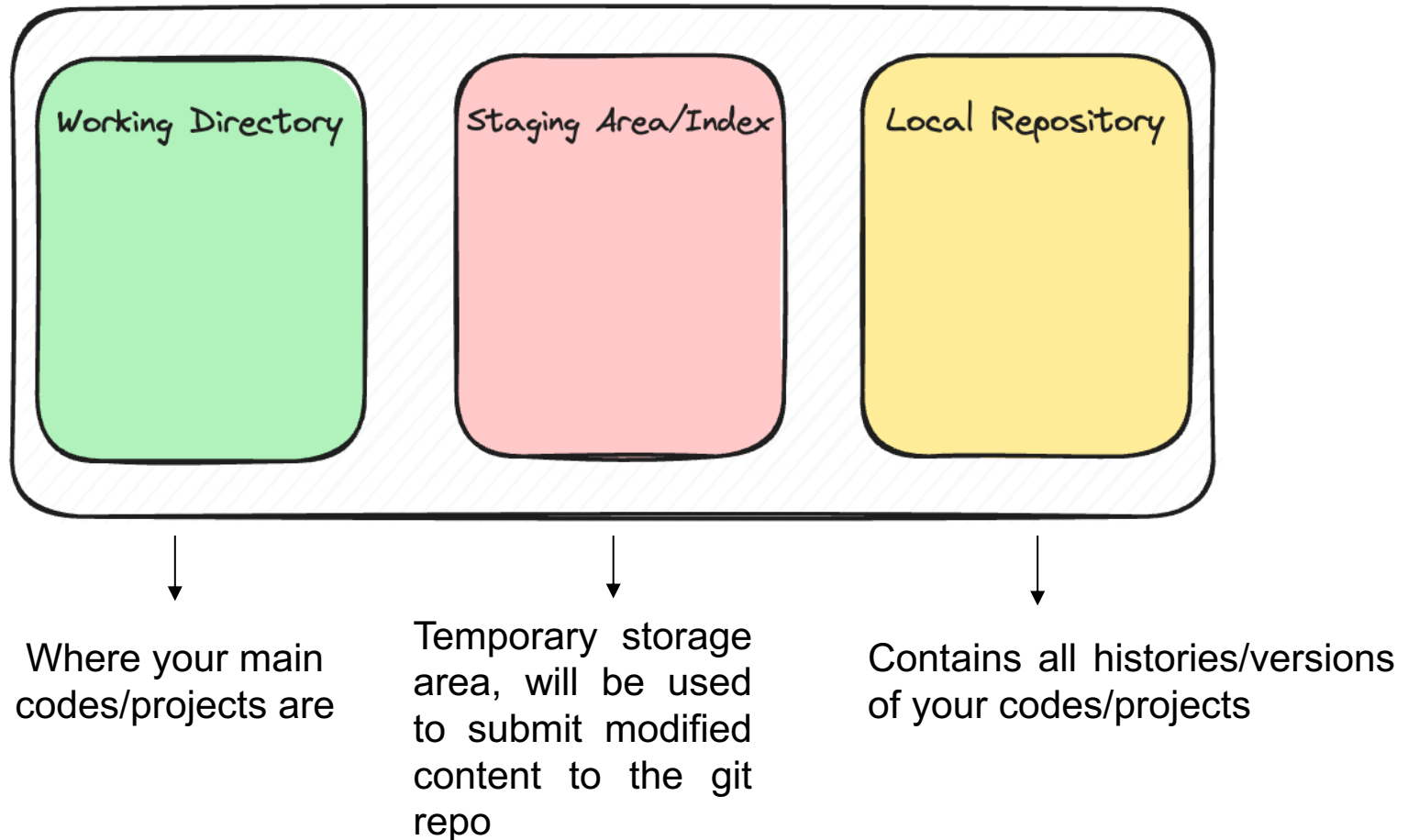


Figure redrawn using Excalidraw: <https://excalidraw.com/>; Originally from <https://www.youtube.com/watch?v=PN1k1CLXtlw&t=4205sx>

# What is a branch?

- In Git, a branch is a new/separate version of the main repository.

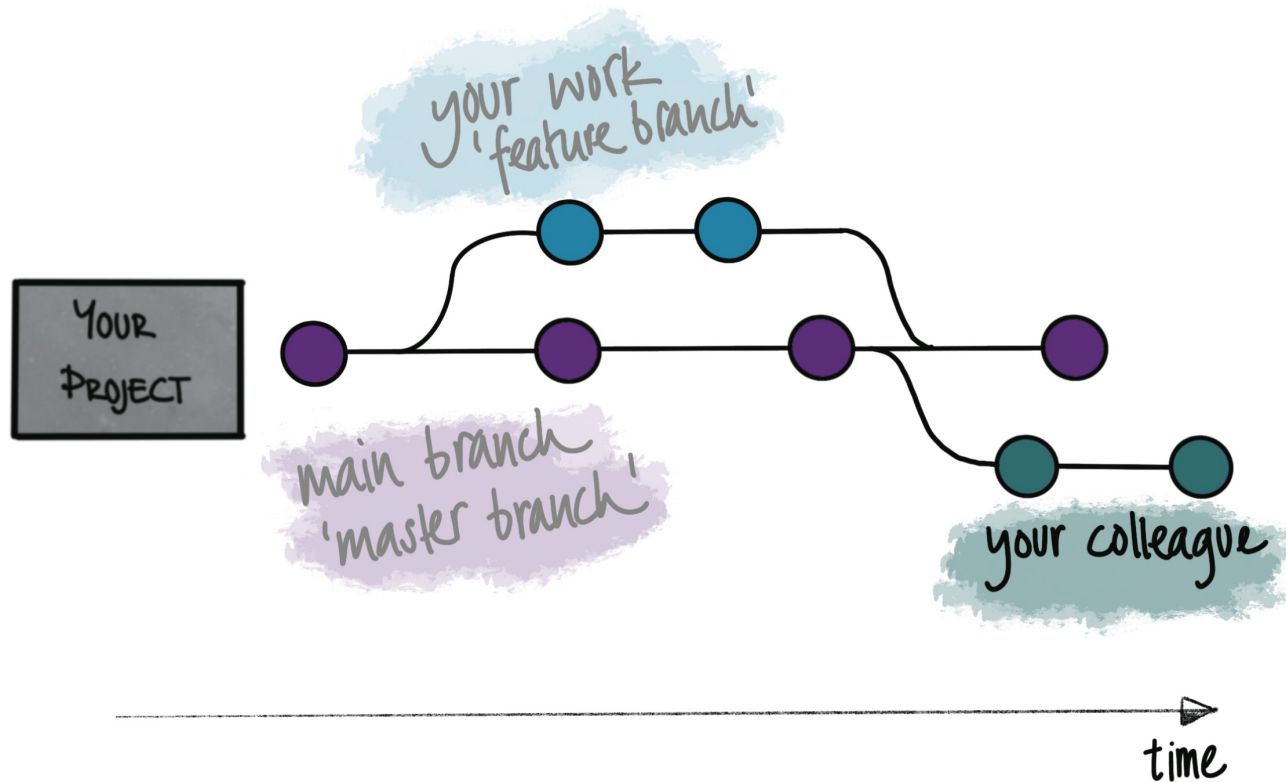


Image credit: *Git Around the World* (<https://cosimameyer.com/slides/git-wit/talk.html#10>)

# Reference

- The content and figures have been credited with links on the relevant slides. These sources are also excellent material for further reading.
- Most of the content, presented in the accompanying demonstration material, originate from [Walter Santana' Git and GitHub tutorial](#) and [GitHub Docs](#) with some of the text copied with a few edits.

# Material recommended for further reading

- - Git tutorial at W3Schools  
<https://www.w3schools.com/git/>
- - Git Immersion  
<https://gitimmersion.com/>
- - Learn Git Branching  
<https://learngitbranching.js.org/>
- - Git Cheatsheet  
<https://ndpsoftware.com/git-cheatsheet.html#loc=index>
- - Visualizing Git Concepts with D3  
<https://onlywei.github.io/explain-git-with-d3>
- - Git for Computer Scientists  
<https://eagain.net/articles/git-for-computer-scientists/>
- - Advanced Git: Power Commands Beyond the Basics  
<https://kinsta.com/blog/advanced-git/>