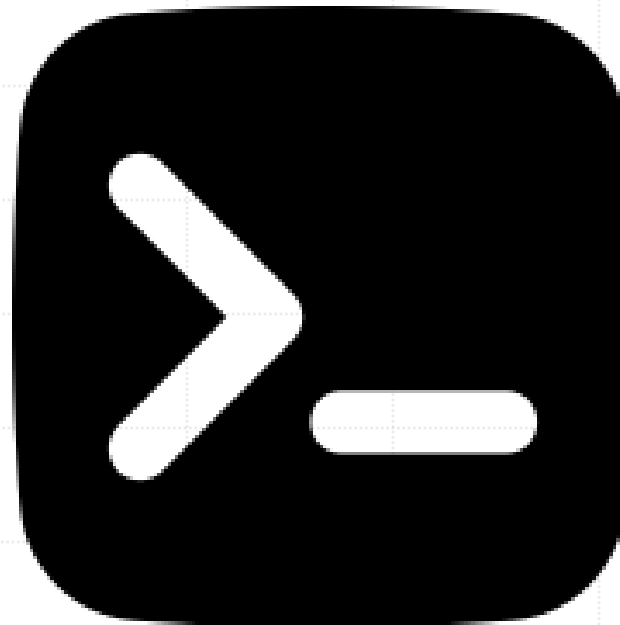
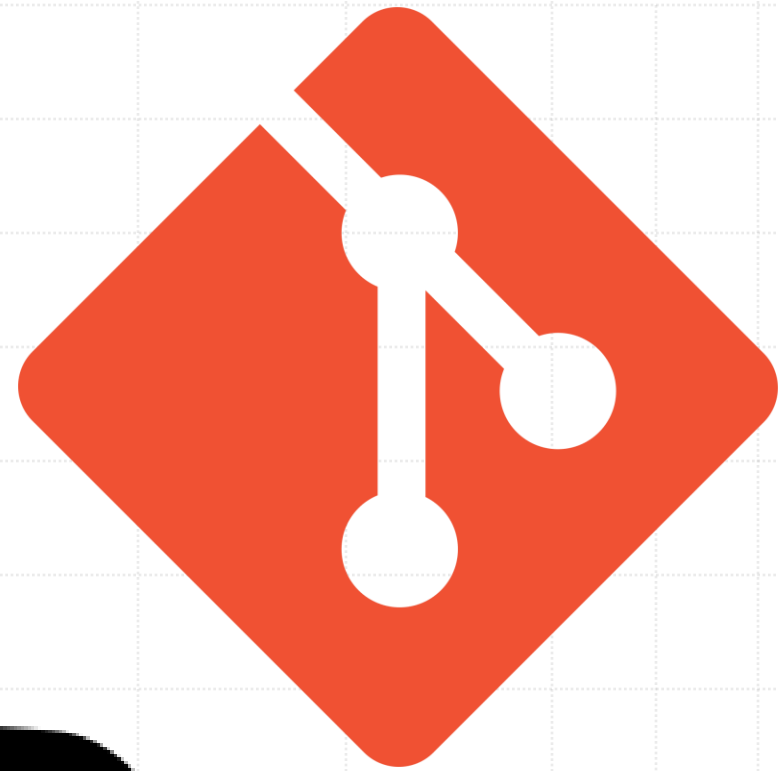
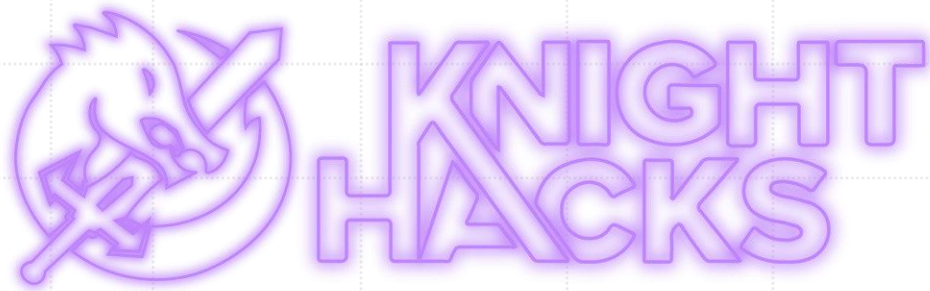


INTRO TO VERSION CONTROL (GIT) & UNIX COMMANDS

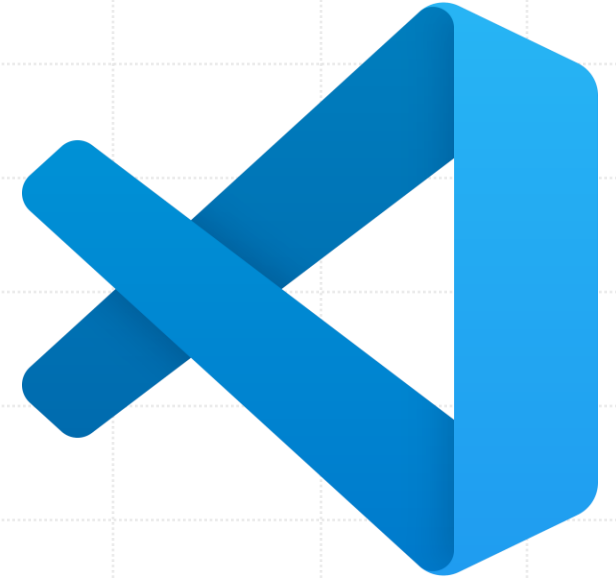
By: Juan Peñuela

Jefferson Li



BEFORE WE START!

- Make sure you download and install **GitHub Desktop!** and **Visual Studio Code**
- <https://desktop.github.com/download/>
- <https://code.visualstudio.com/download>
- If you don't already have Git (not GitHub):
 - Mac: 'brew install git'
 - Linux, Ubuntu and Debian: 'sudo apt install git'
 - Windows: Download from git website



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- 2x Intern at USAA
- Incoming SWE Analyst at BNY



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- Third-year CS major
- Previously interned at NYSE | ICE
- Incoming SWE intern at Microsoft
- Fun fact: I speak three languages :)



LET'S CONNECT!



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Mortgage Technology | CS Major @ UCF





WHAT YOU'LL LEARN TODAY

- What is UNIX, and why it is important to use it in your software projects
- Basic UNIX commands that will allow you to navigate the terminal
- What is Git, and why it is the most important tool for version control in software projects.
- Key Concepts of Git and GitHub such as Branching, Merging, Rebasing, etc.
- How to create a GitHub repository and use it on your projects
- How to collaborate to Open-Source projects using Git.

LET'S TALK ABOUT UNIX

- Unix is an Operating System that allows users to navigate through directories and files
- It is an essential skill in software development, Cybersecurity, and System Administration.
- Here are some commands and how to use them

```
mirror_mod = modifier_ob.  
# Add mirror object to mirror  
mirror_mod.mirror_object =
```

```
operation == "MIRROR_X":  
    mirror_mod.use_x = True  
    mirror_mod.use_y = False  
    mirror_mod.use_z = False  
operation == "MIRROR_Y":  
    mirror_mod.use_x = False  
    mirror_mod.use_y = True  
    mirror_mod.use_z = False  
operation == "MIRROR_Z":  
    mirror_mod.use_x = False  
    mirror_mod.use_y = False  
    mirror_mod.use_z = True
```

```
# Selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob))  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
print("please select exactly
```

--- OPERATOR CLASSES ---

```
types.Operator):  
    # Add X mirror to the selected  
    object.mirror_mirror_x"  
    mirror X"
```

```
context):  
    context.active_object is not
```

Command	Description
pwd	Print current directory (path)
ls	List current directory
cd <directory name>	Change directory
cd ..	Move up (go back) one directory

Command	Description
cat <file.ext>	Display file contents
nano <file.ext>	Open a text editor
head <file.ext>	Show first 10 lines of file
tail <file.txt>	Show last 10 lines of file

SOME UNIX COMMANDS

Command	Description
touch <filename.ext>	Create an empty file
mkdir <foldername>	Create a folder
rm <filename.ext>	Remove a file
Rmdir <foldername>	Remove a folder



Learn more commands here!

WHAT IS GIT?

Version Control System

Efficient Collaboration

Tracks history

Allows rollback



DIFFERENCE BETWEEN GIT AND GITHUB

Git:

- Version control system
- Help managing code history
- Can be used entirely offline
- Is like a filing system for code on your local computer

Github:

- Cloud-based hosting service for git repositories
- Provide a centralized location for storing and sharing git repositories
- Is like a google drive for your git repositories

SOME KEY CONCEPTS



Repository

Storage location for your files



Commit

A snapshot of your change in a repository, usually has an unique ID



Branching

Creates a separate version of your code for bug fixes or adding a new feature

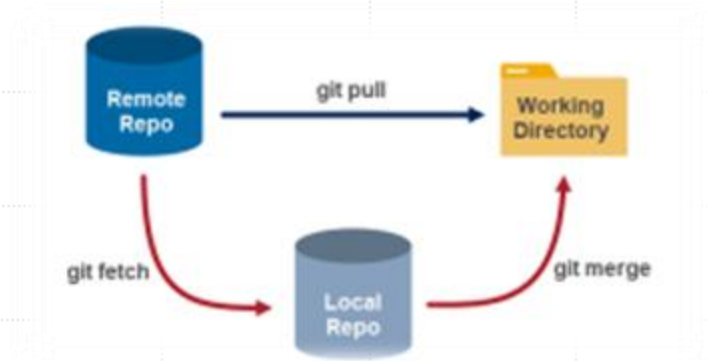


Merging

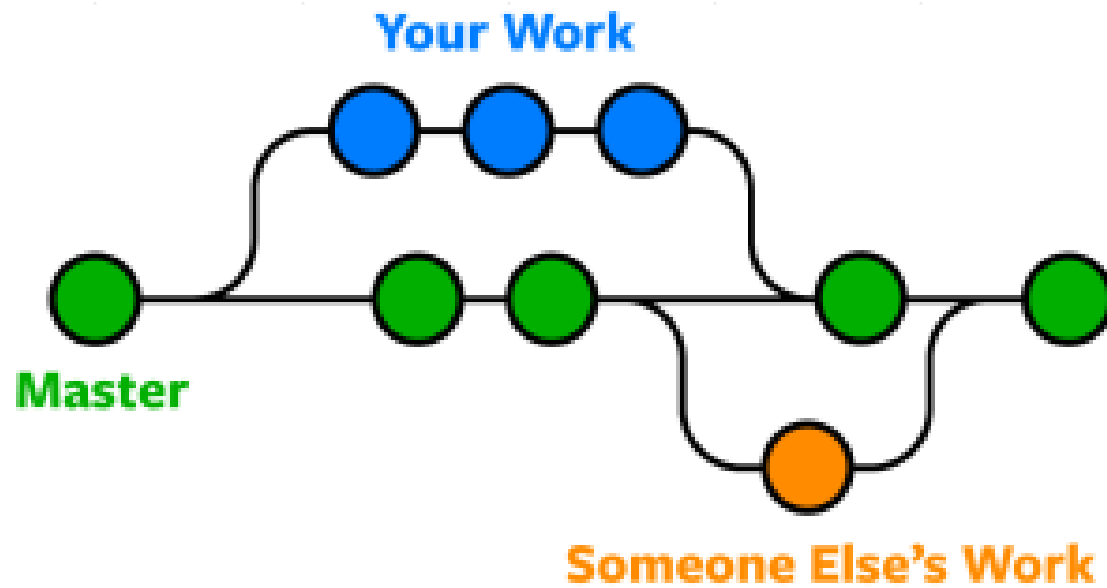
Combine changes from one branch into another

GIT COMMANDS

Command	Description
Git init	Start a new repository
Git clone <repo url>	Clones a repository located in <repo url>
Git diff	Shows differences (modified files) from the current version to the previous
Git checkout <branch-name>	Switch current branch to <branch-name>
Git pull	Get the most recent version of the current branch

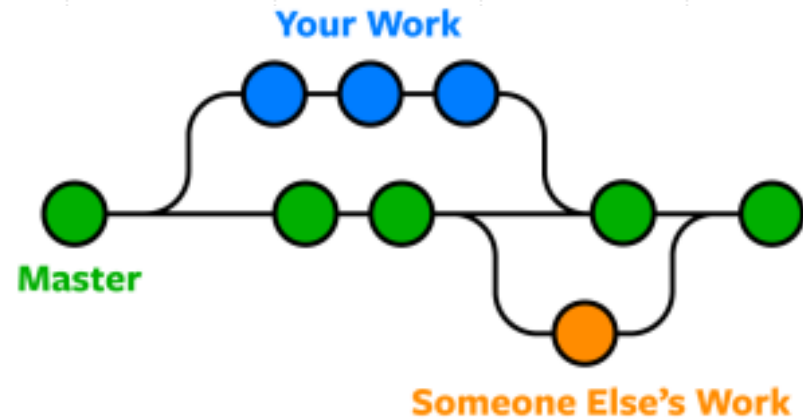


BRANCHING

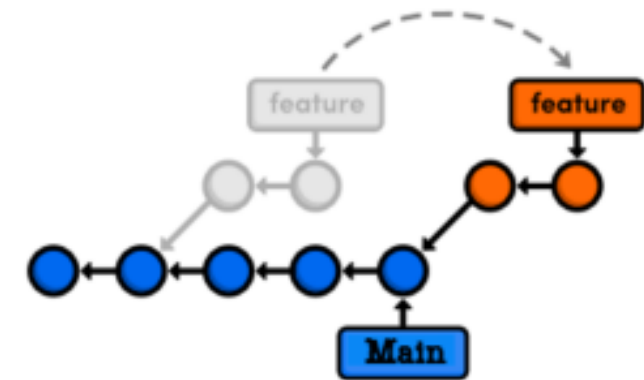


- When working on a software project, we often collaborate with other engineers. But how do we work together at the same time without affecting the main project?

MERGE VS REBASING



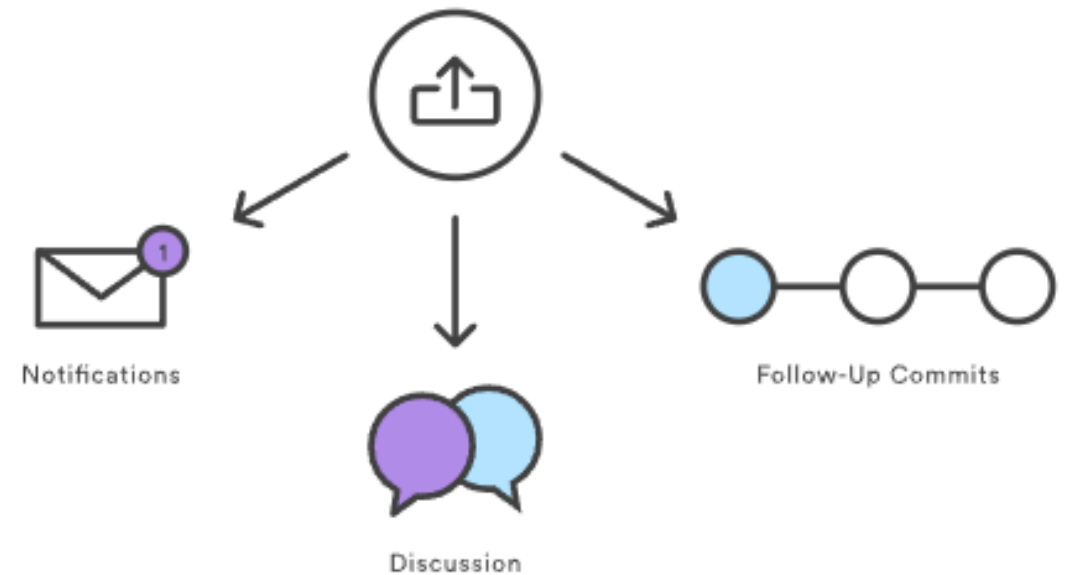
Merging: Combining two different branches into another, generally main or master.



Rebase: Grabbing your changes from a branch to another branch, usually to keep track of a change history.

WHAT IS A PULL REQUEST?

- **"A proposal to merge a set of changes from one branch into *another*"** (Source: GitHub Docs)
- After a pull request is submitted, it is recommended to ask other developers to review the changes before merging it to the proposed branch, generally to avoid conflicts, bugs, etc.





GITHUB DESKTOP

- Desktop App for Github
- Easy cloning and check branches
- Switching between Repo
- Live Demo

VS CODE INTEGRATION WITH GIT



VS Code is one of the most popular IDE



Git has an built in integration with VS Code



Live Demo

BEST PRACTICES & TIPS

1

Commit often

2

Use Feature
branches

3

Rebase often

4

Resolve
conflict early

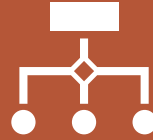
5

Always test
locally

6

AVOID FORCE
PUSHING!!

THREE TYPES OF COLLABORATION IN GIT



Owner: You own the repository, you can customize everything from branching to collaborators, delete and transfer ownership of a repository to someone else



Collaborator: You are allowed to contribute to a project by branching out, and then merging to one main (master) branch

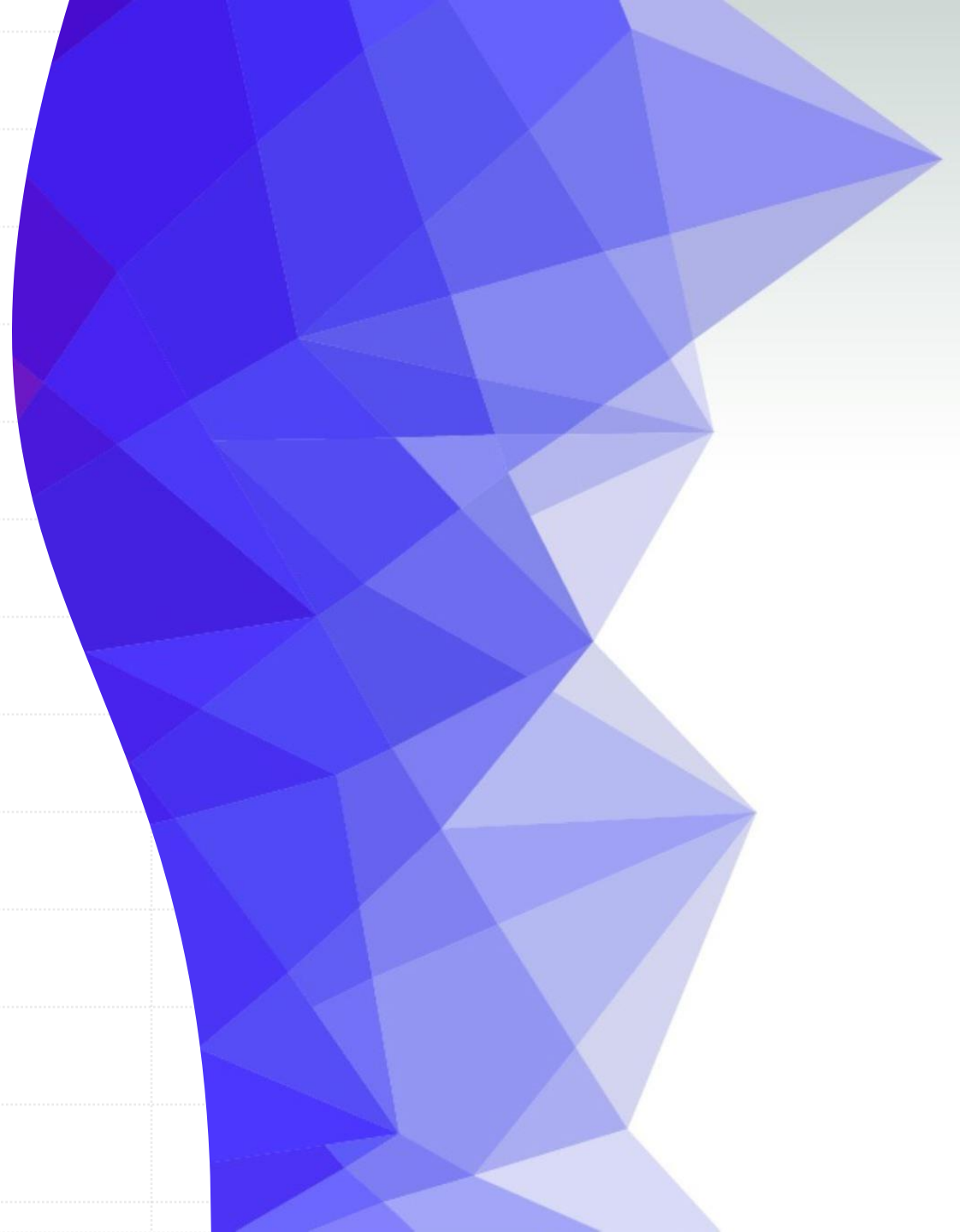


Forking: For Open-source projects, you are allowed to create your own copy of a public repository, and then you can create a pull request to collaborate to the main project.



CREATING YOUR OWN REPOSITORY!

- Either use command line or Github desktop to create a new repo
- Make an initial commit with a readme file including the following
 - Your name
 - Date
 - What is your next project idea



SOME MORE GITHUB FUN!

- First, let's (Clone?/Fork?) this GitHub Repository
- <https://github.com/JuaneX1/Learning-GitHub>

