GitHub

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Github

- What is github?

GitHub, Inc. is a provider of Internet hosting for software development and version control using Git. It offers the distributed version control and source code management functionality of Git, plus its own features.
Founded 2008 (56 million, owned by microsoft)

Github

- Alternatives to github?
  - gitlab (https://about.gitlab.com/)
  - bitbucket (https://bitbucket.org/)

Github

- Uses of git:
  - Code collaboration
  - Version control
  - Safe storage of code

Github – Create an Account

github.com

- Click “Sign Up” at the top-right
- Use your UNCC email
- 2-5 collaborators is fine
- For Features I suggest “collaborative coding”
- Free account is OK, It can also be upgraded for free:
  - https://education.github.com/discount_requests/student_application
  - Select: “University of North Carolina at Charlotte”
  - Make sure to use your @uncc.edu address for this

Github – Example Markdown (Readme)

````
# Metaome Stats: Calculating denovo assembly statistics from metaomes
==============================================

## Installing
- pip installation **<br /> (LINE BREAKS)**
`pip install MetaomeStats`

- conda installation **<br /> (LINE BREAKS)**
`conda install -c bioconda MetaomeStats`

- source (github)

```bash
git clone https://github.com/raw-lab/metaome_stats
cd metaome_stats
python setup.py
```

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## Usage examples

```bash
````
````

Github – terminal authentication

- Github no longer allows password authentication. There are two options to authenticate
  - ssh authentication (more involved setup)
  - Personal Access Token (Easier setup)
  - https://docs.github.com/en/authentication/keeping-your-account-and-data-secure/creating-a-personal-access-token
  - When git asks you for a password, use the created token instead of your password

  The command on the terminal “git config --global credential.helper store” will tell git to store your password, it saves it as plain text (no encryption) so it is not secure. This is the reason for the Personal Access Token, giving limited access to anyone that may steal this token. SSH is much better, we may set that up on a future date.

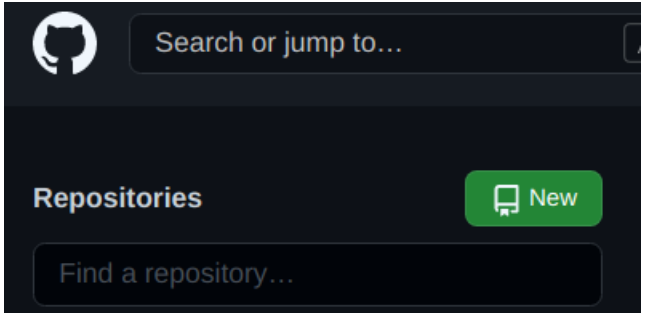
Github – Basic Functions

- Pulling data from github
  - git clone https://github.com/....
  - git pull (for updating repo after someone else makes changes)
- Git needs to authenticate before you can push, or pull from a private repo.
- Push to github (assuming you are in root directory of the code)
  - git add .
  - git commit –m “Description of changes”
  - git push

Github – Basic Functions

- Show changes
  - git status
  - git fetch (checks server for updates without ‘pulling’ them)
- Create a new branch (for working on fixes/features)
  - git checkout –b <branch name> (i.e. dev)
- Switch between branches
  - git checkout <name>
- List local and remote branches
  - git branch -a

Github – Practice: Hello World



- Create a new repository on github
  - Repository name: hello_world
  - Select public and add the README file
- Now to clone it in your home directory
  - On the terminal type ‘cd’ to make sure you are in your home
  - git clone https://github.com/<username>hello_world
  - Type ‘ls’ to confirm the new folder “hello_world” is there
- Congratulations on creating your first github repo!

Github – Practice: Making Changes

- Change the README file:
  - cd hello_world
  - ls
- You should see README.md in the directory. With your favorite text editor change the readme file (vim, nano, gedit, echo…)
  - Add the line '## created by <your name>" and save the file
- Push your changes: (type 'git status' after each command)
  - git add README.md
  - git commit –m "Added author to README"
  - git push
- Now on your browser at https://github.com/<username>/hello_world you will see your updated README file