Version Control Using GitHub

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TIMESTEP Lecture Series

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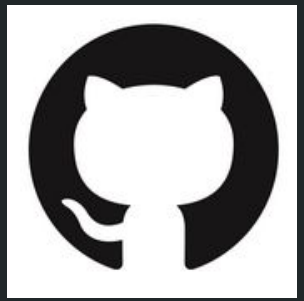
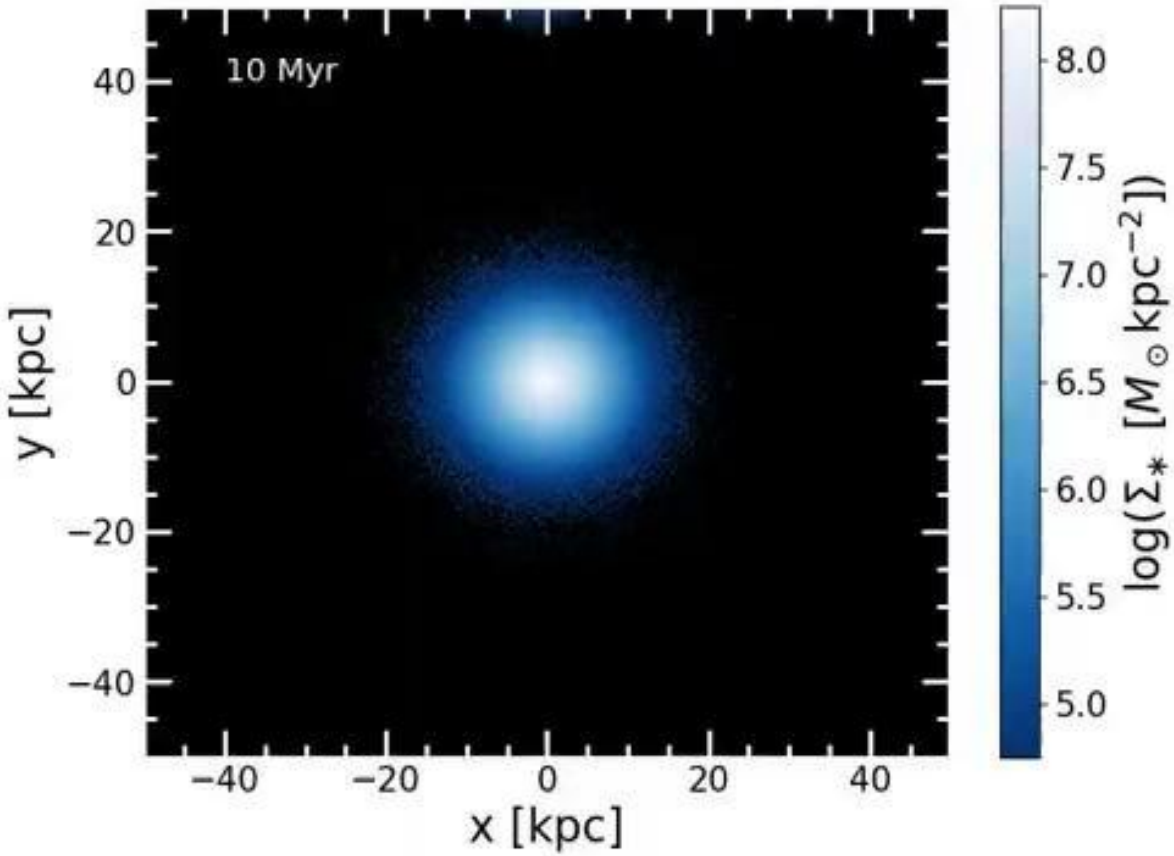


What is github ?

- Have you all used drive before ? What does it allow you to do ?
- Github is a code developer platform:
  - Create
  - Store/Maintain
  - Manage
  - Share/Collaborate
- Github is based on a version control system called git
  - Keeps track of versions of files and the modifications therein
  - Keeps track of version conflicts
  - Allows multiple people to collaborate on one project
- Efforts to make research and code development:
  - Accessible
  - Reproducible
  - Collaborative

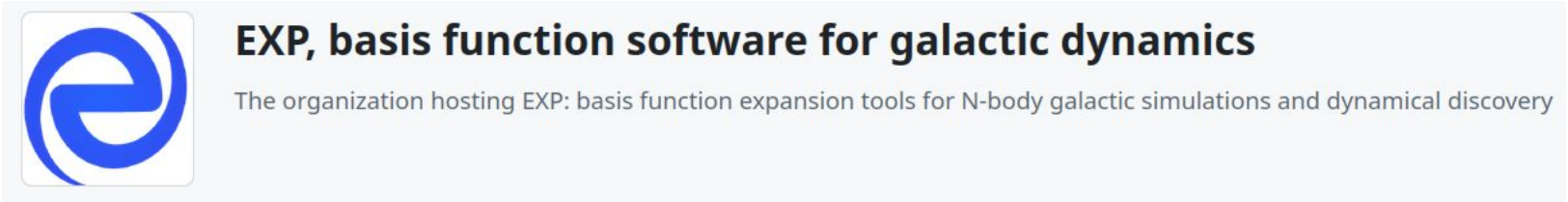
What drives scientific research ?



Availability and Accessibility to sophisticated tools and large collaborative projects !

- Gadget-4: publicly available on gitlab (https://gitlab.mpcdf.mpg.de/vrs/gadget4)

- EXP: publicly available on github (https://github.com/EXP-code)



Other examples

A small collaborative project:

- himanshrathore / pymargay (https://github.com/himanshrathore/pymargay)

Store and maintain your own private codes:

- himanshrathore / magclouds (https://github.com/himanshrathore/magclouds)

Educational materials:

- krittikaiitb / tutorials (https://github.com/krittikaiitb/tutorials)

Personal Website:

- Me: (https://himanshrathore.github.io/index.html)

Are there other version control languages ?

Are there other hosting services ?

Our goals for the two lectures ...

- Appreciate the importance of open-source software development and technologies like git and github which enable that
- Create an account on github
- Learn different components of github and the technical background
- Learn and play around with the github web interface
- Learn and play around with github using the command line interface
- Learn how to manage individual projects as well as collaborative projects with github

We will do lots of hands on exercises to demonstrate the above concepts !

Lets create a github account

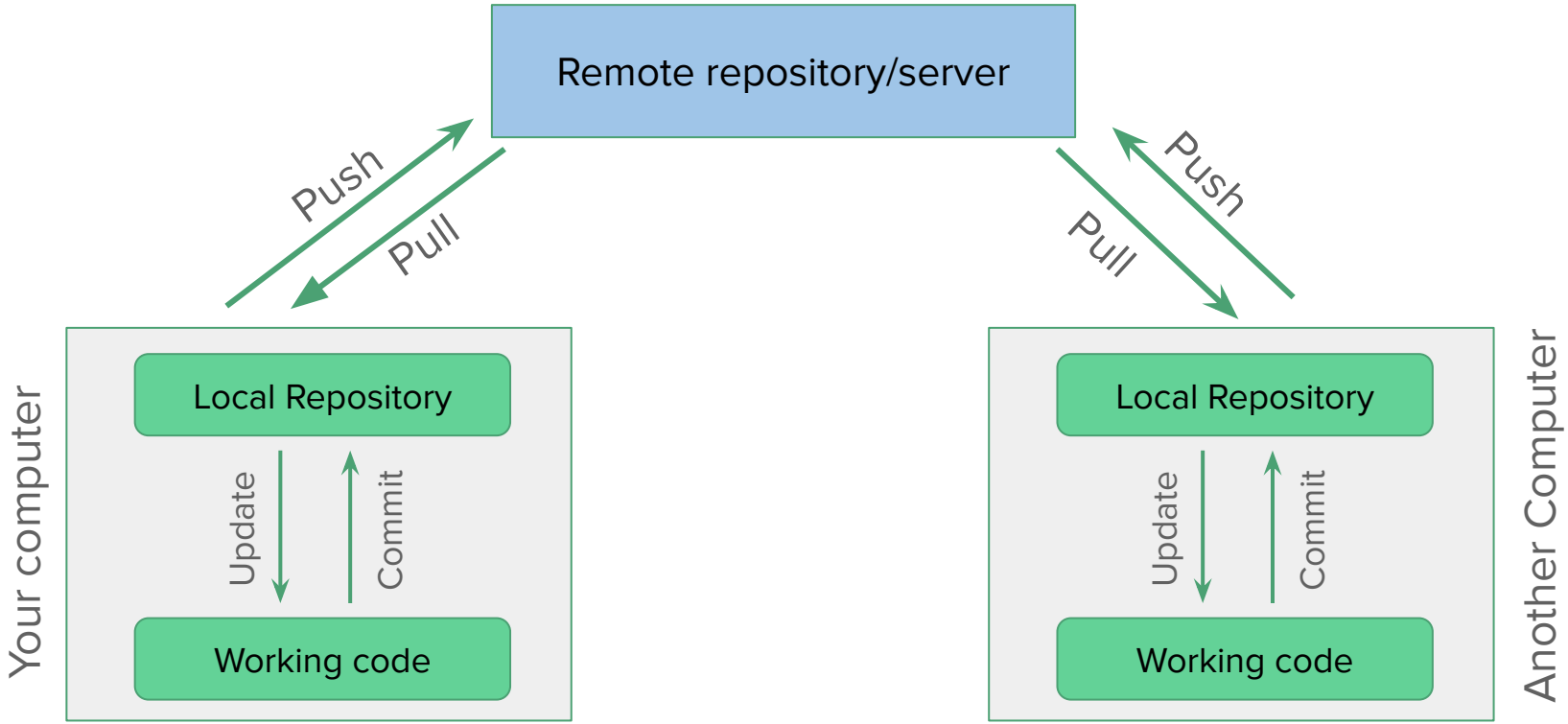
Were you able to attempt the homework ?

- You need a github username
- You need an email address associated with your account
- You need a github password (DO NOT SHARE WITH ANYONE)
- You need 2-factor authentication set up with the help of an external device (like mobile)

Anyone who has not been able to do this ?

Some basic technical background behind git

Repository - the directory that hosts your project



The github web interface

Creating a repository

- Log in to github and go to dashboard
- Select New
- Give a short repository name (like <name>timestep)
- Give a short description
  - “TIMESTEP - learning how to use github”
- Choose repository access. Choose Private. Can change it later.
  - Public - anyone can see the repository and download stuff
  - Private - only you and the collaborators you explicitly invited can see the repo and download stuff
- Initialize the repository with a README file
  - Give a longer description to your project
  - Can write a documentation/installation instructions if you have code
- License - for our purposes choose NONE
- Click on Create repository !

Accessing another repository

- You need to access the subsequent slides and instructions from github itself !
- Go to the repository that I created (it is Public):
  - In the search bar on the top, search “himanshtimestep” and press enter. OR, directly use the following URL: https://github.com/himanshrathore/himanshtimestep
  - You will find the subsequent slides there
  - This is the only way you will have access to my slides and the only way you will be able to proceed in the lecture series !

Lets upload a file to the web interface

- In your computer, open your favourite text editor
- Create a file
  - Example - ‘test.txt’
  - Write some content in it. Example - ‘This is a test upload.’
  - Save the file in your computer
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