

# Using Git, Github and version control for reproducible code



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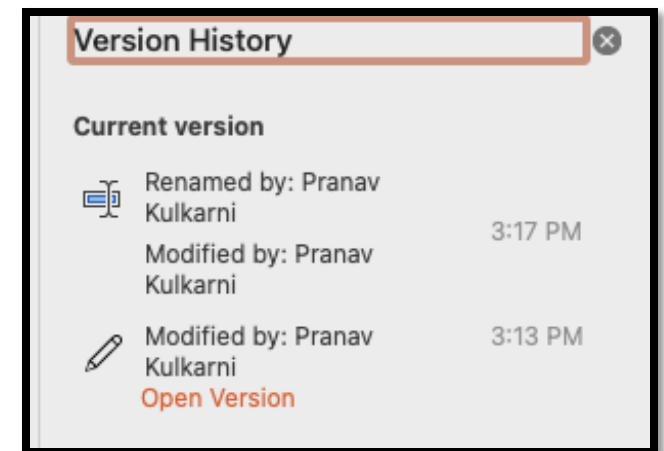
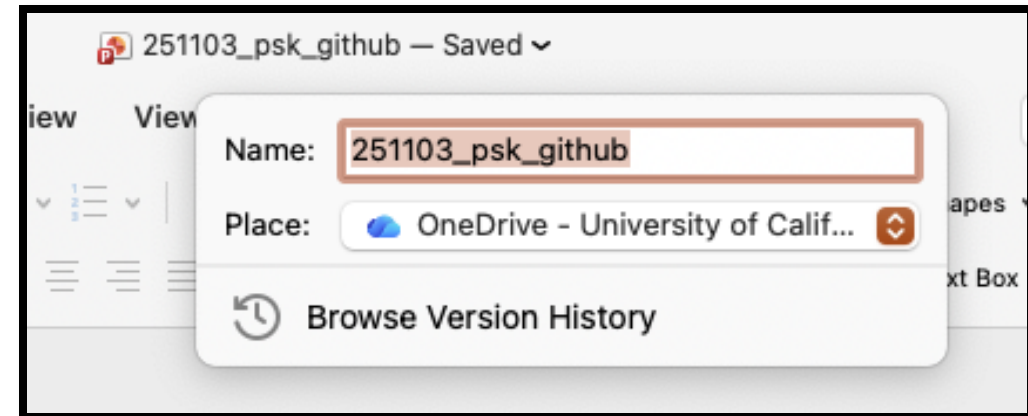
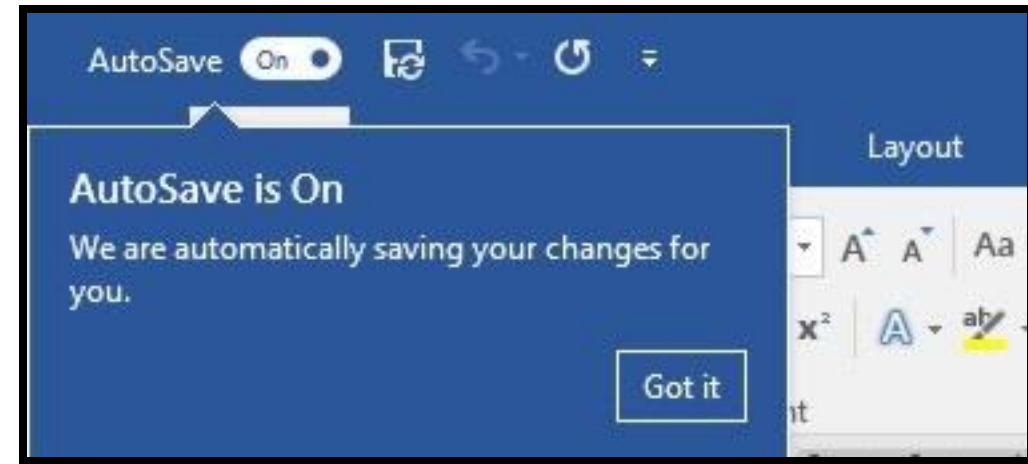
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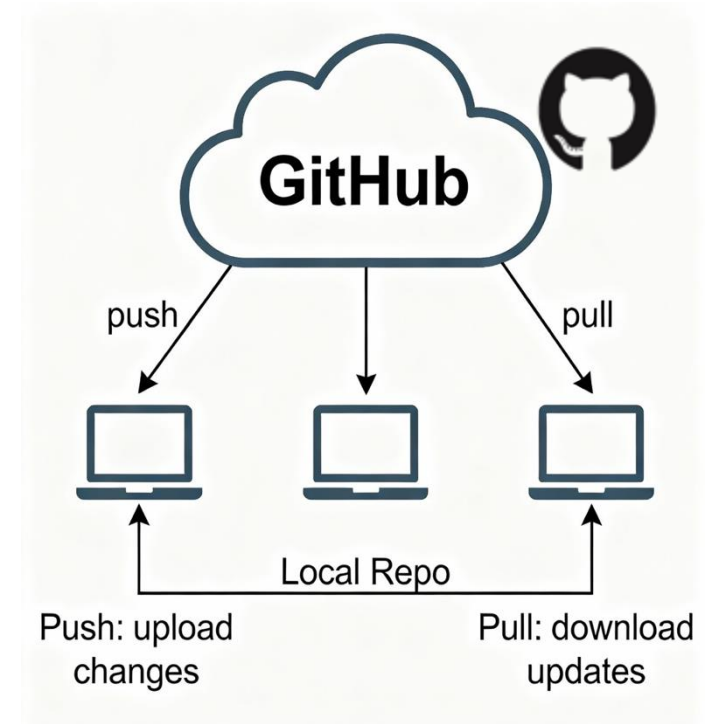
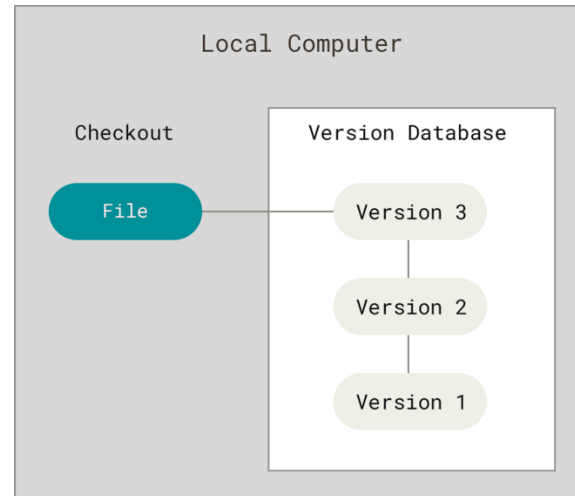
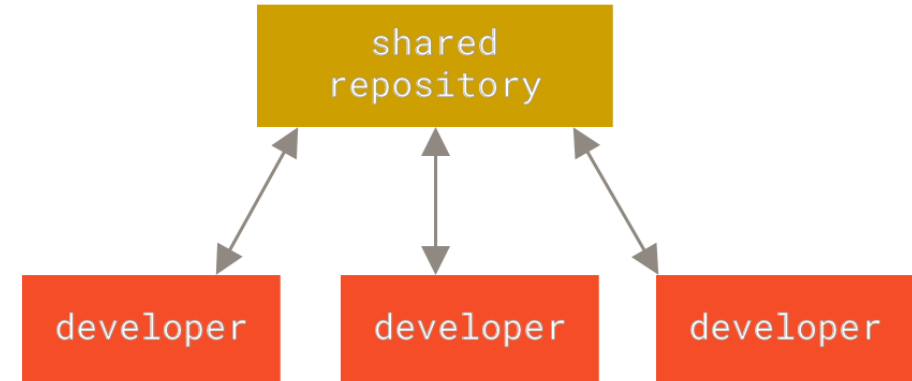
# Why Version Control matters?

- Seamless collaboration on code and data analysis
  - Working with collaborators and colleagues
- Transparent history: record keeping
  - Maintain lab notebook style
- Reliable backups
  - Commit code for each step
- Boosts reproducibility and credibility in publications
  - Publish code with manuscript



# Git and Github

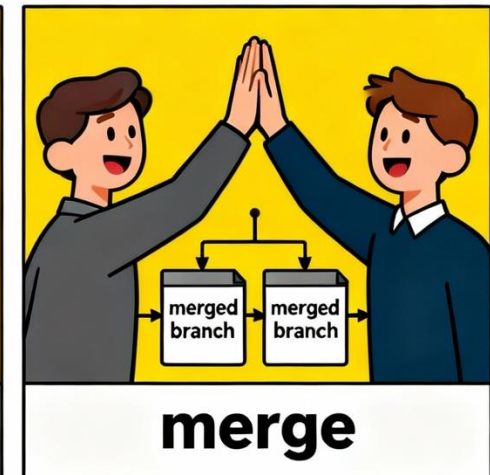
- Git: The method of executing version control (keeping track of difference between each file version)
- Github: A webtool/ cloud-based platform for Git control



# Github Lingo

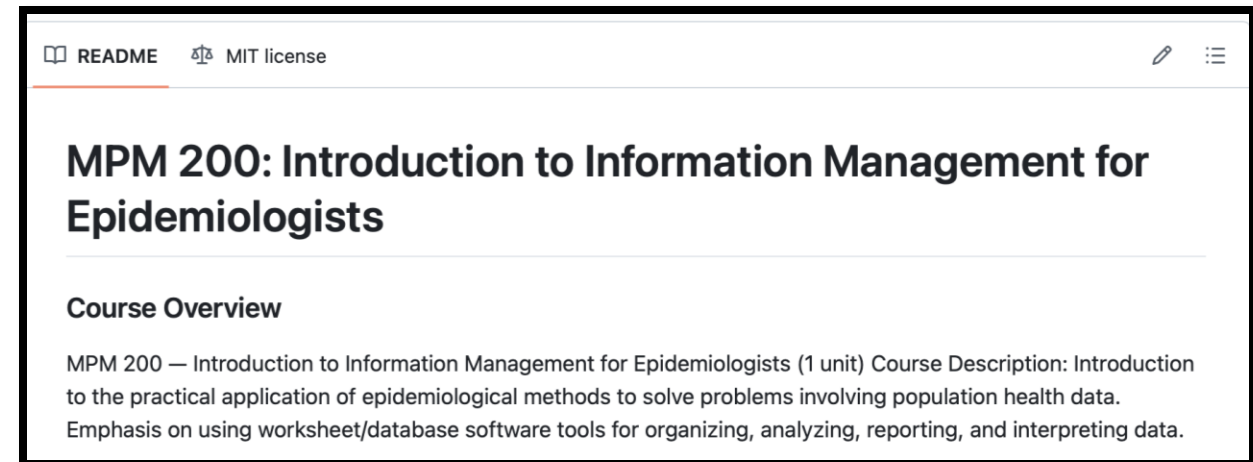
- **Repository:** Folder with tracking abilities
  - Local repo: on your computer
  - Remote repo: On Github server
- **Commit:** Save a snapshot
- **Push:** Push commits to repo
- **Branch:** Parallel version of Repository
- **Merge:** combine branches
- **Pull request:** Suggest changes

...Fork. Issue. Roles. Actions. etc.

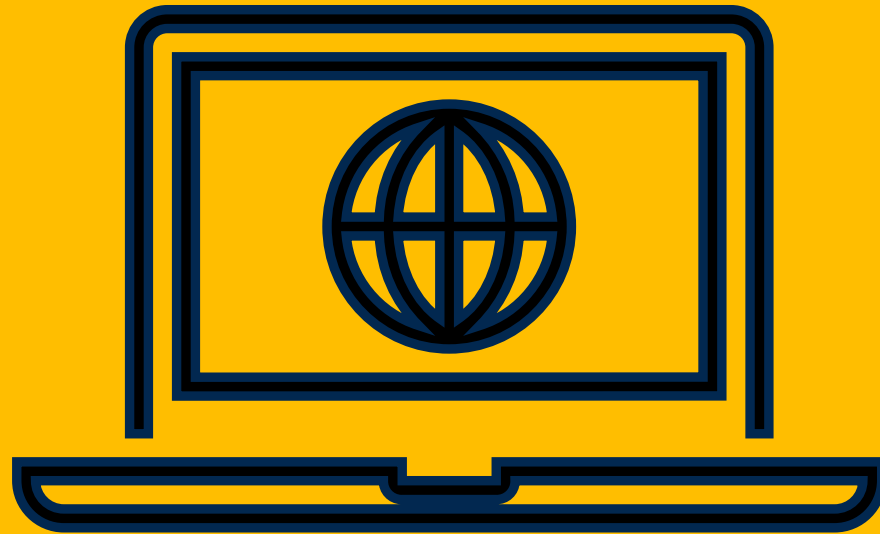


# ReadMe.md

- Landing page of any github repository
  - Essential Information about the contents of the repo
  - Github automatically recognizes “ReadMe.md” name as a special document
  - Traditionally is in Github Markdown format
- Should include:
  - Description
  - Release version of project
  - Required functional dependencies
  - License/ citation resources



<https://github.com/>



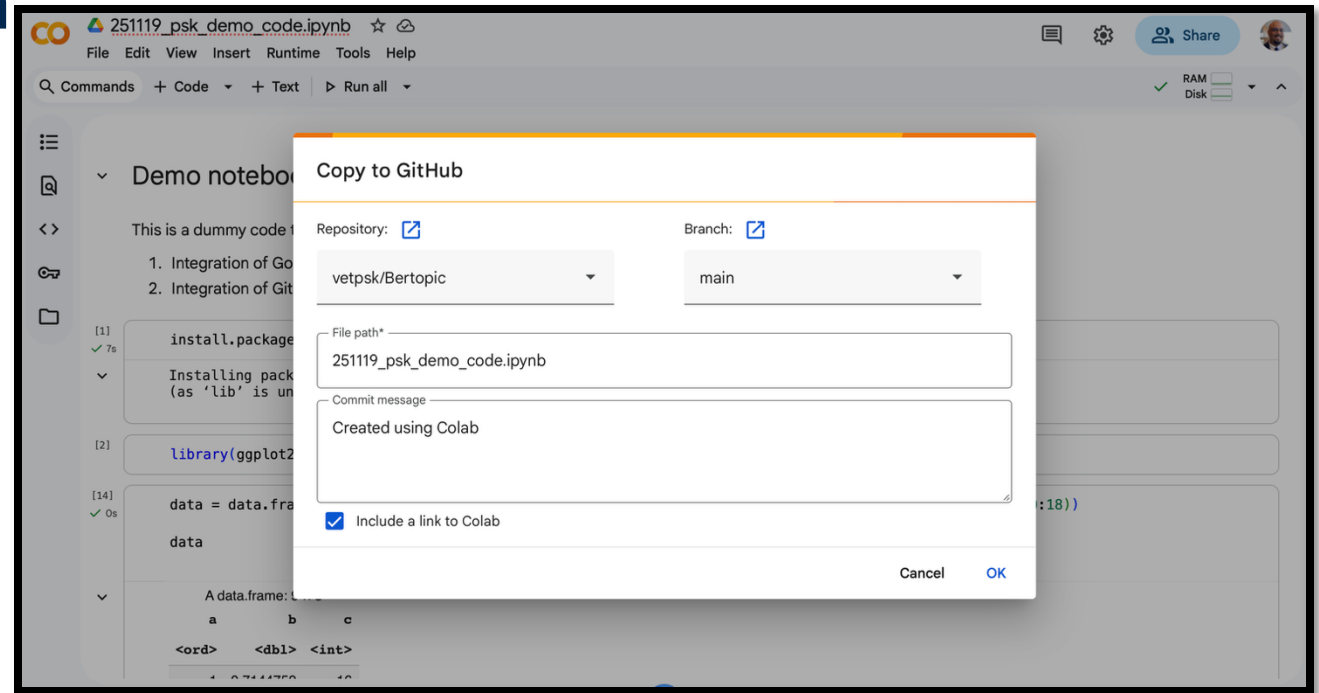
# Github and Google Colab Integration

- Convenient integration with simple functionality

- Colab can directly open notebooks from Github



- 'Save a copy in Github'  
=> Push changes



# Google Colab





# Github Desktop

- Desktop App
- User-friendly version of Git control
- No command line/ Terminal coding required
- Supports all Github commands

IMAGE: R/PROGRAMMERHUMOR

```
git init
git status
git add .
git commit -m "Initial commit"
git branch -M main
git remote add origin https://github.com/username/repo
git push -u origin main
git log
```

Everyone: talking about \$ git

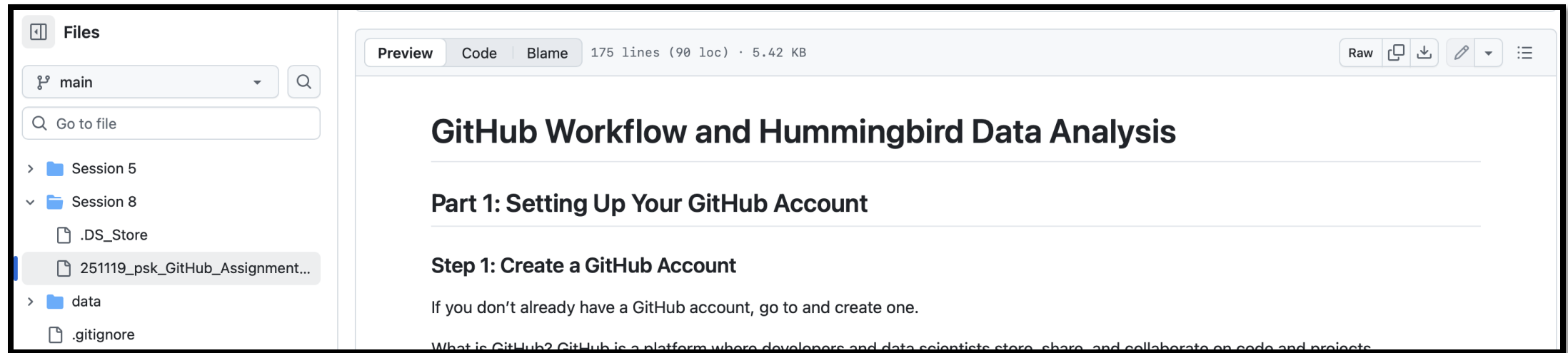
Me who uses GitHub Desktop for Windows:



# Open Github Desktop



# Onto the assignment



Useful links:

<https://docs.github.com/en/desktop>

<https://docs.github.com/en/repositories>

[https://aguaclara.github.io/aguaclara\\_tutorial/colab/colab-and-github.html](https://aguaclara.github.io/aguaclara_tutorial/colab/colab-and-github.html)

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