Source Control Systems

- A.k.a revision control, source control

- Source control is the management and tracking of changes to source code, documents, data, etc.

- **Allows collaborative development**

- Keeps track of who made a change, when the change was made, and what the change was

- Permits reverting any change and rolling back to a previous state
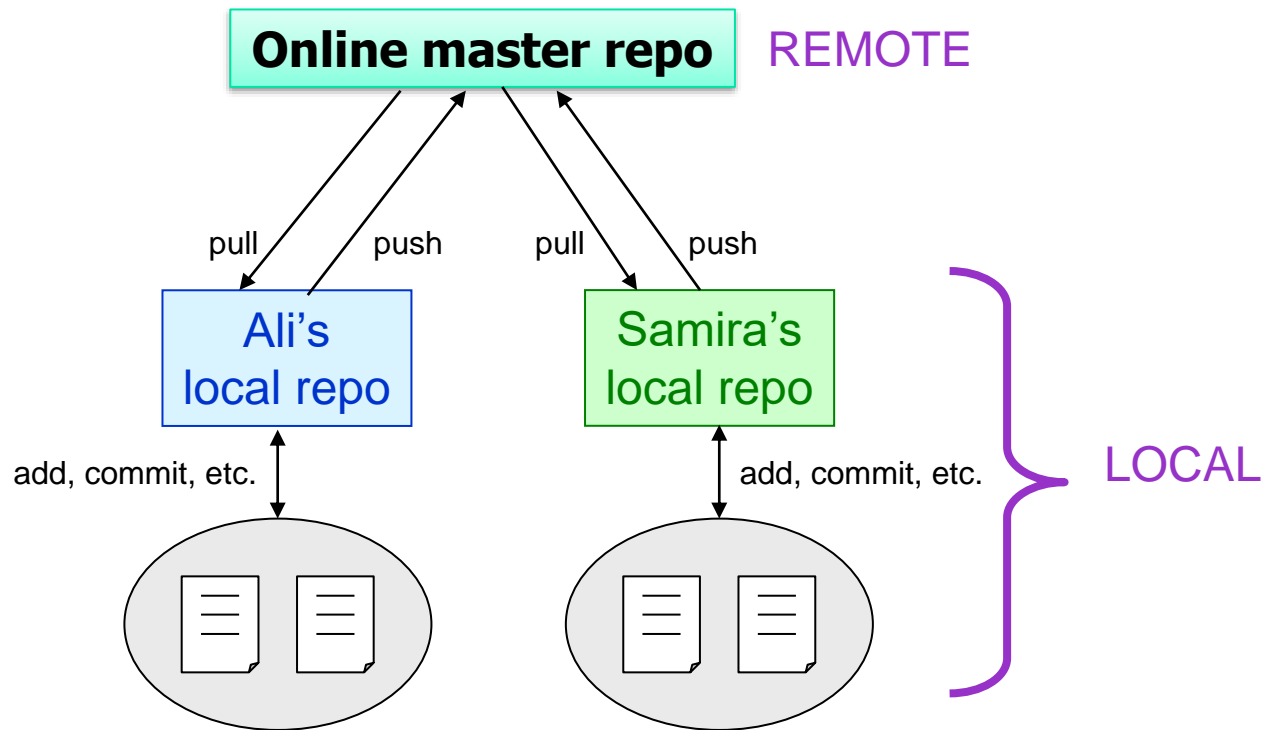
Github

- Github is a distributed source control management system

  - It also provides several collaboration features such as **wikis**, **task management**, and **bug tracking**

- Main characteristics:

  - Entire code and history is kept on the client (user) machine

  - Users can work (make changes to code) even without internet connection

  - Internet connection required only for pushing and pulling from remote repository

GitHub Basics

- A repository (or 'repo') is a collection of all the files and their commit history

- Copying a repository from a remote server is called **cloning**

  – Cloning allows teams to develop collaboratively

- Pulling: downloading commits that do not exist on the local machine from a remote repository

- Pushing: adding local changes (commits) to a remote repository
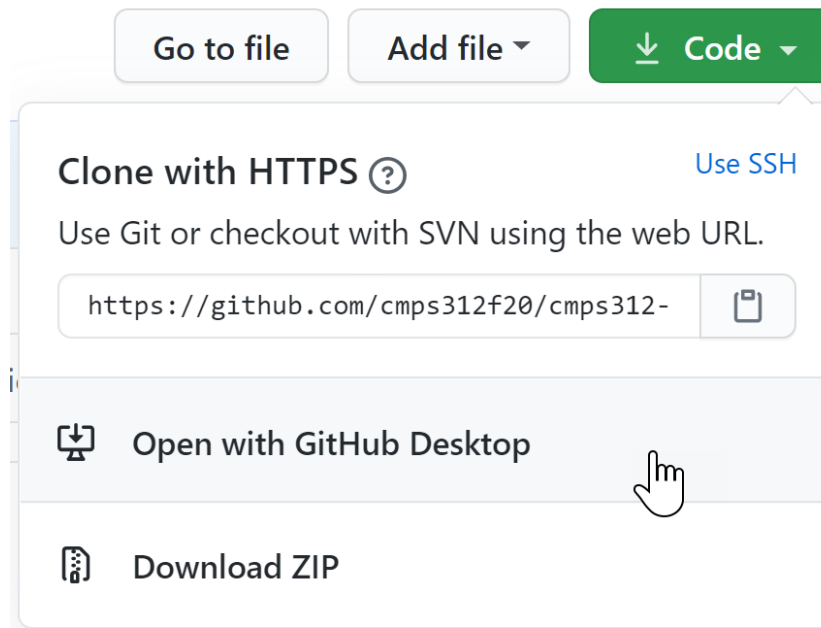
Local and Remote Repositories

Architecture & Terminology

Remote Repository (GitHub.com)

Local

Clone/
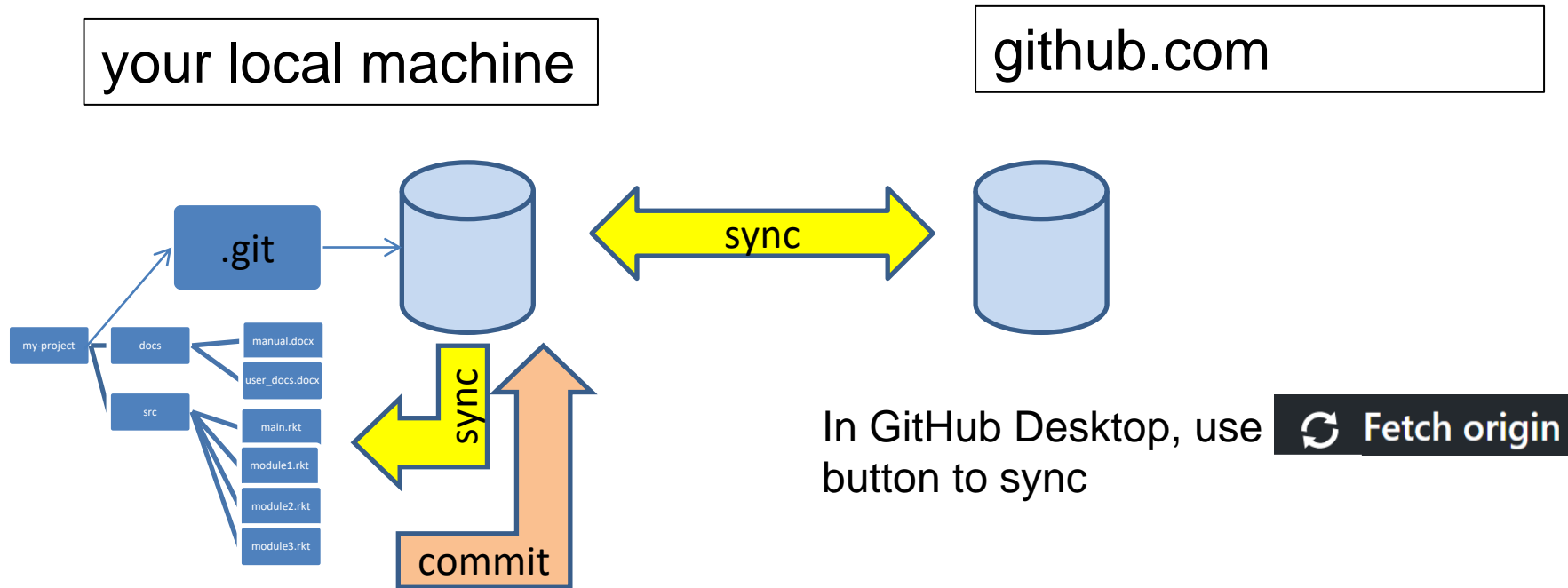Pull

Push

Local Repository

Commit

Working Folder
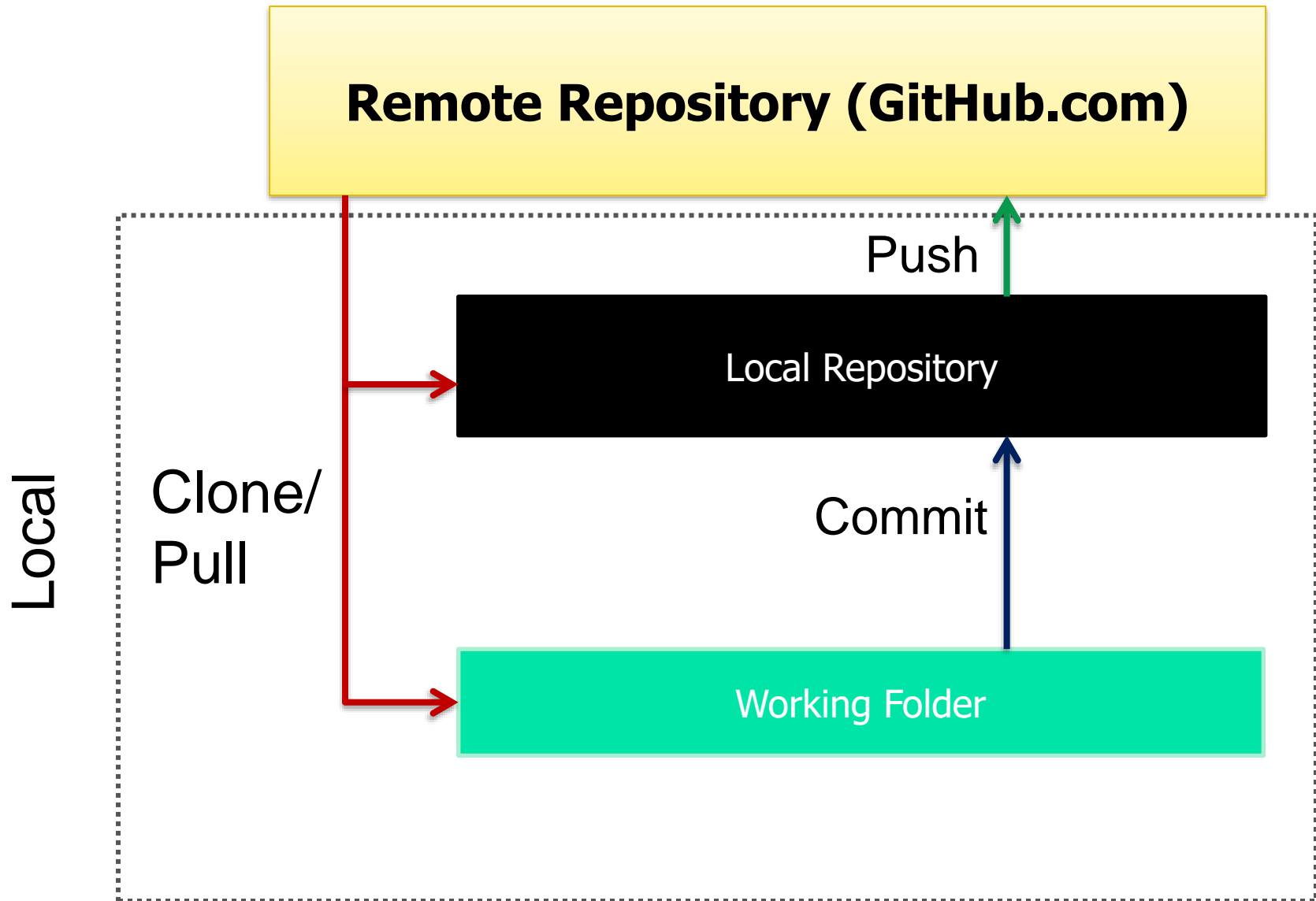
GitHub: Create Local Repository

- Each team member creates local repository that is a clone of the master repository

  - Log into your personal GitHub account

  - Navigate to the team repository

  - Clone the Repository using GitHub GUI or the Command Line

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Using GitHub Desktop

your local machine

github.com

.git

sync

my-project

docs

manual.docx

user_docs.docx

src

main.rkt

module1.rkt

module2.rkt

module3.rkt

sync

commit

In GitHub Desktop, use ⟳ Fetch origin button to sync

In this course, we will mainly use GitHub Desktop

Resources

- GitHub Desktop

https://desktop.github.com/

- GitHub foundation short videos

https://www.youtube.com/playlist?list=PLo1o9MOBetEHhfG9vJzVCTiDYcbhAiEqL

- GitHub Help

https://help.github.com/

- Git Book

https://git-scm.com/book/