Files & Folders

Intro to Computational CMB
Shady Kuster
5 February 2024

Short bit on growth mindset

 Believing that your abilities can improve through effort, learning, and persistence

• It's not about where you start

• For today, be willing to ask "dumb" questions to better your understanding

Agreed upon expectations

- My expectations for you:
 - Ask questions if you don't understand
 - Let me know if you are falling behind before it's too late
 - Interact with my questions, activities, etc.
- Your expectations for me:
 - Clearly explain files & folders
 - I will not treat any question as 'dumb'
- Others you would like to add?

If there are differences for Mac & Windows OS,

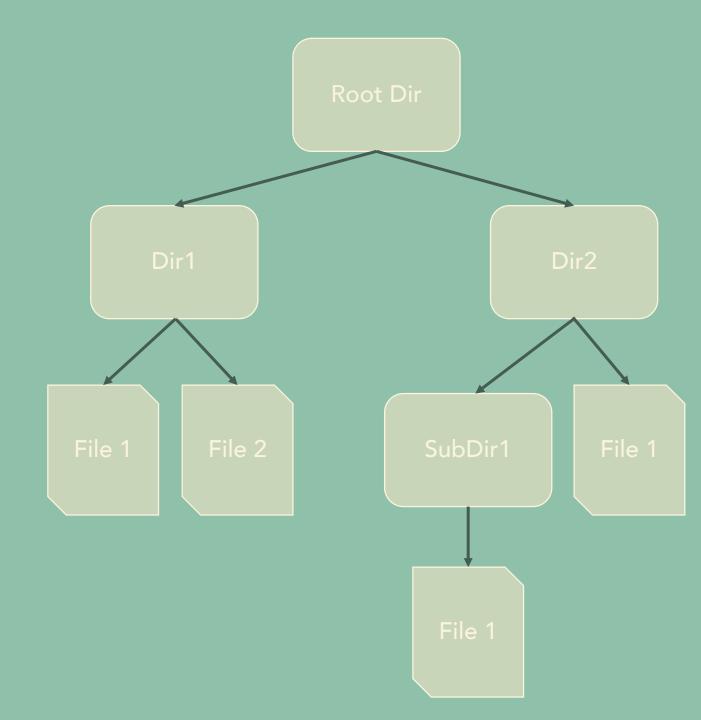
Windows example/information here

Mac example/information here

• Another name for folder

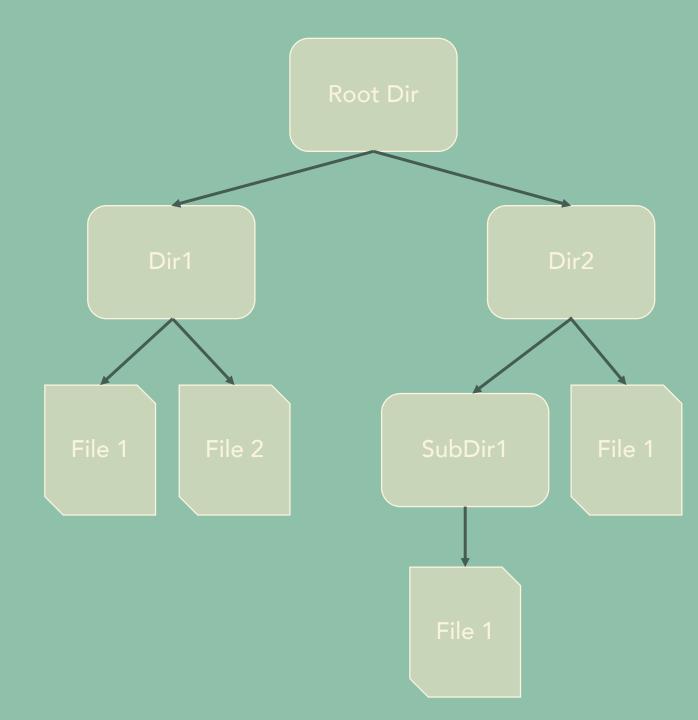
 Stores files without taking up additional space

- Some types of directories:
 - Parent directory
 - Child directory
 - Root directory

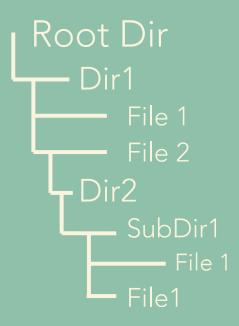


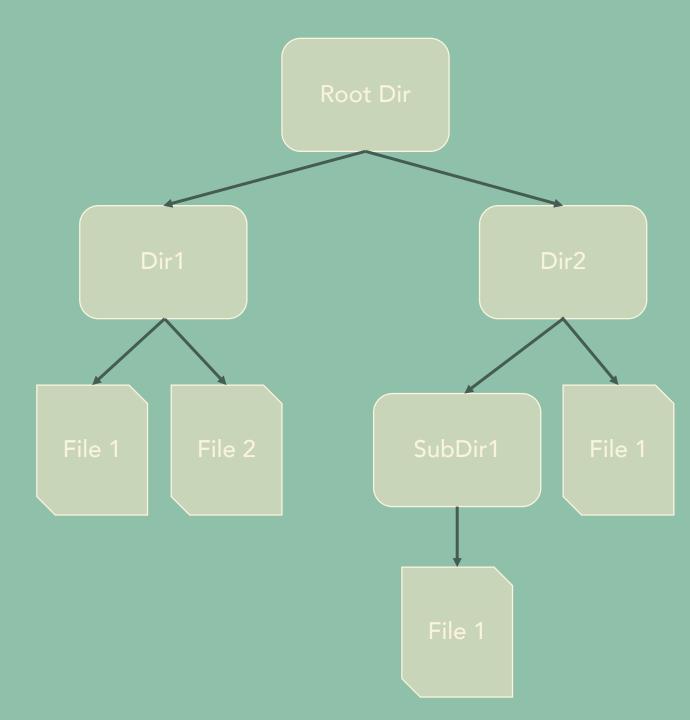
• We could represent this diagram in bullet points:

- Root Dir
 - Dir1
 - File 1
 - File 2
 - Dir2
 - SubDir1
 - File '
 - File

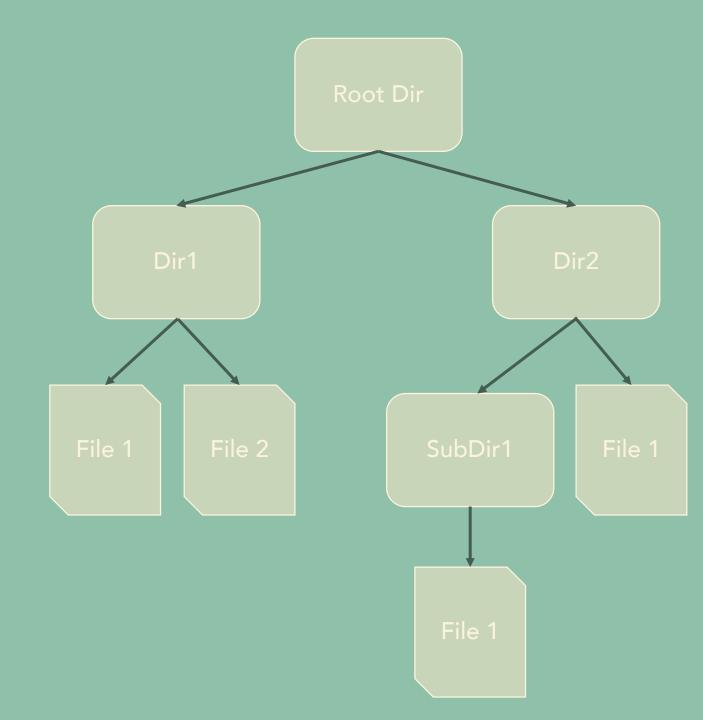


• Or as a directory "Tree":



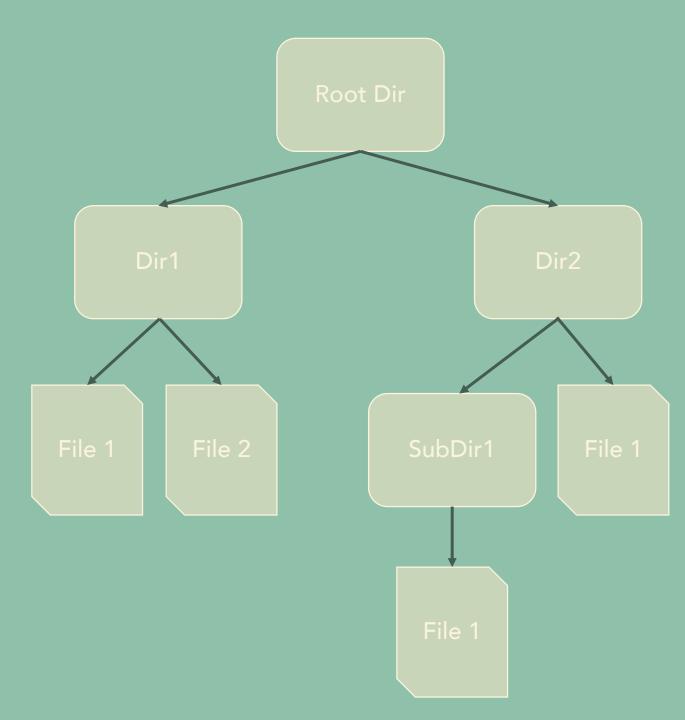


• If I said, "open File1", which would you open?



• If I said, "open File1", which would you open?

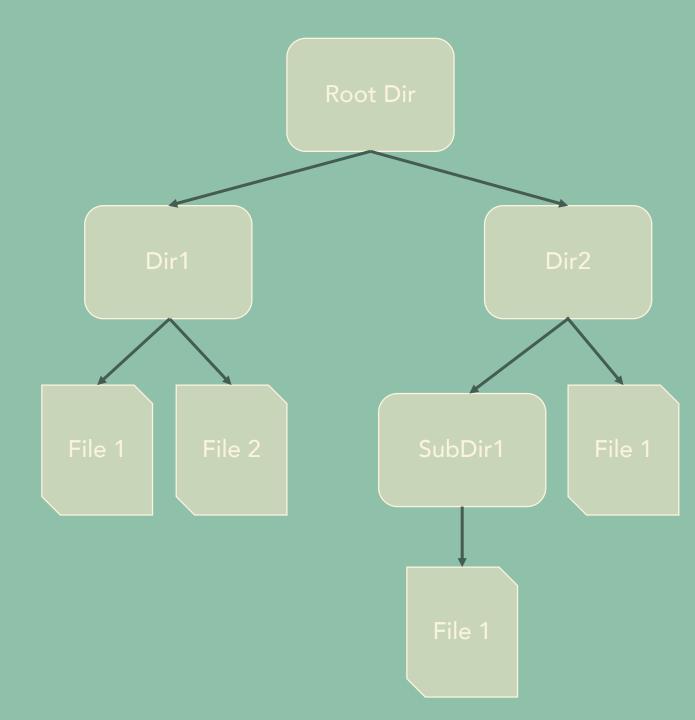
 We have to specify which directory File1 is in



• If I said, "open File 1", which would you open?

 We have to specify which directory File 1 is in

• So if I said, open File1 from Dir2, which one would you open?



Paths

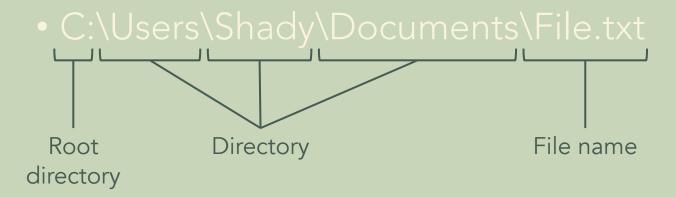
- How we tell our computer which files we are working with
- Your computer stores files as full addresses
- Fun fact: when you delete a file, your computer only deletes the address to that file
 - The file is only 'removed' when it is rewritten by storage for another file

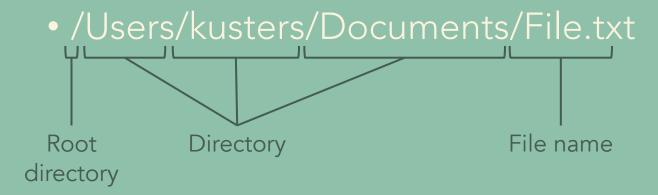
Root Directory

C: or 'C Drive'

• / or 'Macintosh HD'

Paths





Absolute vs Relative Paths

• Absolute path:

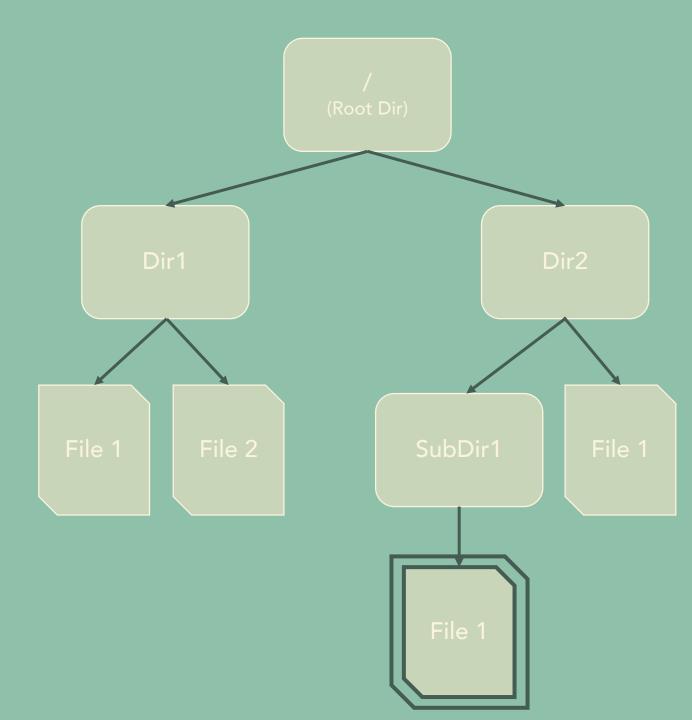
- Gives the full address/location of a file
- The paths in the previous slide were an absolute path

Relative path:

- Gives the address/location of a file *relative* to where you are currently in the directory system
- Where you are currently is also referred to as your <u>Current Working</u>
 <u>Directory (CWD)</u>

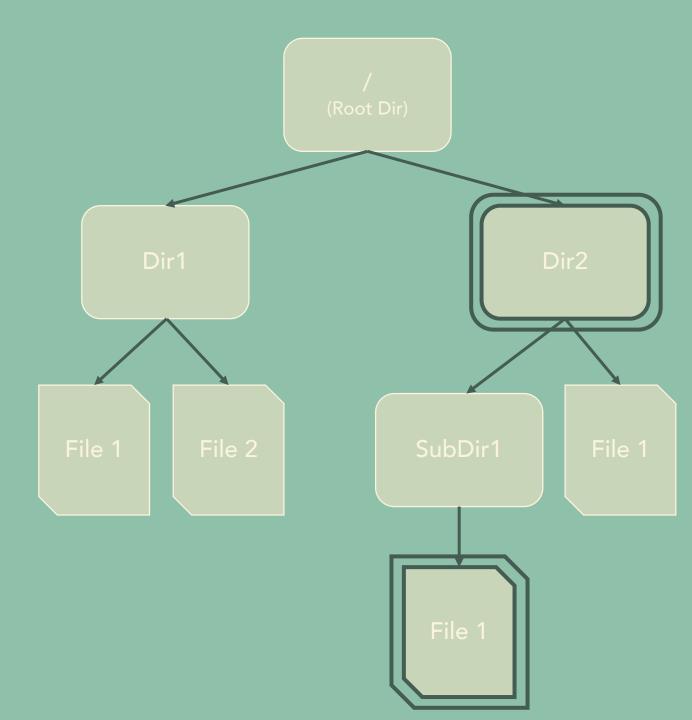
Absolute Path

• What would the absolute path for the circled File 1 be?



Relative Path

• If our CWD is the Dir2 directory, what is the relative path for our previous File 1 (circled) be?



Viewing full path

- Within file explorer, click the address bar at the top
- To get full path of a file, click on a file, right click the address bar ->
 'copy address as text'
 - NOTE: you must change all \ to / for programs to recognize path
- Within Finder, click View -> Show Path Bar (or alternatively, $\neg = \mathcal{H} P$)
- To get full path of a file, click the file & right click the file name at the end of the path bar (must have done previous step to see). Then click 'Copy 'filename.txt' as Pathname (or alternatively, $\sim \text{H C}$)

Path Shortcuts

Symbol	Meaning
/	Delimiter between directories or files Root directory
•	Current directory
••	Previous directory
~	A User's home directory (Linux, different from root)

Types of Files

- File extension
 - Lets your computer know what format to expect & what applications can open/read the file
- Data files
 - Ex: .tsv, .csv, .txt, .fasta
- Executable files
 - Ex: .exe, .py, .R

View File Extensions

- Windows
 - In File Explorer, click View -> check the box by 'File name extensions'

- Mac
 - In Finder, click Finder -> Settings -> Advanced -> check the box by 'show all filename extensions'

Viewing file information

- Windows
 - In File Explorer, View -> Details (with selection of icon size options)

- Mac

Tips & Tricks for working with files

 Avoid spaces in file names, column names, directory names, etc.

Use head() or similar tool to look at your data before use

 If you need to modify the data file during an analysis, make a copy of the original and store it somewhere safely

Backup often!

Common Troubleshooting Go-Tos

- Your computer/software will only do exactly as you tell it
- Double check object, variable, column, file, and directory names to make sure you didn't mistype, etc.
 - Usually better to copy & paste filenames, etc.
- Be careful with copying code from online!
 - Sometimes, dashes/others are different, so always paste on a new line & retype it if it doesn't work at first

Common Troubleshooting Go-Tos

- Google your error messages
 - This will help you learn about your computer/software
- Good Resources:
 - Stack Overflow
 - Stack Exchange
 - GeeksforGeeks
 - Rdocumentation (R specific)
 - BioStars

Downloading a fasta file, opening & reading

- Peromyscus maniculatus bairdii mitochondrial genome (NC_039921.1):
 - https://www.ncbi.nlm.nih.gov/nucleotide/NC_039921.1
- Follow along to associate the new file type with a program to open it
- But first we need to make sure we use a plain text editor!

Using a plain text editor

Use Notepad

- Use TextEdit
 - Format -> make plain text

Screen Shots in Homework

- Screen snip
 - Search in menus
 - Drag across what you want
 - Save it
- # Alt 4
 - This will appear in the bottom right of your screen
 - Drag & drop to where you want (PowerPoint, for ex)
 - It will save to you desktop if not

Thanks for listening!

Any questions?

• Further questions/need help? shady.kuster@colostate.edu