

# Text Editors, CLI, Git



# Announcements

- ▶ Application open until Friday
- ▶ Final batch of enrollment codes will be sent out Saturday
- ▶ Enroll by Monday, September 7
- ▶ Drop Deadline: September 16
- ▶ Accommodations
- ▶ FAQ

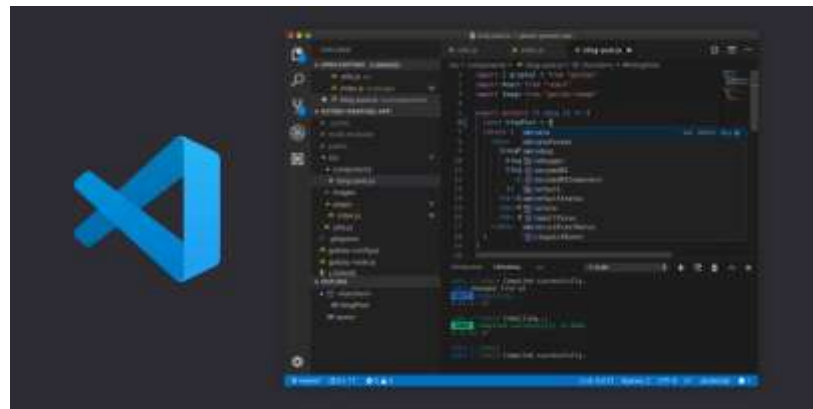
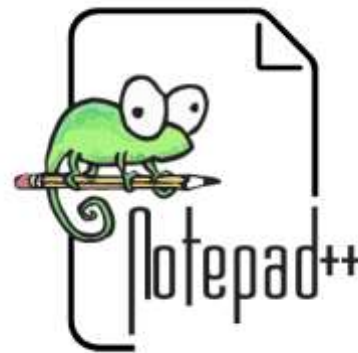
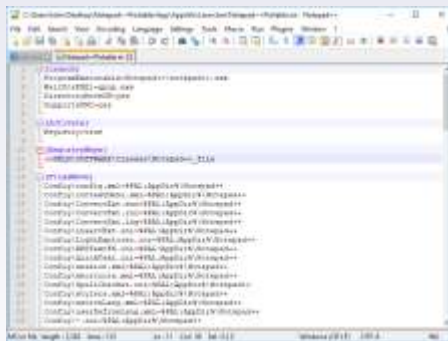


# Today

- ▶ Text Editors vs. IDEs
- ▶ Command Line
- ▶ Git

# Text Editors

- ▶ Anything that lets you edit text
- ▶ “Notepad” software
- ▶ Popular Text Editors:
  - ▶ Sublime Text
  - ▶ Atom
  - ▶ VS Code
- ▶ IDE-like features
  - ▶ Linters, Debugging tools



# IDE's

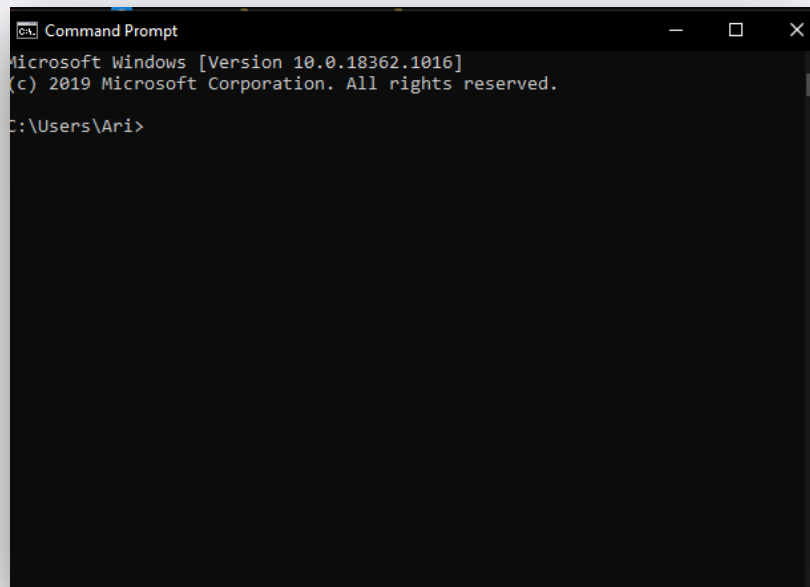
- ▶ IDE - Integrated Development Environment
- ▶ Comes packaged with development tools needed to create a project
- ▶ Access databases and write GUI code automatically
- ▶ Debuggers (!!)



# Text Editors vs. IDE's

- ▶ System Resources
  - ▶ Speed
- ▶ Feature Offerings
  - ▶ Prepackaged vs Plugins
- ▶ Debugging Capabilities
- ▶ Look and Feel
- ▶ Shortcut Customization

# Command Line



A screenshot of the Windows Command Prompt window. The title bar reads "Command Prompt". The text inside the window shows the Windows version and copyright information, followed by the current directory path.

```
Microsoft Windows [Version 10.0.18362.1016]  
(c) 2019 Microsoft Corporation. All rights reserved.  
  
C:\Users\Ari>
```



A screenshot of a macOS Terminal window. The title bar reads "Documents - -bash - 80x24". The text inside the window shows the login history and the execution of a directory change command.

```
Last login: Wed Oct 17 18:13:08 on ttys000  
MacBook-Pro-9:~ helloigor$ cd ~/Documents  
MacBook-Pro-9:Documents helloigor$
```

# Command Line

- ▶ Unix-based Command Line
  - ▶ CTRL+ALT+T
- ▶ Windows Command Line
  - ▶ Default
  - ▶ WSL (Linux subsystem)
  - ▶ Bash (comes with Git)
  - ▶ Windows+R, type in "cmd"
- ▶ Mac Command Line
  - ▶ Command+Spacebar -> type in "terminal"



# Command Line Benefits

- ▶ Speed
  - ▶ After initial learning curve, faster than a GUI
- ▶ Automation
  - ▶ automate repetitive tasks with “.sh” files
- ▶ Taking user input in programs is trivial
- ▶ Chaining Commands
  - ▶ Piping
- ▶ Remote Access



# Command Line Demo

# Version Control Systems

- ▶ Keep track of progress (over time)
- ▶ Restoring previous versions
- ▶ Collaboration on projects
- ▶ Keep track of what happened during each change
- ▶ Backups
- ▶ Not restricted to just coding projects!!

# Version Control Systems

Microsoft Word



Internet Pages



Git

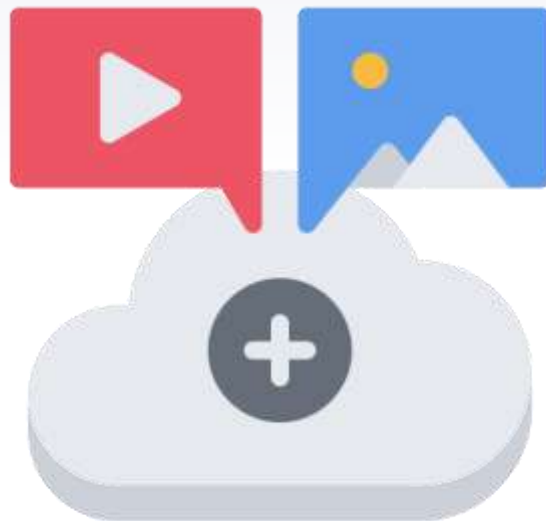




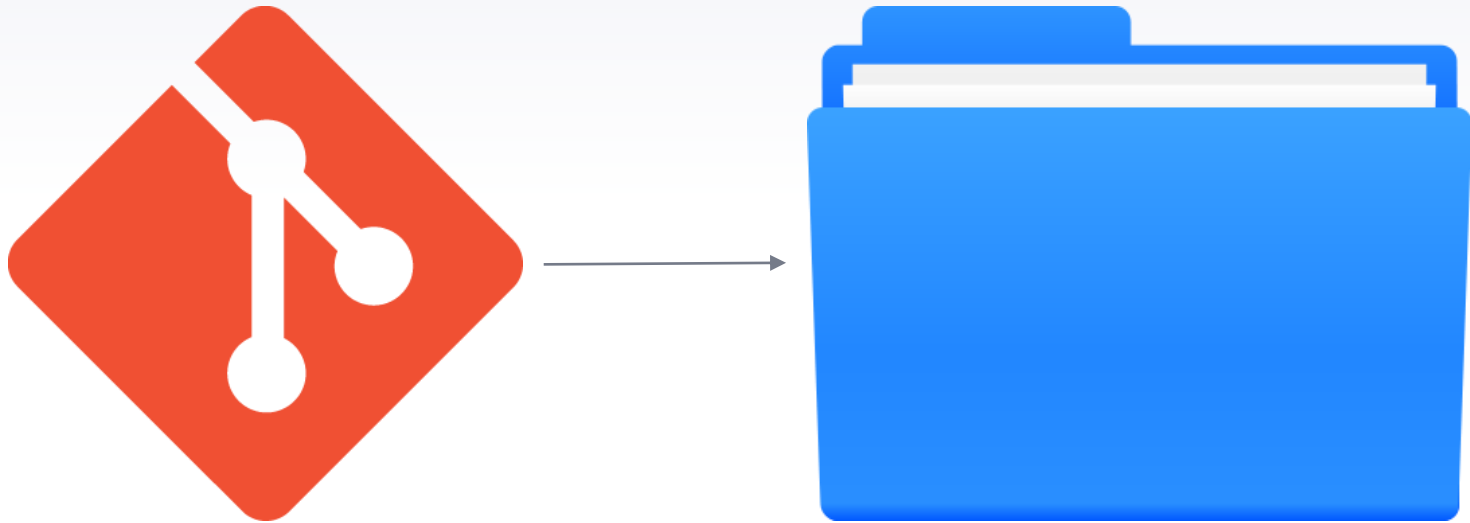


# Git Concepts

- ▶ Initializing a repo
- ▶ Adding files to staging
- ▶ Committing files
- ▶ Pushing files
- ▶ Branching
- ▶ Merging, Rebasing
- ▶ Merge Conflicts



# Git - Initializing a Repo





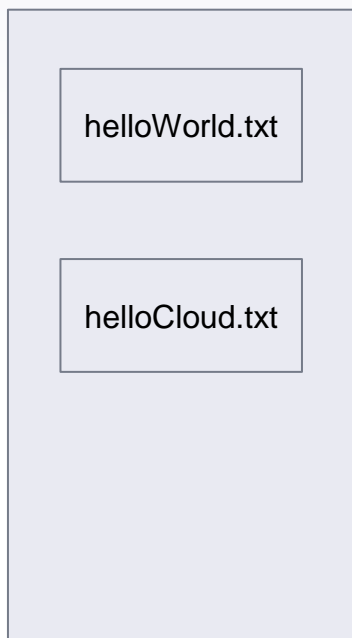
# Git - Initializing a Repo

- ▶ Declares the current working directory as a git repository
- ▶ Repositories are made of commits
- ▶ Commits -> snapshot of your repository at a certain point in time

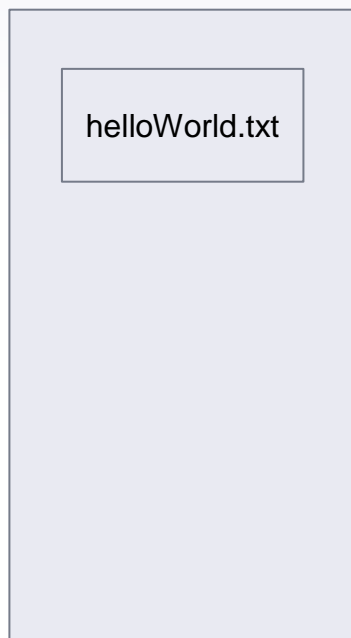
```
▶ pwd
/c/Users/Ari/Desktop/git_demo
▶ ls -a
./ ../
▶ git init
Initialized empty Git repository in
C:/Users/Ari/Desktop/git_demo/.git/
▶ ls -a
./ ../ .git/
```

# Git - Staging, Committing, Pushing

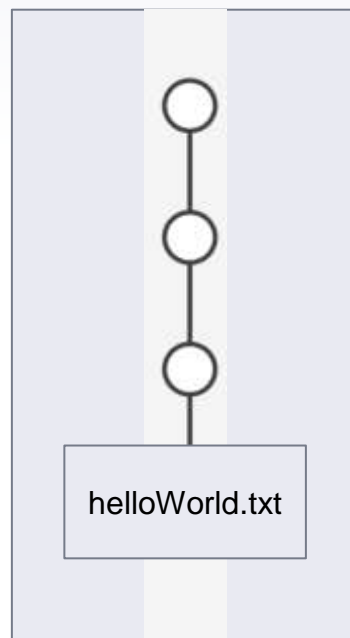
Working  
Directory



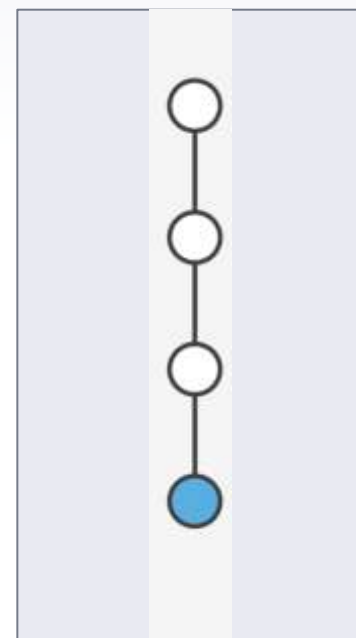
Staging  
Area



HEAD of  
Commit

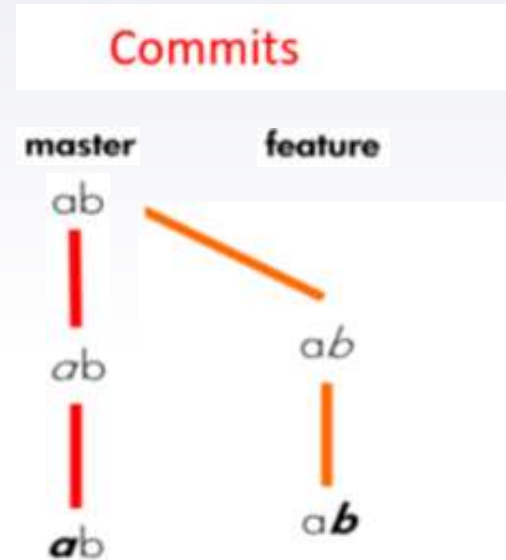


Remote  
Repository



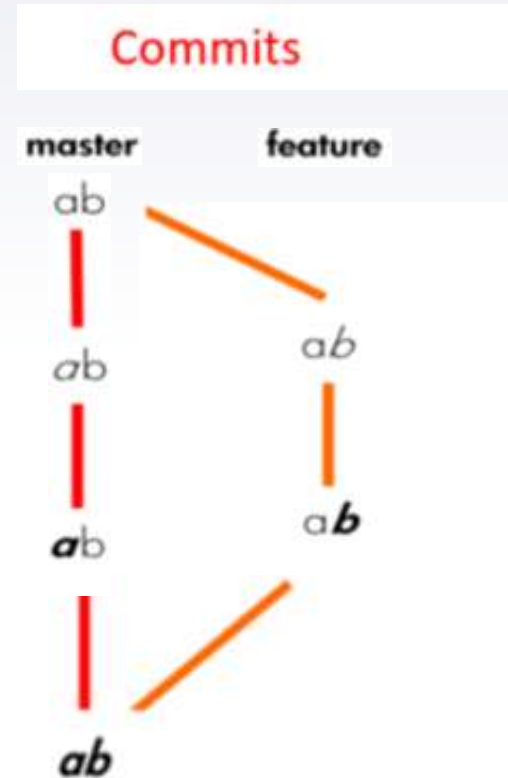
# Git - Branching

- ▶ Creates a fork off of the current branch
- ▶ Now you have an additional instance of your project
- ▶ Can be for features, creating separate testing environments
- ▶ Common Branches
  - ▶ feature, dev, master, release



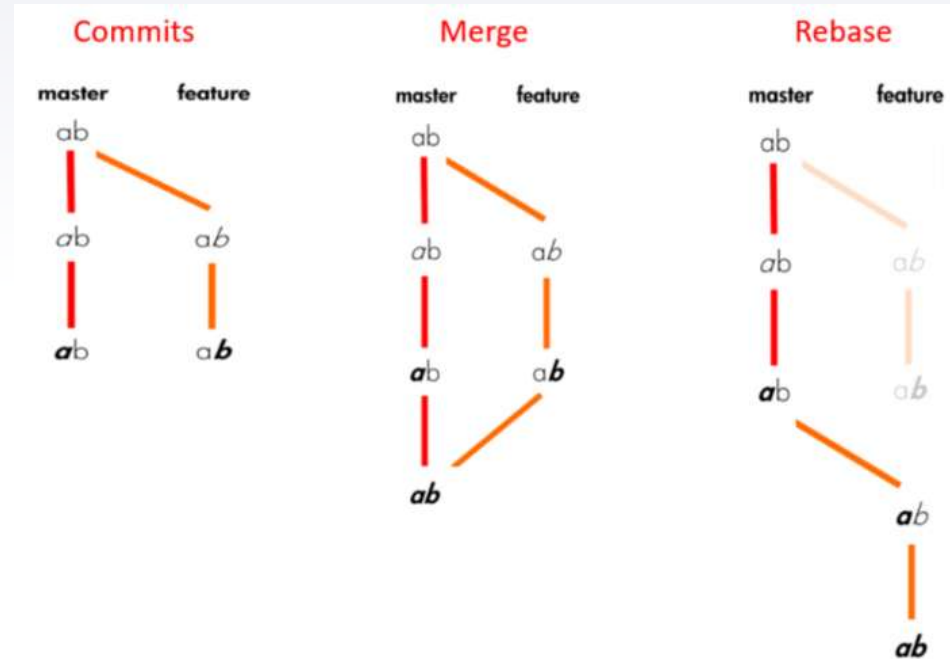
# Git - Merging

- ▶ Merge one branch into another
- ▶ Adds current differences to the branch its merging to
- ▶ Safe to delete a branch after merging



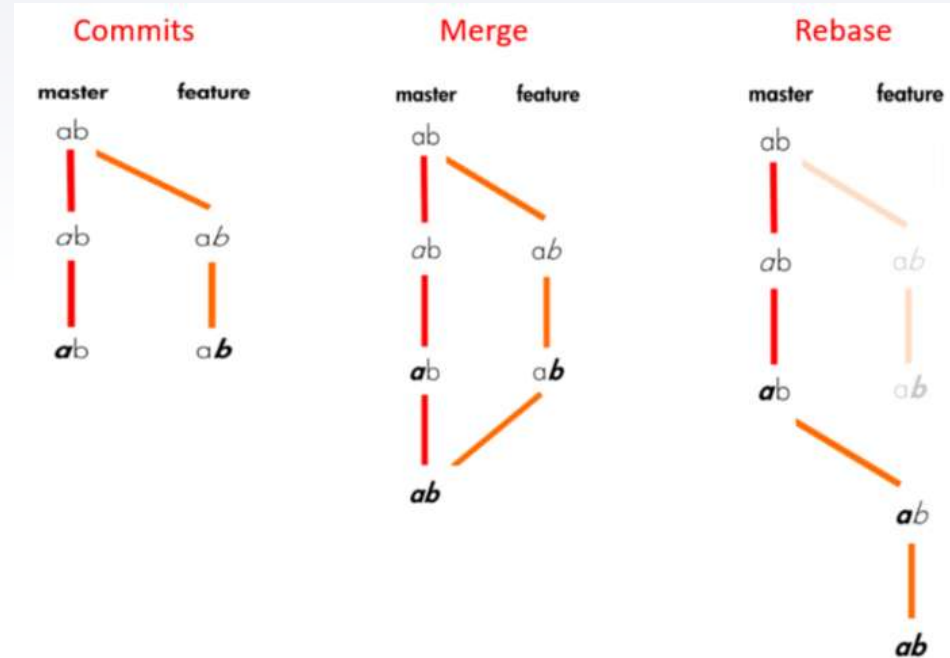
# Git - Rebasing

- ▶ Same as merging, but add entire history of current branch to tip of target branch
- ▶ Rewrites history
- ▶ Makes it seem like you only ever had one branch

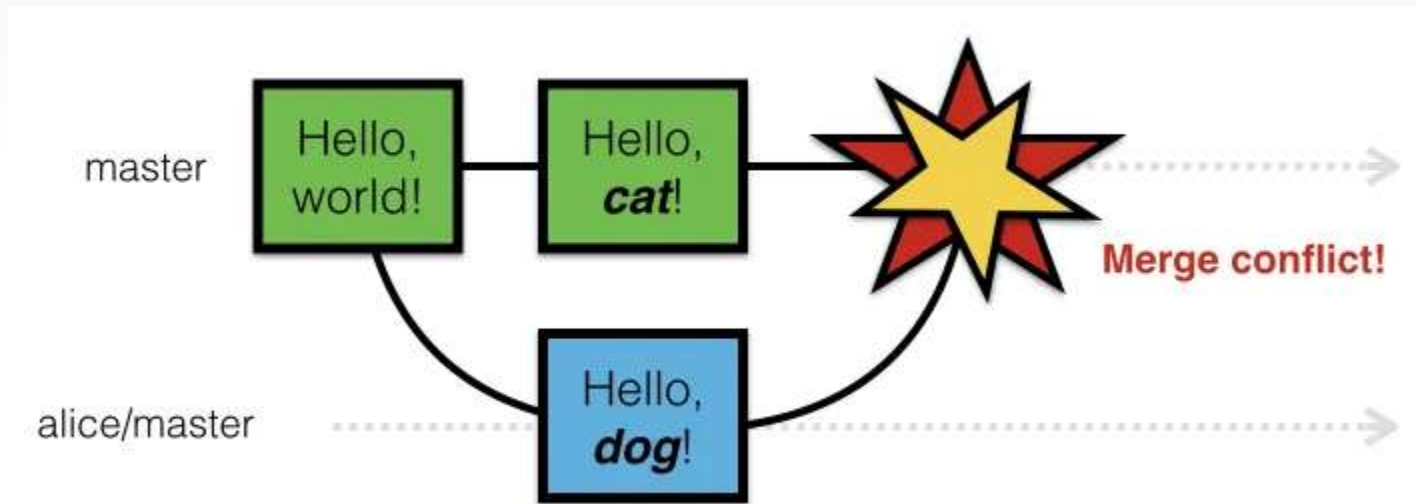


# Git - Merging vs. Rebasing

- ▶ Merging -> conserves history
- ▶ Rebase -> rewrites history
- ▶ Merging
  - ▶ Large codebase
  - ▶ Multiple Collaborators
  - ▶ Distinct Features
- ▶ Rebasing
  - ▶ Personal Codebase



# Git - Merge Conflicts





# Git Demo