multiverse

GitHub and Version Control

Data Science Unit 1

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Filesystems

Filesystems

What is a “filesystem”?

- ➔ The system used by your OS to store and manage all of your files
- ➔ Usually hierarchical
- ➔ **/** (Root) -> In most OS, your filesystem is a tree and the top of the tree is known as the root directory, written with a forward slash (**/**).
- ➔ **~** (Home) -> In most OS, your user is at the home directory, written with a tilde (**~**).
- ➔ **C:** (C-Drive) -> For Windows OS, the top of your tree will usually start from the C-Drive, depending on the drive. Here we assume the default C-drive is being used (**C:**).

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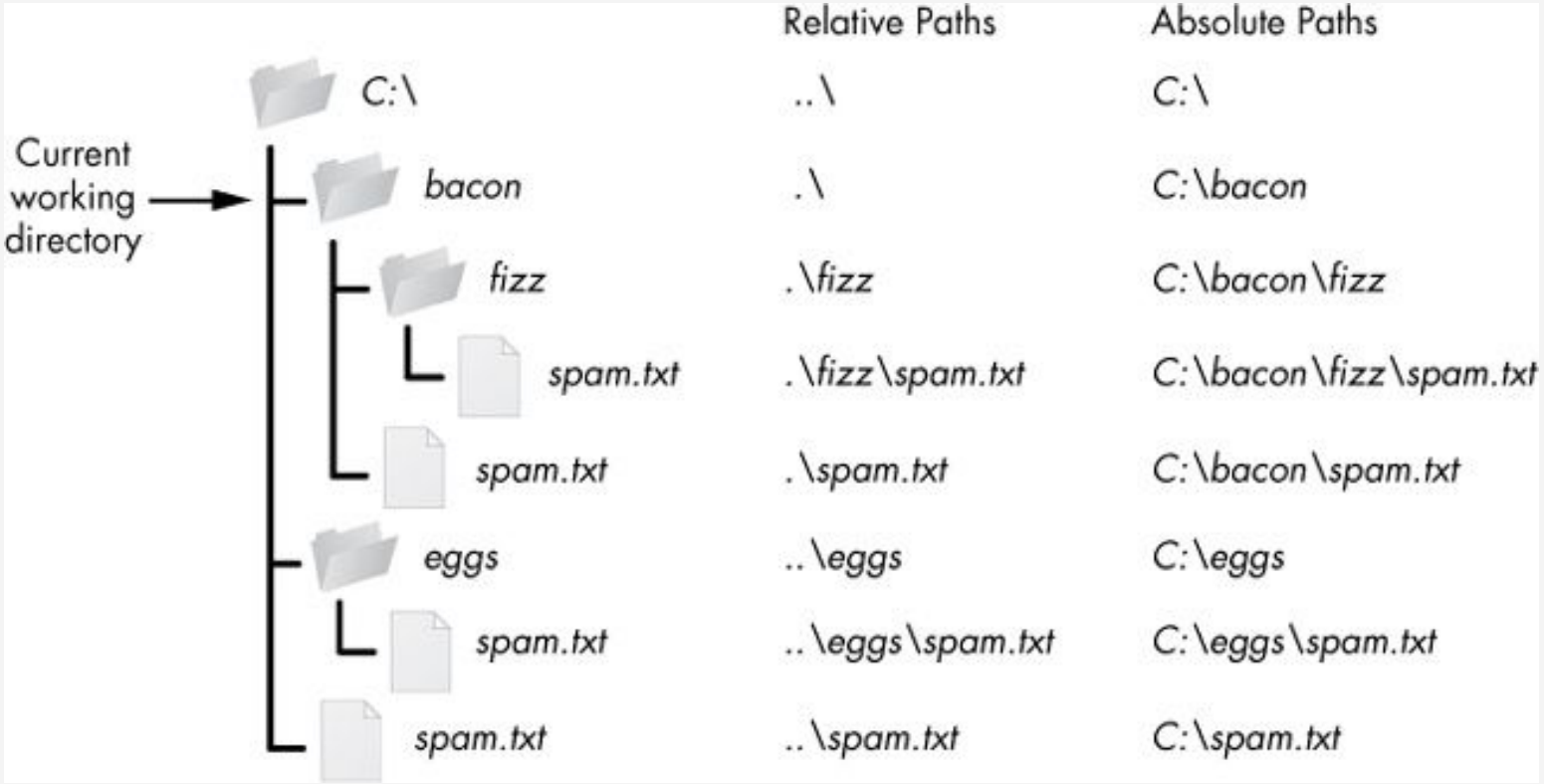
Filesystems



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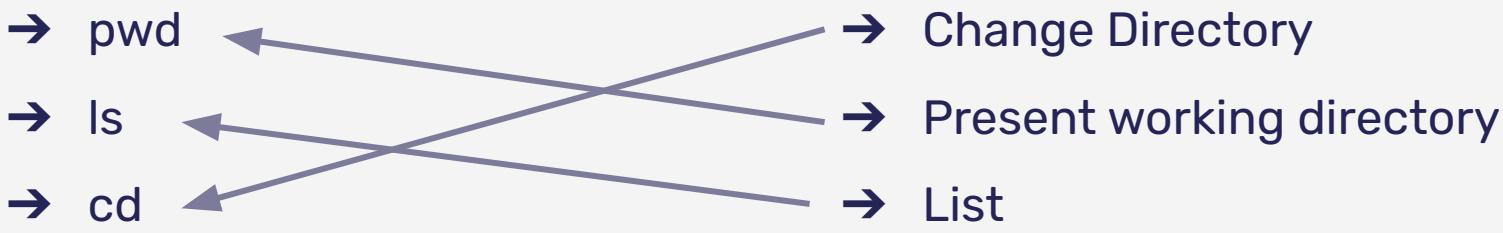
Getting Around

Getting Around: Commands



[eduardo]$ ls -lah my_directory

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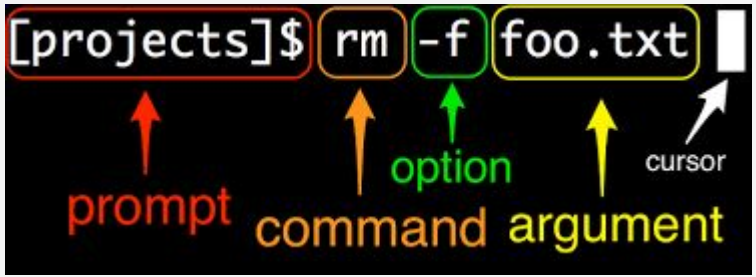
Getting Around: Exercise

1. Open “File Explorer”
   a. Find a file not in your home directory (ideally a few levels in, challenge yourself!)
   b. Write down the absolute and relative path of your target and send it in the chat
2. Open “GitBash”
   a. Navigate from your home directory to your chosen target directory

➔ pwd

➔ ls

➔ cd



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What is Version Control?

Version Control

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What?

A way to keep track of changes and the change history of a (set of) file(s) and share the changes.

Encourages collaboration and Agility

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What is Source Control?

What?

See above

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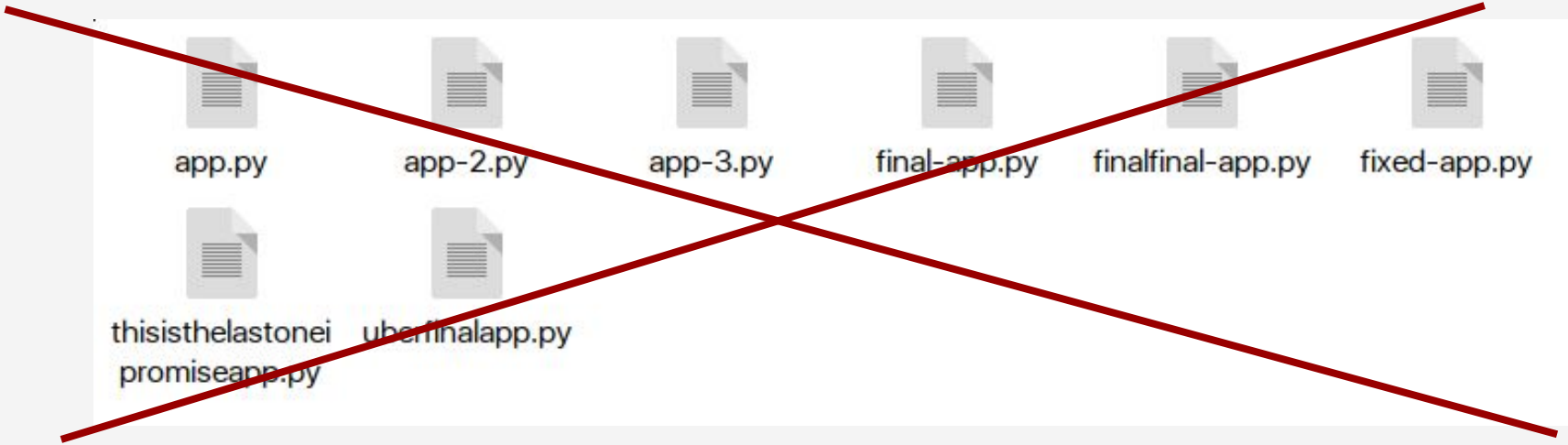
Why Version Control?

Why?



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Why?

- ➔ Helps keep track of files
- ➔ Helps keep track of ANY change made to a file EVER
- ➔ Helps keep track of the entire edit history
- ➔ Helps share the files, changes made and entire edit history with others
- ➔ Can revert changes quickly
- ➔ Can be used with CI/CD pipelines
- ➔ Because I think it’s awesome

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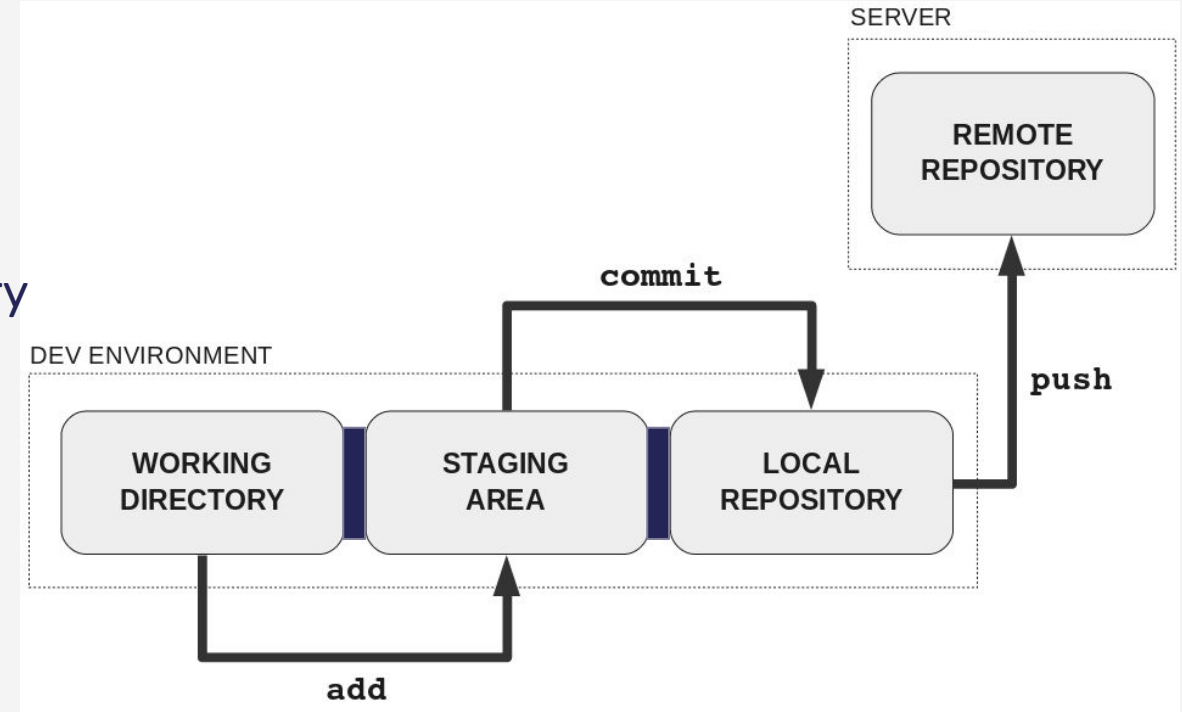
What is Git?

Git: What?

- Distributed source control management system (SCM)
- Key components:
  - Server
  - Dev environment
    - Working directory
    - Staging area
    - Local repository



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Git: What?

- Working Directory
  - You do what you want
  - Tracked files
  - Untracked files
- Staging area:
  - Bundle of changes
  - Package things nicely for repository
- Local Repository
  - Clone of the remote repository

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Git Commands: Exercise

1. git init
2. git add
3. git commit
4. git push

➔ git status

1. Create a local git repository for my_project

(Normally the first commit would happen much earlier on in the lifetime of the project)

2. Stage all of your code so far as one commit. Use the -m flag to add a commit message: ”First commit"
3. Don't worry about uploading your git repository to a remote location (i.e. hosting service)
4. From now on, every new change(s) you make to your project should be committed to your git repository

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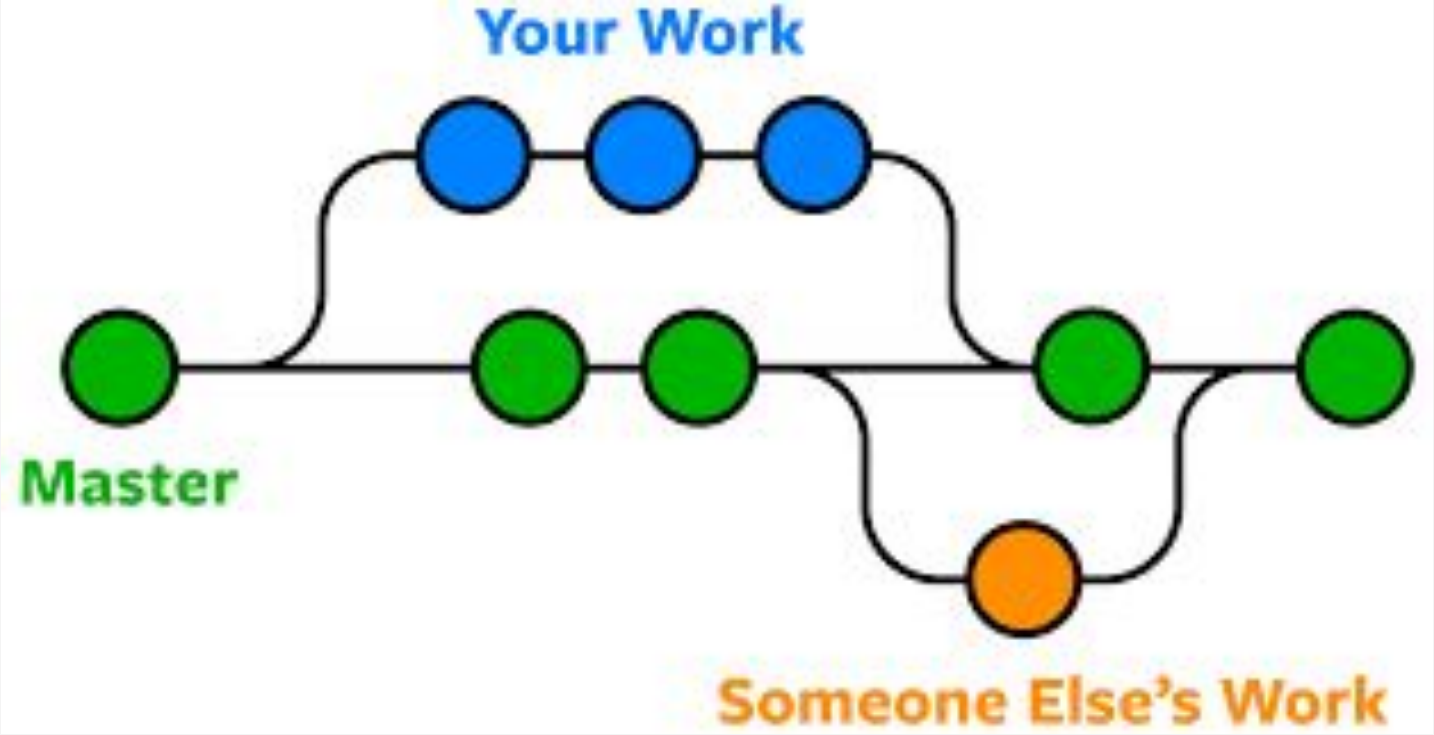
Branching & Navigation

Branching and Navigation



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Branching and Navigation

https://learngitbranching.js.org/

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What is GitHub?

GitHub: What?

- ➔ Most popular code hosting website (rivalled by GitLab)
- ➔ Free, with lots of functionality to help developers in any field:
  - Code hosting
  - Code discovery and search
  - Bug reports
  - Project task boards
  - Project wikis
  - GitHub Actions (automation)
  - (GitLab has CI/CD as well)

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Why use GitHub?

GitHub: Why?

Sharing is caring!

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Set Up

Github

Create an account

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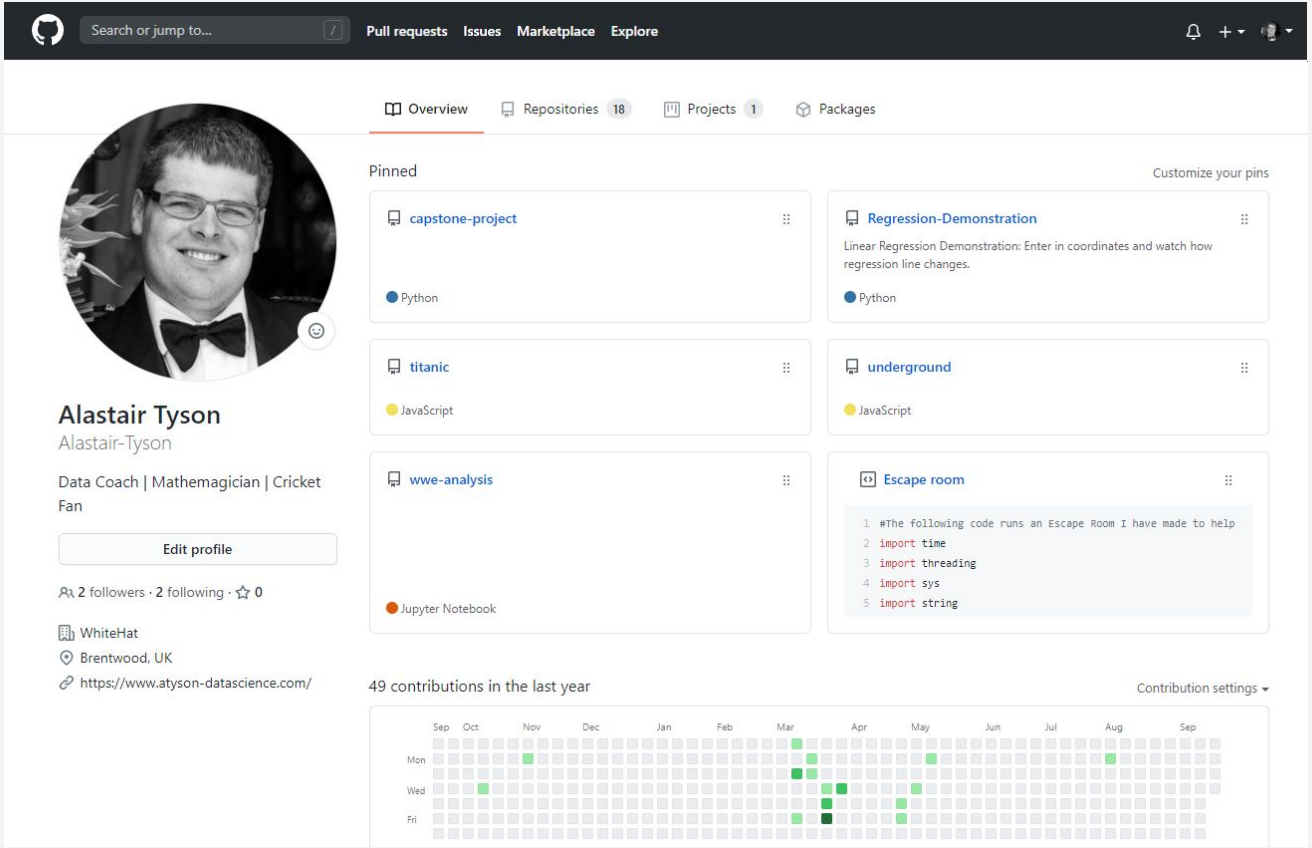
Github: Set Up



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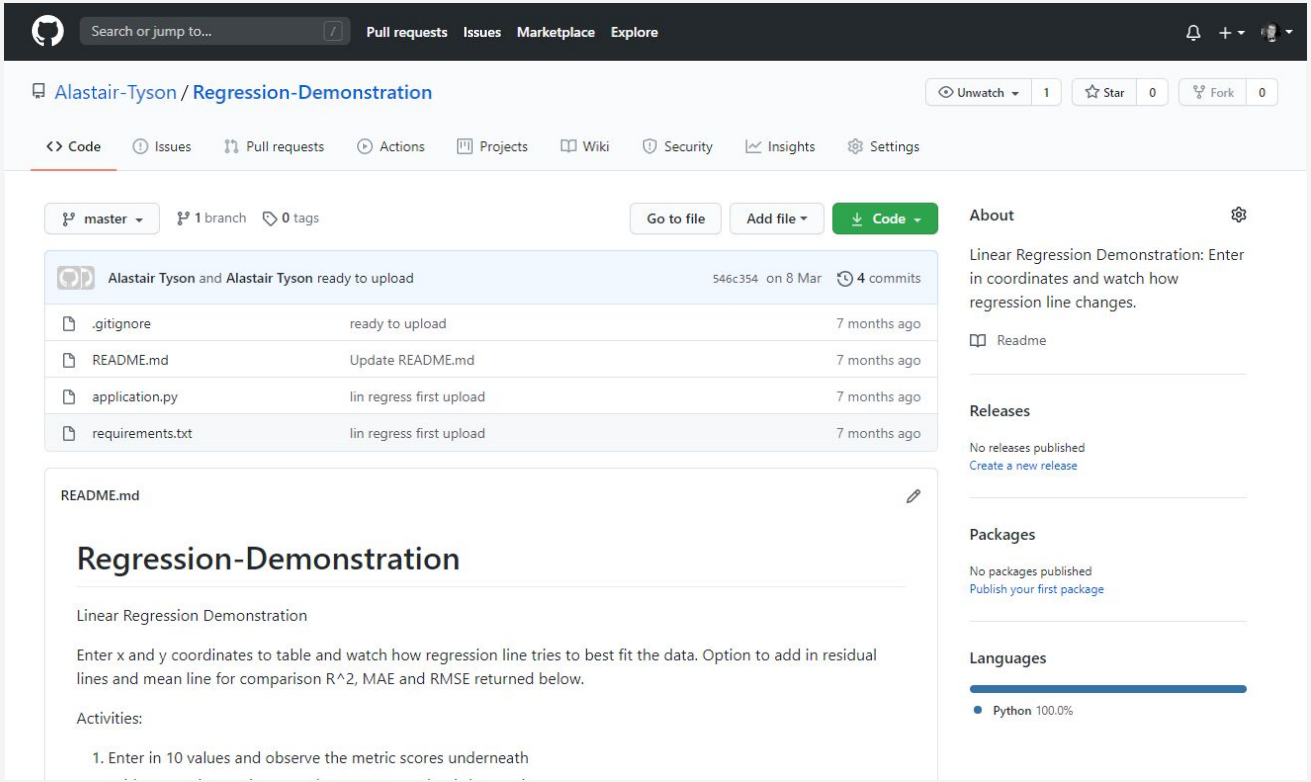
Github: Set Up



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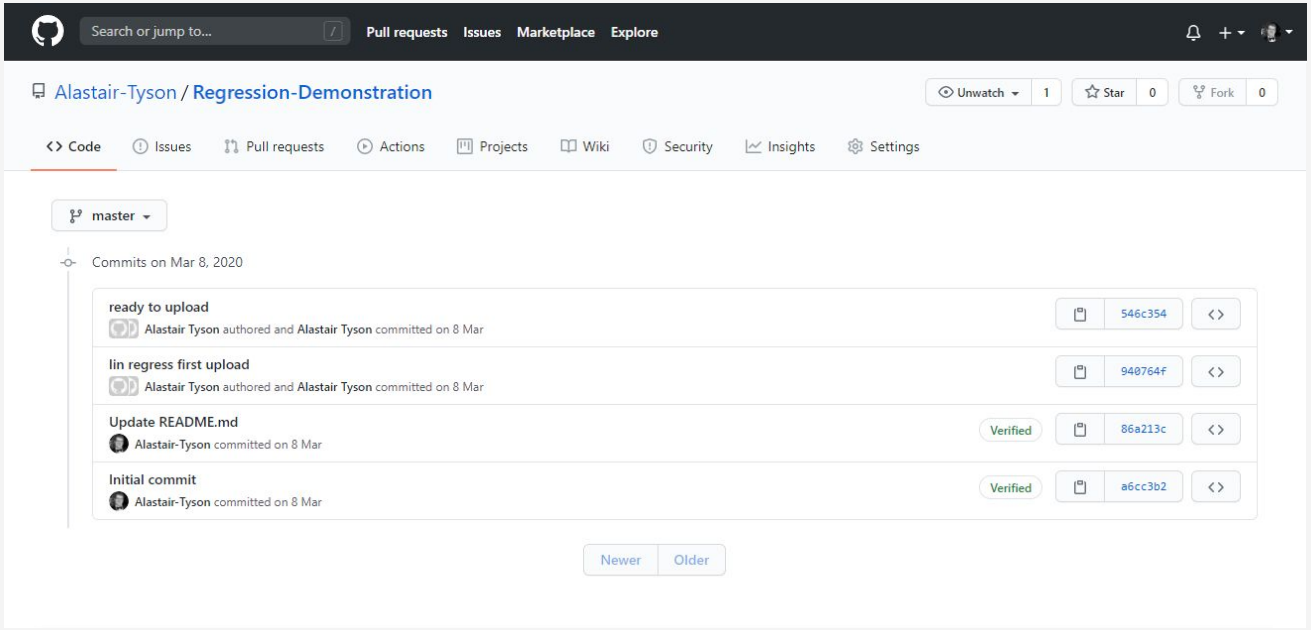
Github: Set Up



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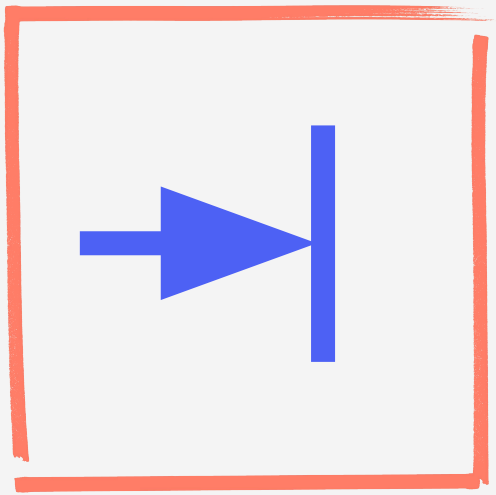
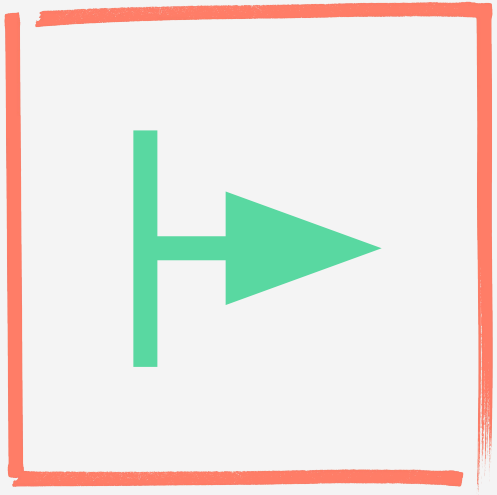
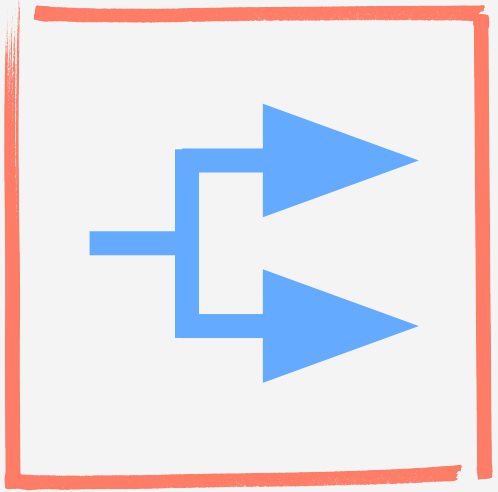
Glossary

Glossary







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Glossary

- **repository**: stores all your code and all history and tracking metadata
- **push**: sends your changes in your local repository to the remote repository (“upload”)
- **pull**: brings in any changes from the remote repository into your local repository (“download”)
- **branch**: alternative code path originating from a specific commit in another branch
- **staging**: telling git what changes we want to include in the next commit
- **commit**: a number of changes bundled up as a single transaction

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Glossary

- ➔ **clone**: copy a remote git repository and all of its metadata into our local environment
- ➔ **fork**: make a copy of a repo hosted online into another hosted repo under our account so we can freely change it
- ➔ **pull request**: aka merge request. Request to merge a branch/fork into the main branch/fork it originated from (upstream)

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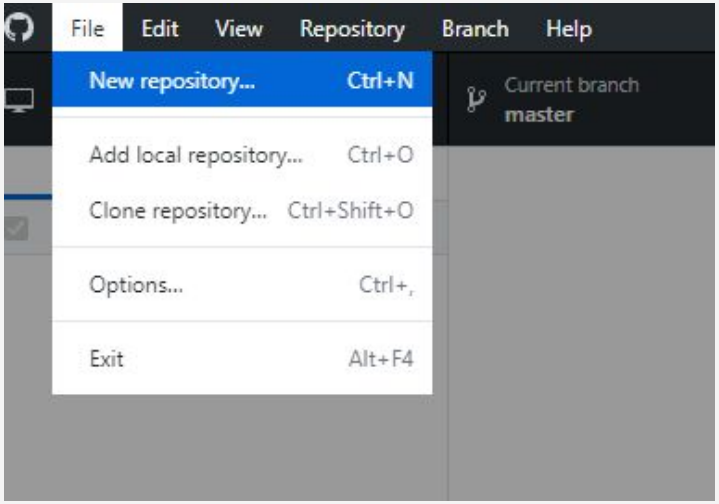
Using the app

Github: Demo



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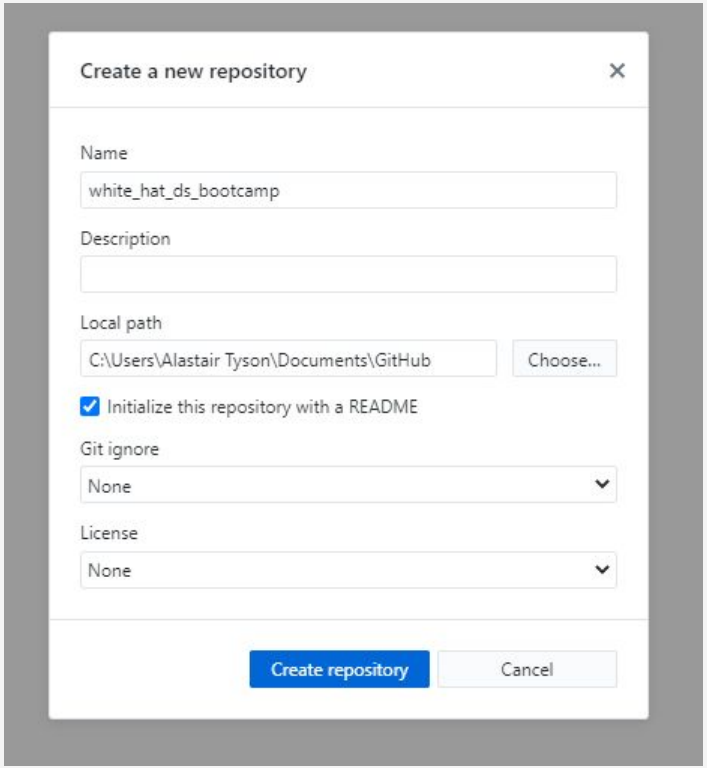
Github: Demo



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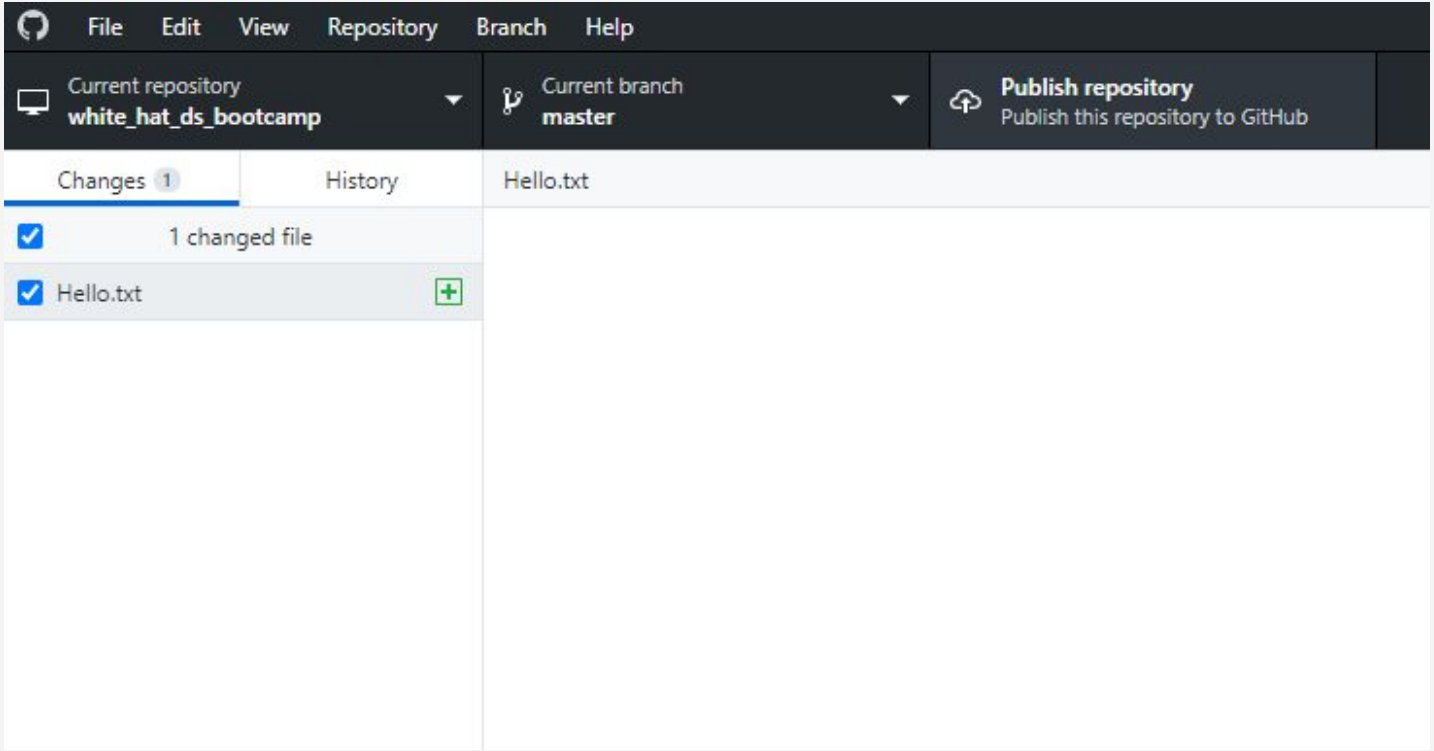
Github: Demo



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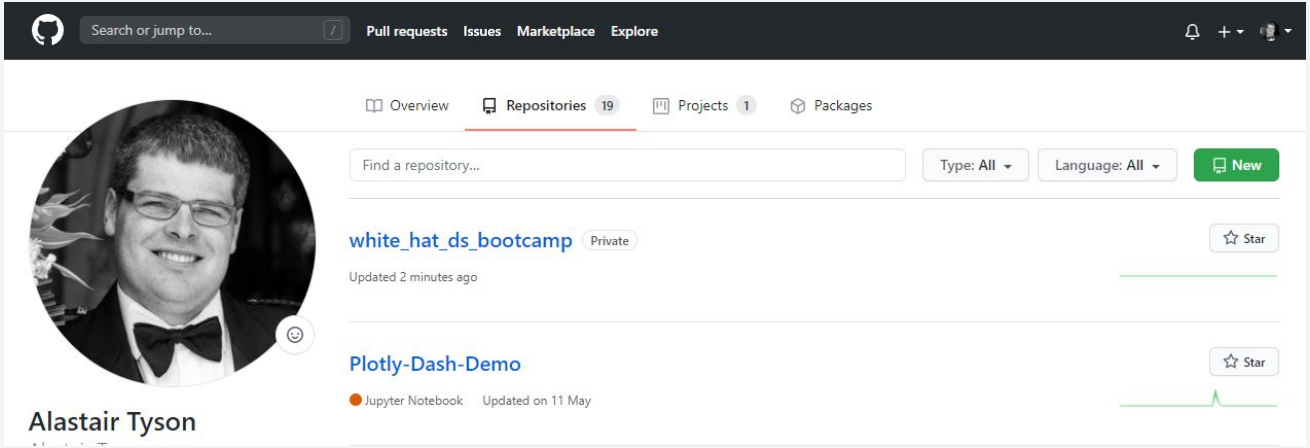
Github: Demo



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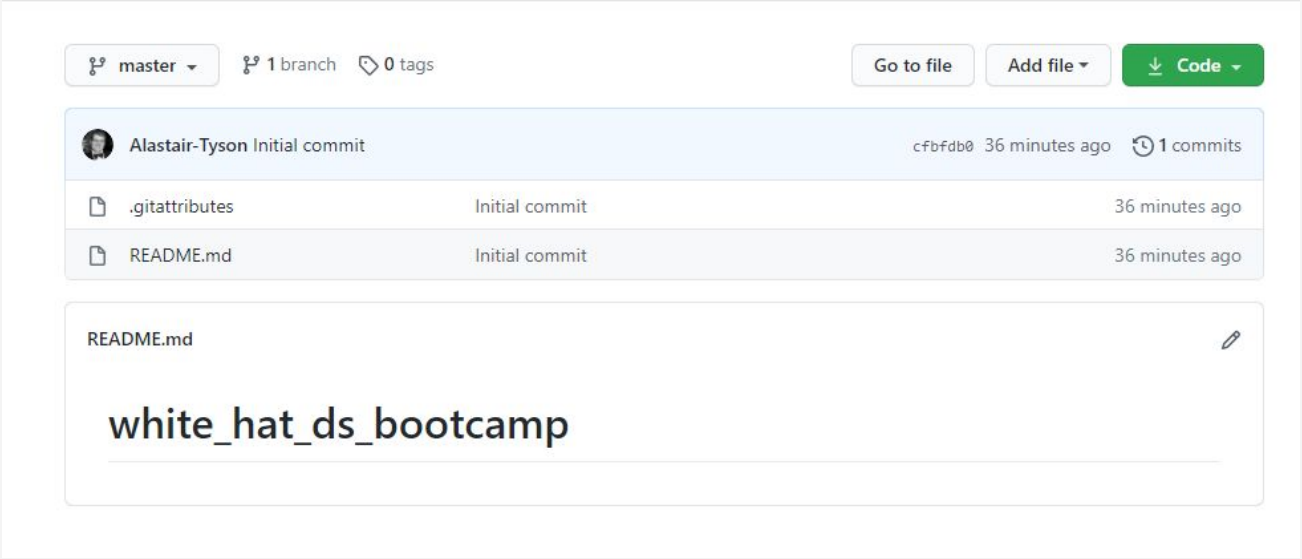

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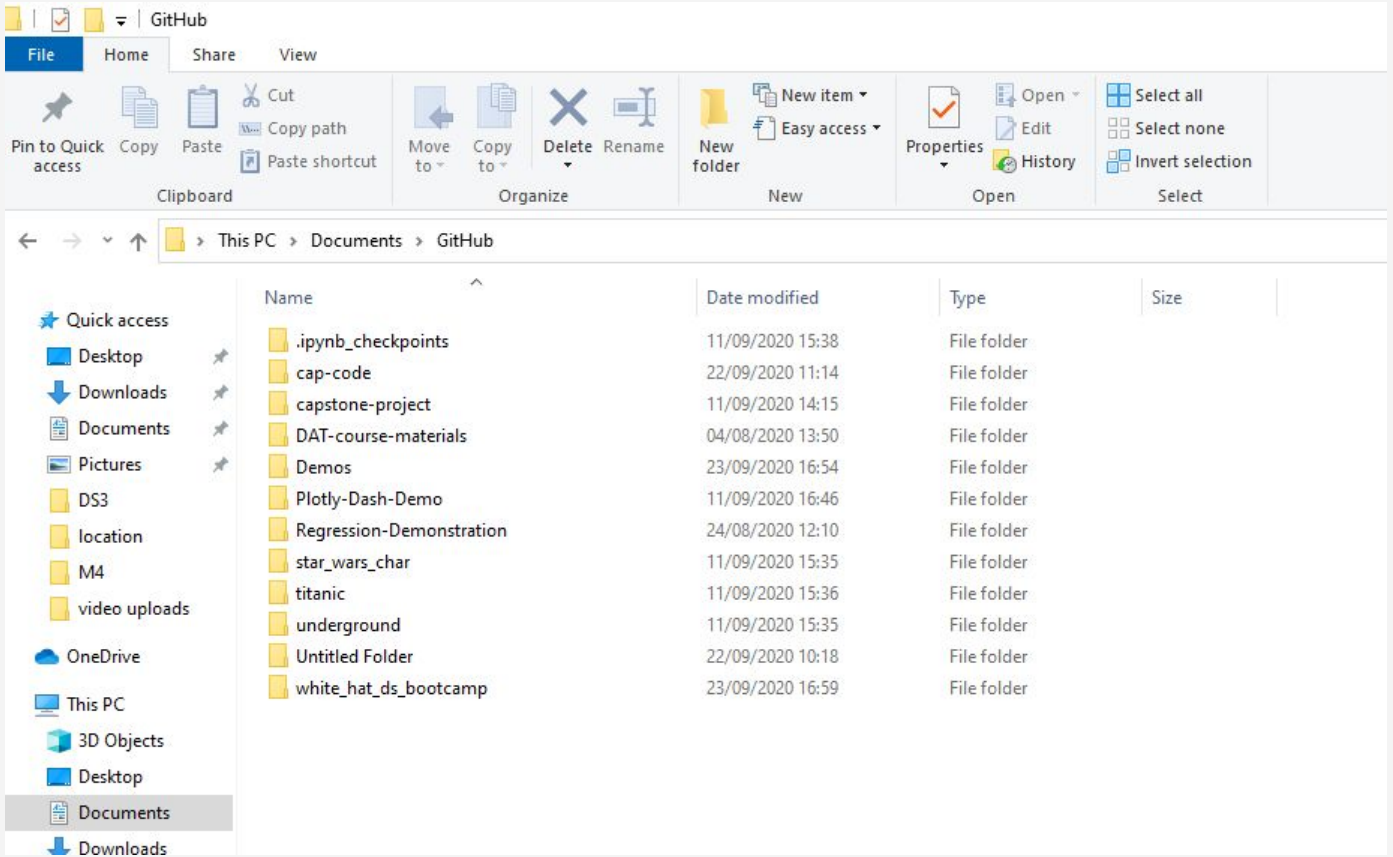

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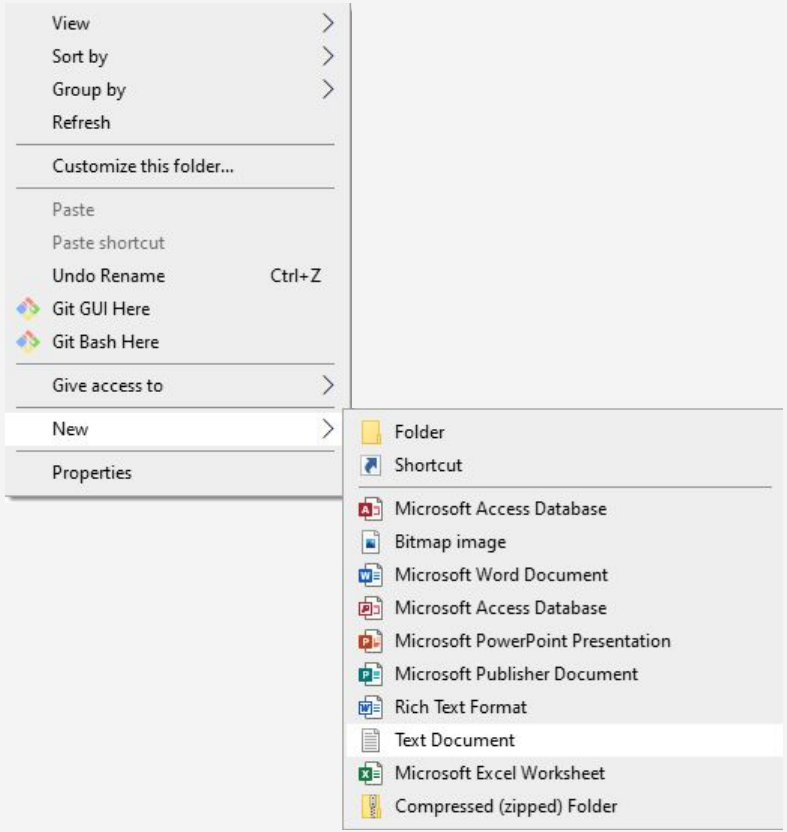

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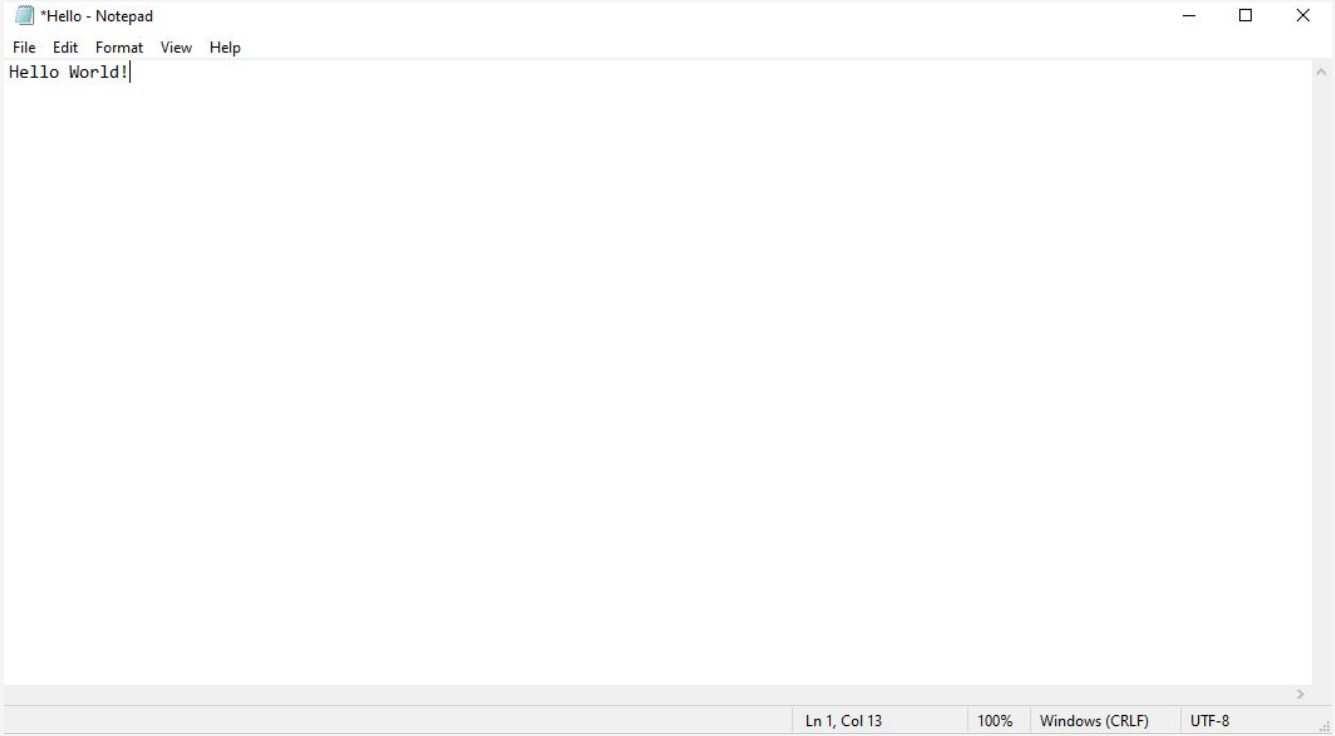

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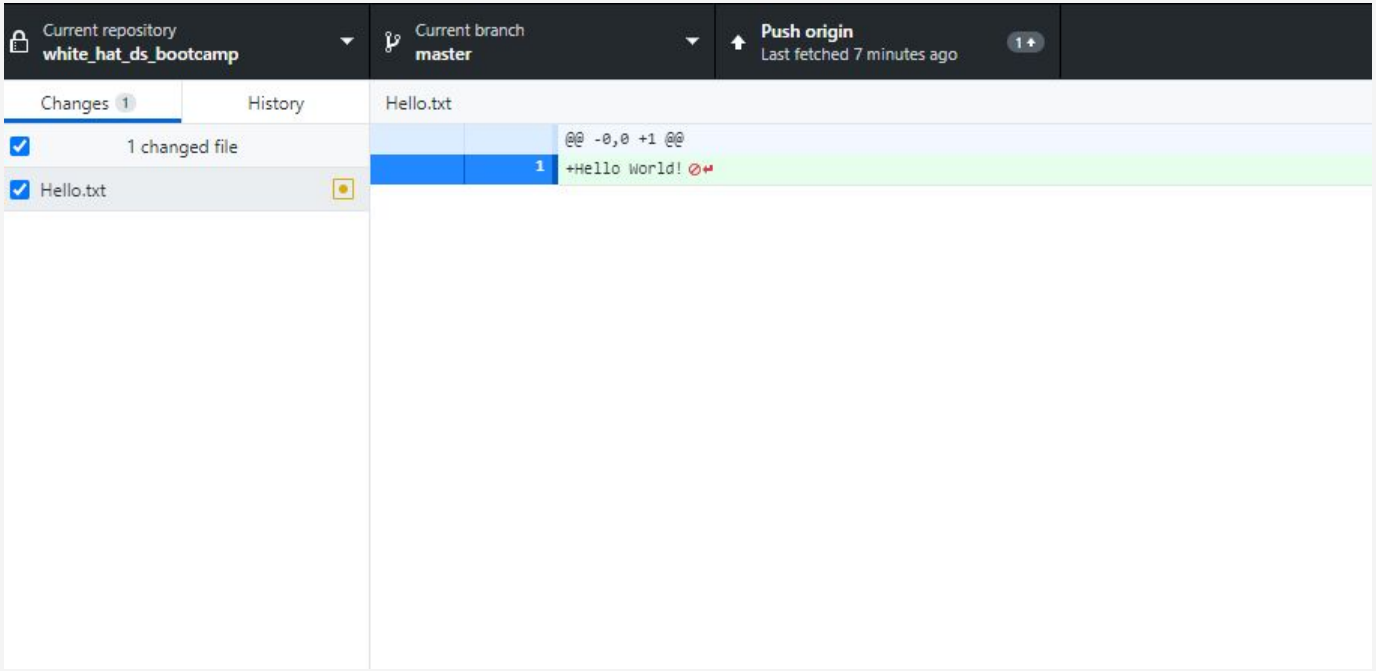

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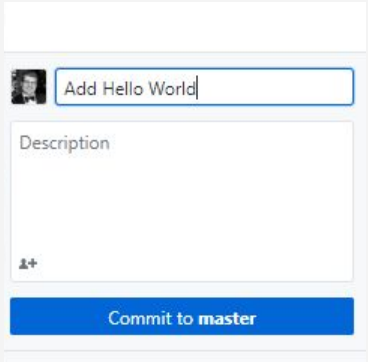

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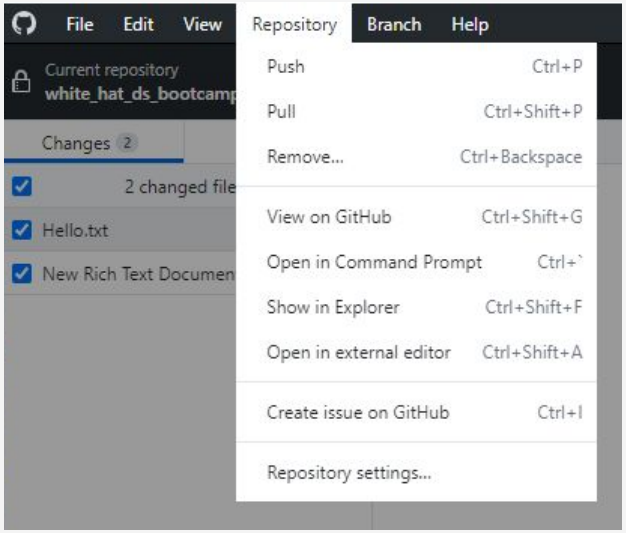

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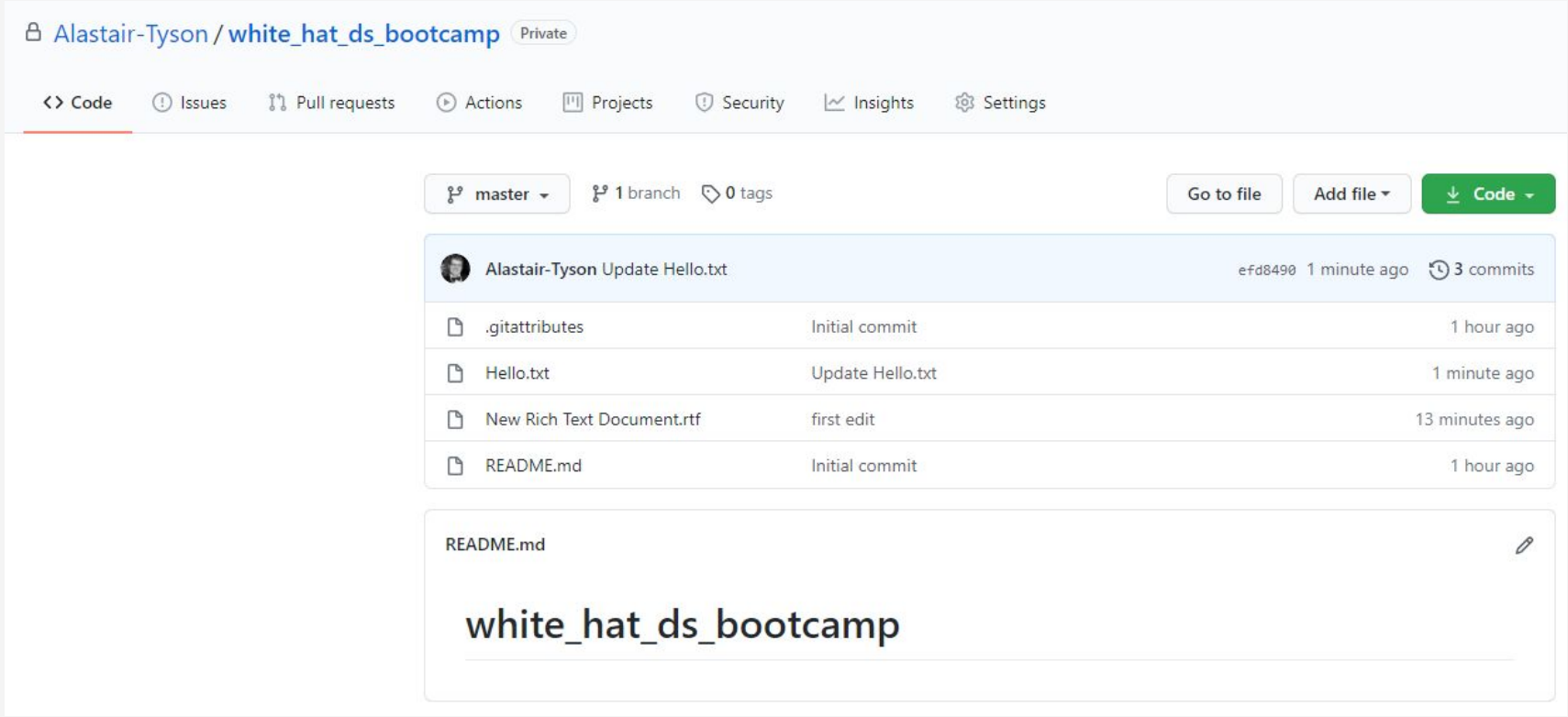

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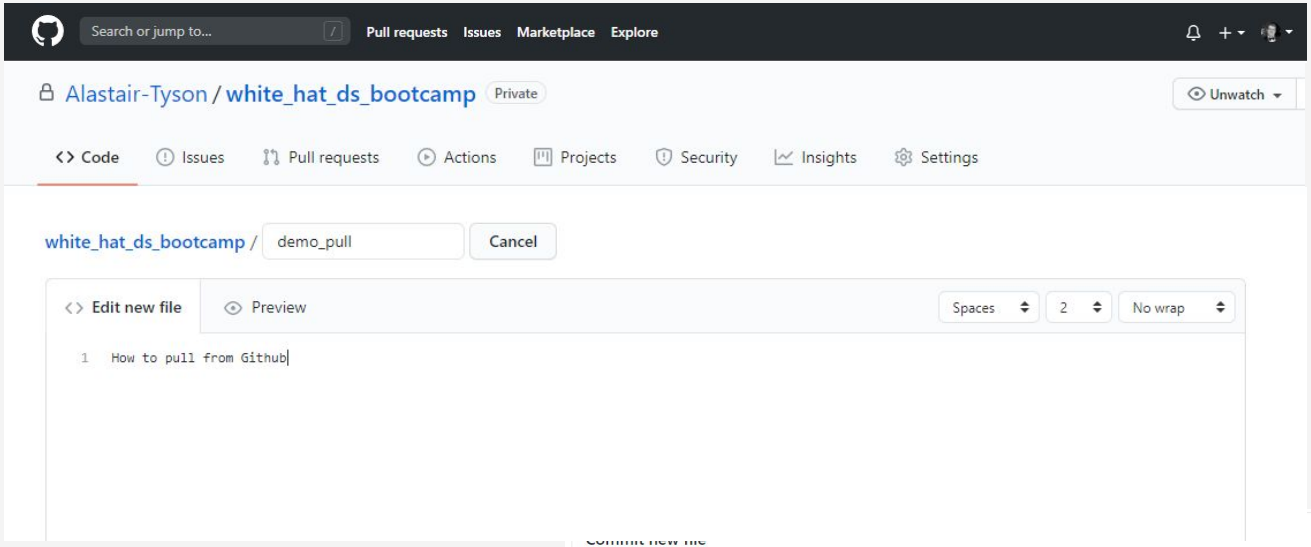

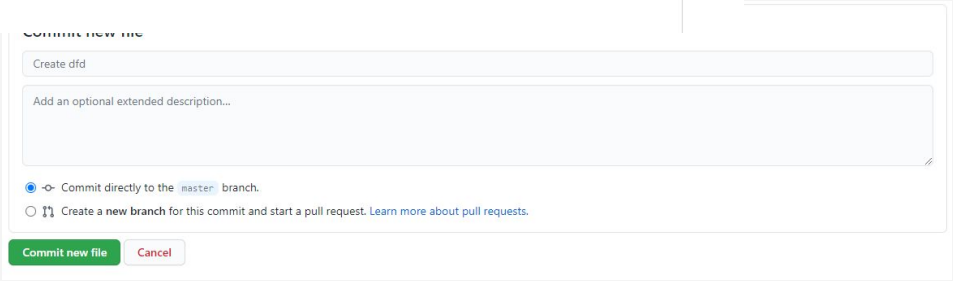

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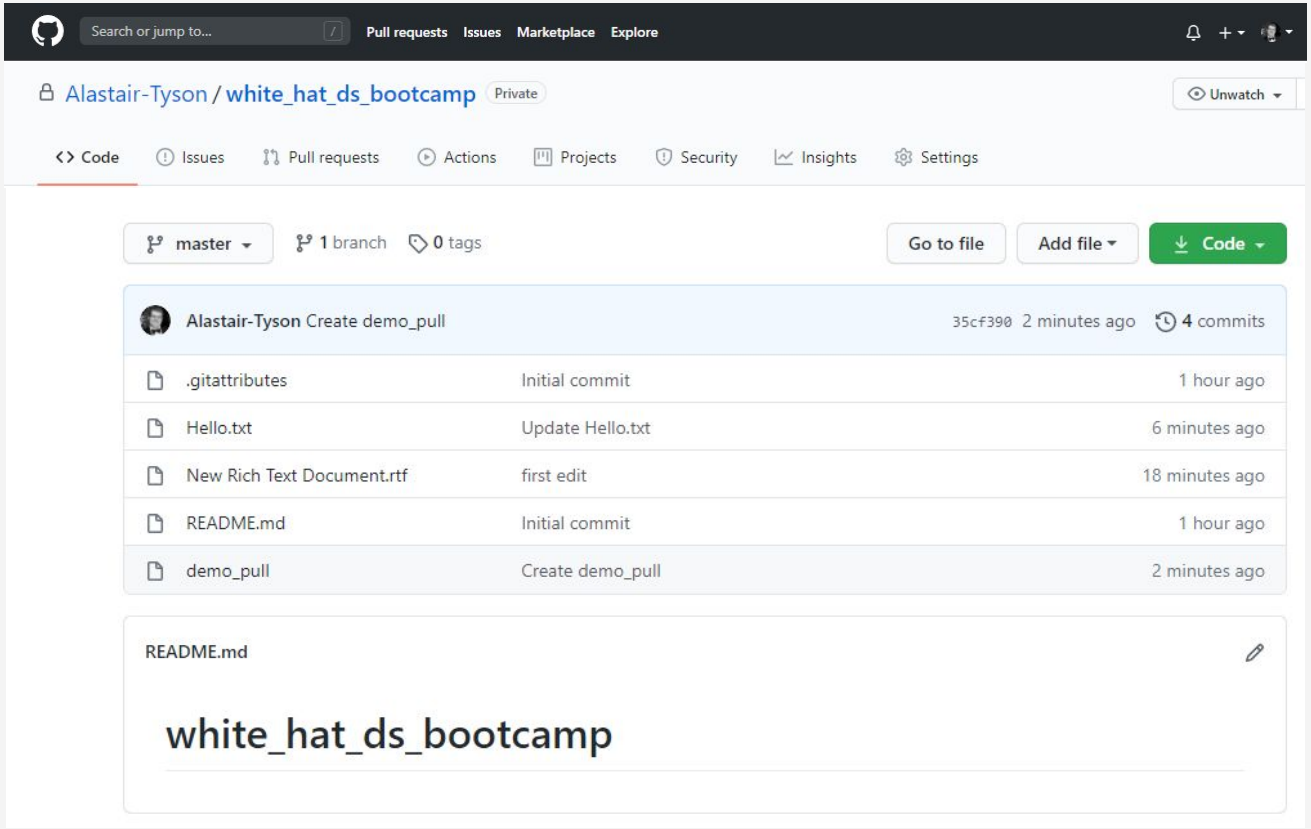

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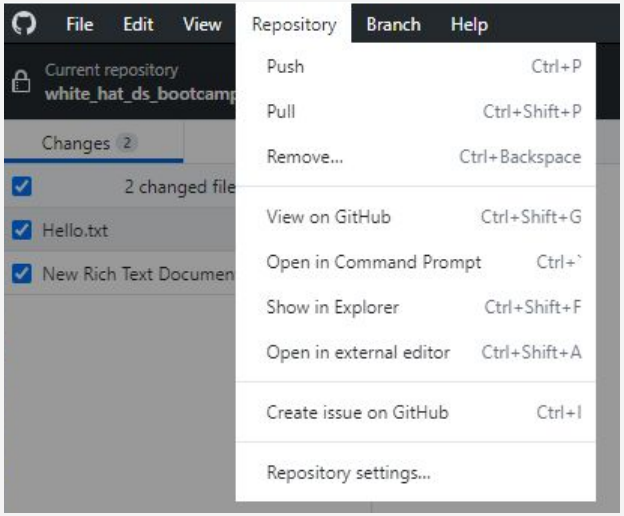

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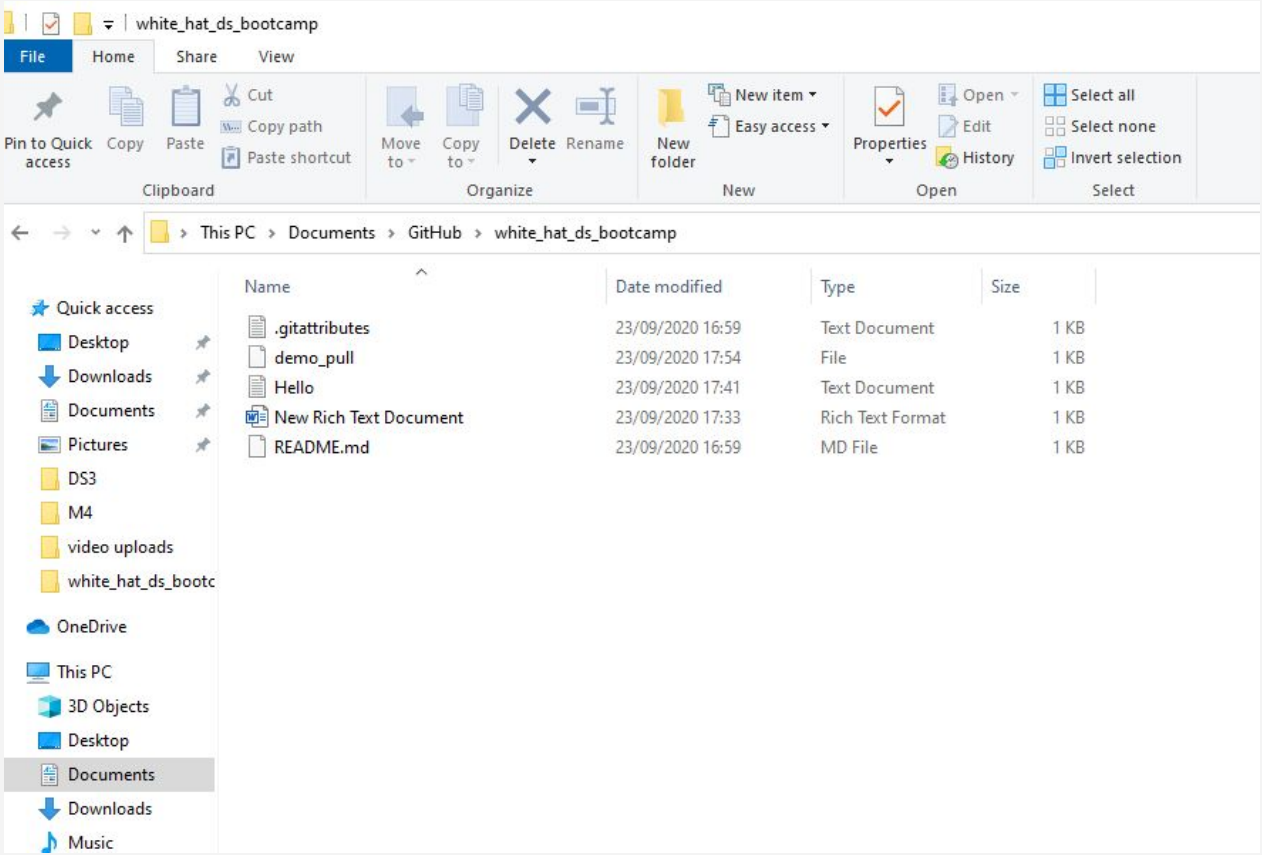

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Activity

Activity

- ➔ Create a new repository on your online Github account. This is the repository you will use
- ➔ On your desktop app, go to file and select ‘clone repository’ and pull the new one you just created
- ➔ Put your *df_programming_basics-main* folder in your repository
- ➔ Change to this repository on your app and commit the changes
- ➔ Push to the remote repository and check to see if it worked

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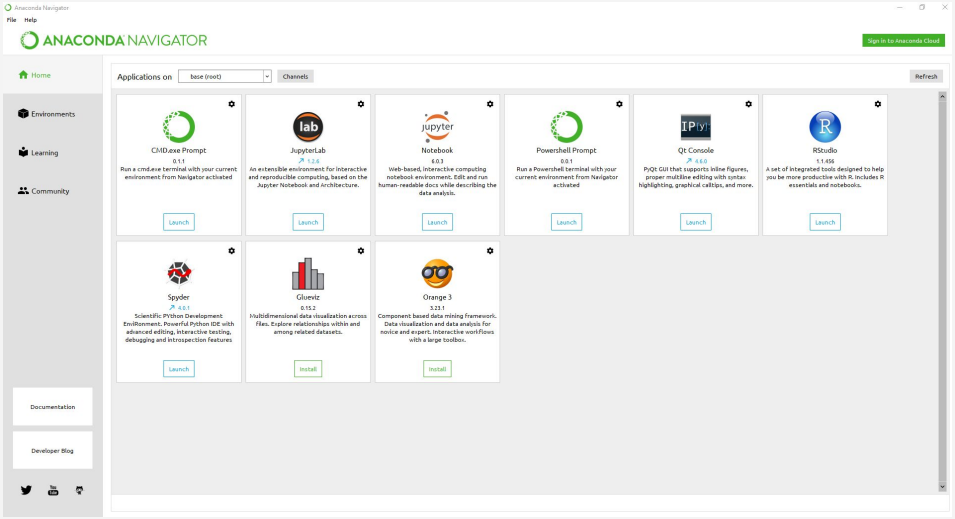
Jupyter Notebook

Python

Jupyter Notebook

- ➔ You should have installed Anaconda by now.
- ➔ Open “Anaconda Navigator”. You should see this:



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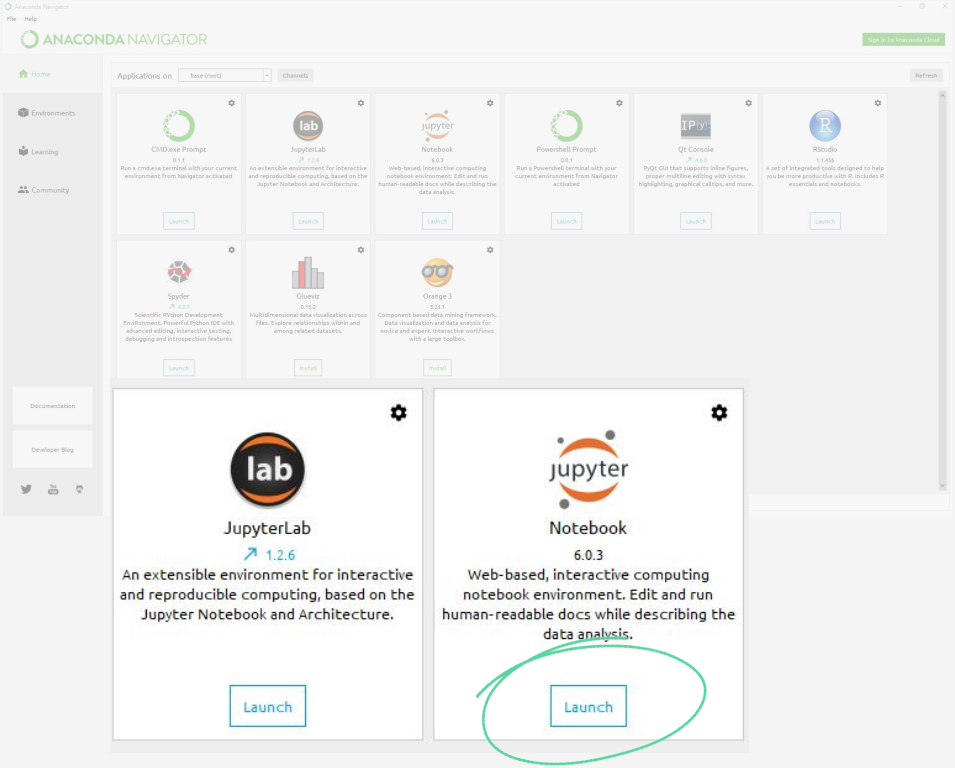
Jupyter Notebook

- ➔ You should have installed Anaconda by now.
- ➔ Open “Anaconda Navigator”. You should see this:
- ➔ Check to see if Jupyterlab and Jupyter notebook are installed. They should show “Launch”



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Jupyter Notebook

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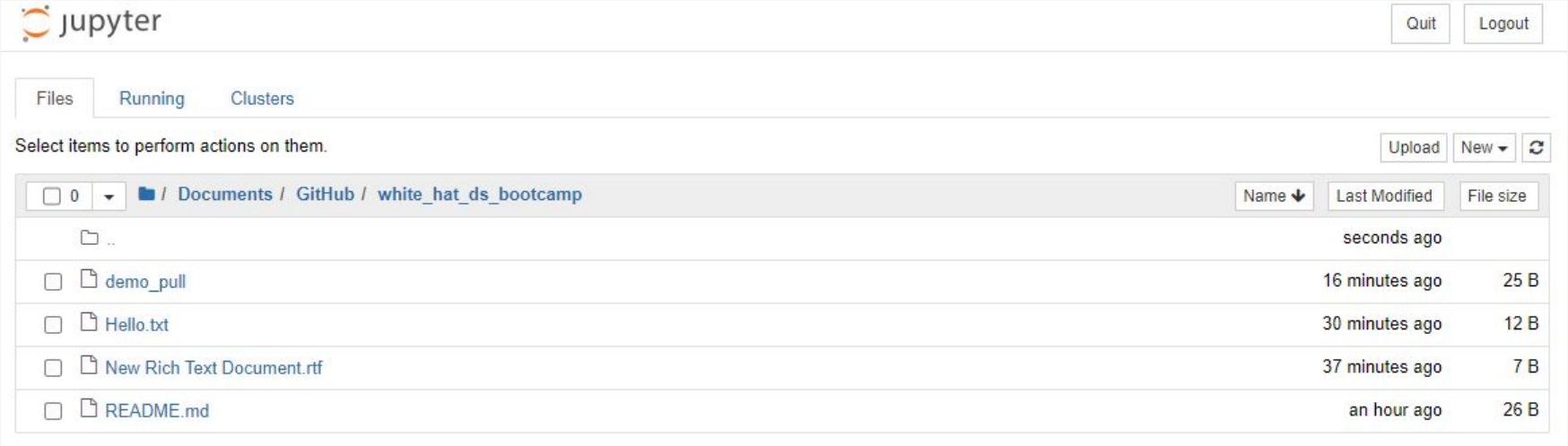
Jupyter Notebook



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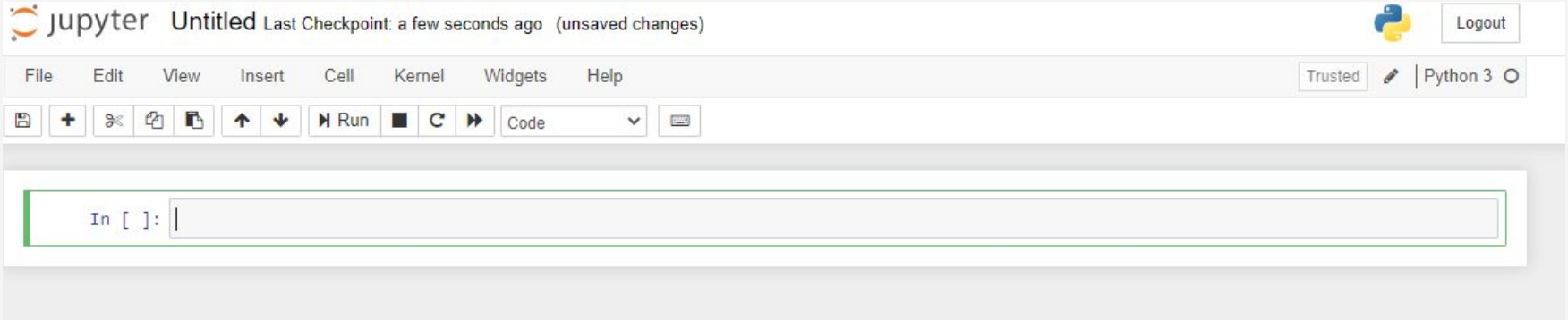

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Jupyter Notebook

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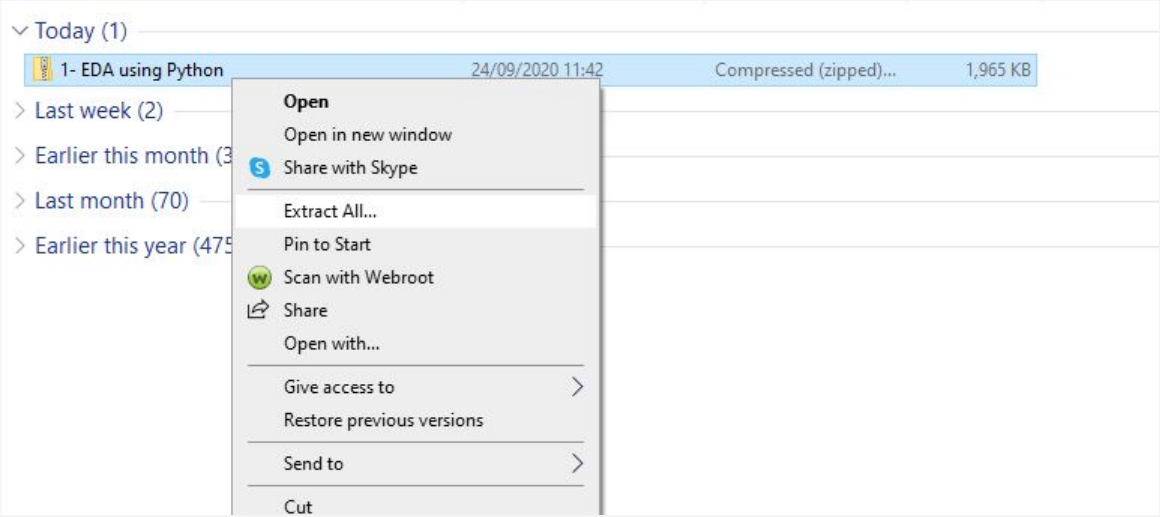
Moving Forward

Jupyter Notebook



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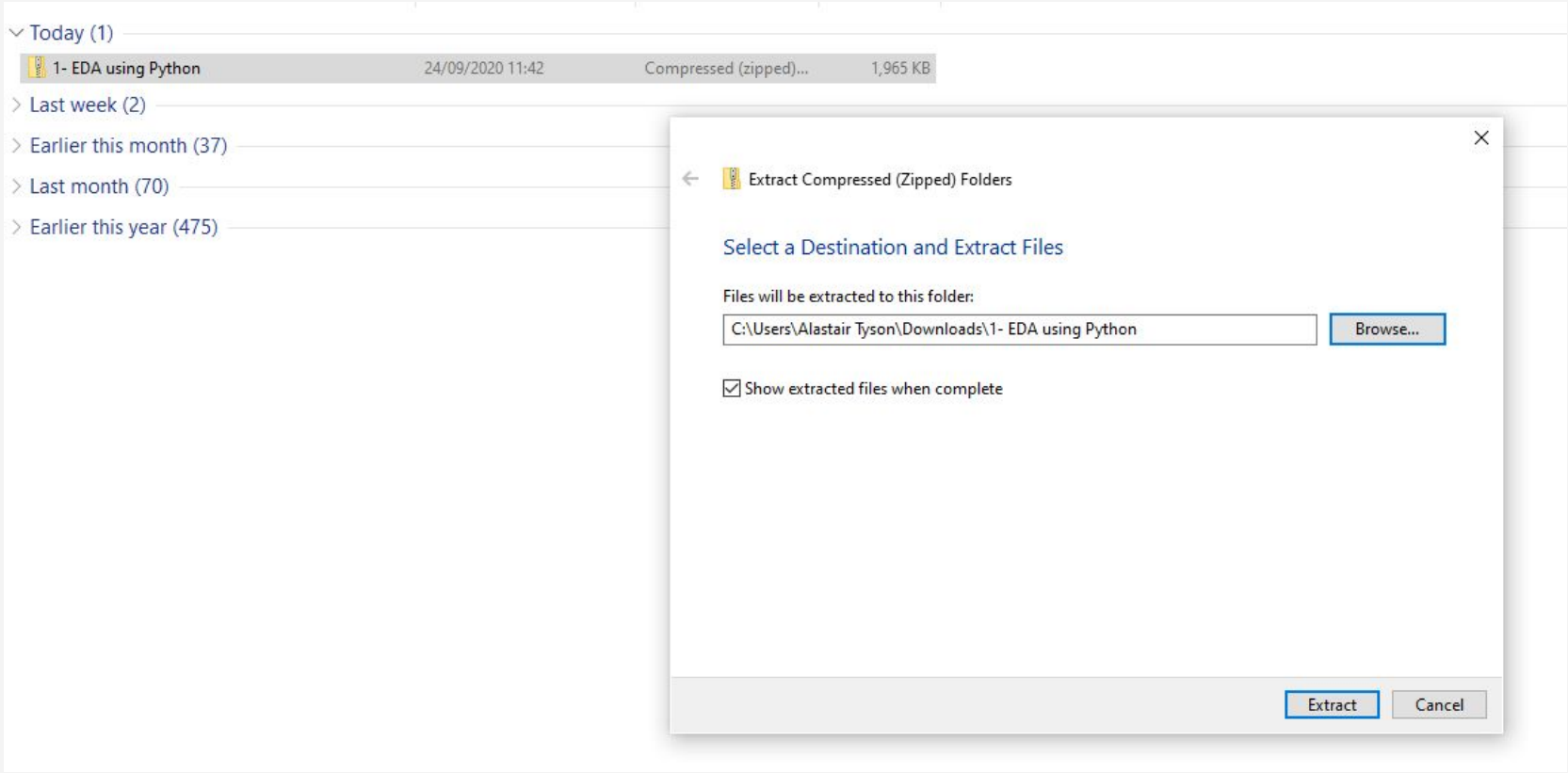

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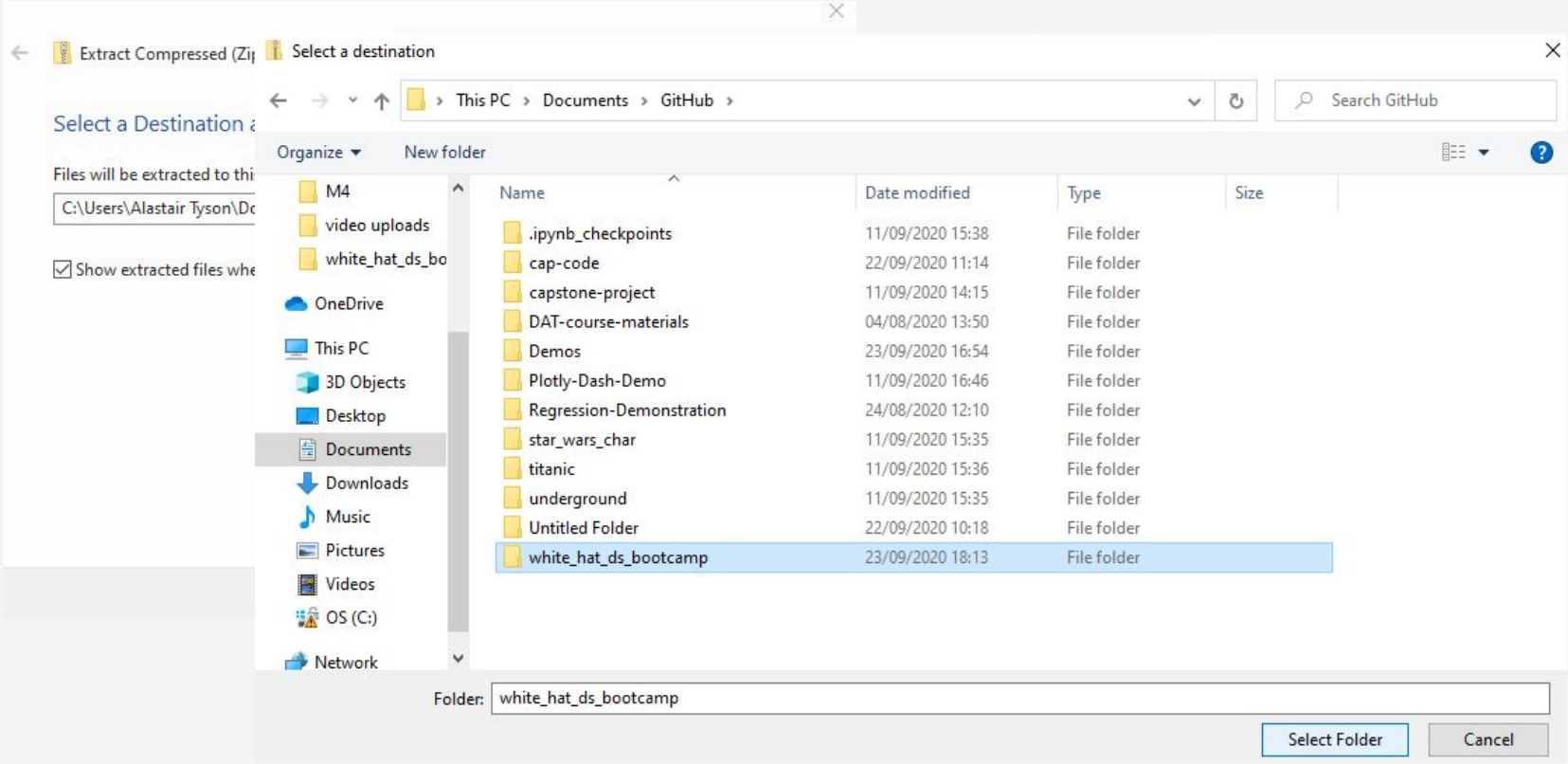

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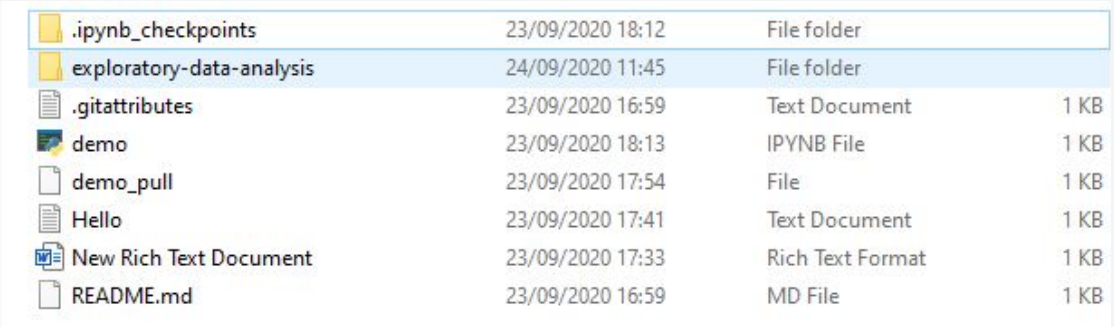

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exploratory-data-analysis	24/09/2020 11:45	File folder	
.gitattributes	23/09/2020 16:59	Text Document	1 KB
demo	23/09/2020 18:13	IPYNB File	1 KB
demo_pull	23/09/2020 17:54	File	1 KB
Hello	23/09/2020 17:41	Text Document	1 KB
New Rich Text Document	23/09/2020 17:33	Rich Text Format	1 KB
README.md	23/09/2020 16:59	MD File	1 KB

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