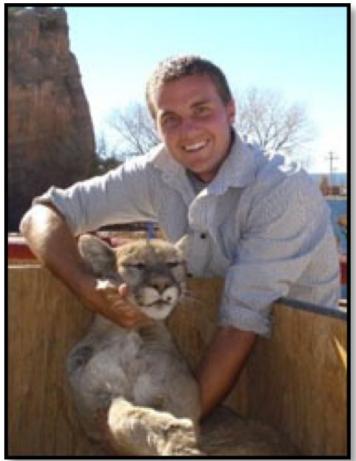


# Who Am I?



Bob Fitak, PhD

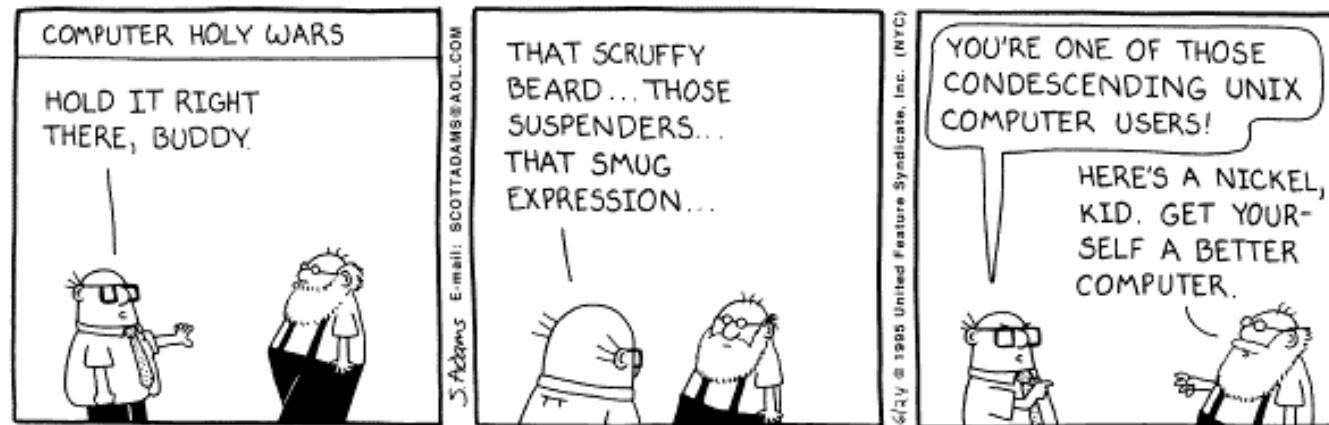
Genomics and Bioinformatics Cluster  
Department of Biology  
University of Central Florida



# The Command Line

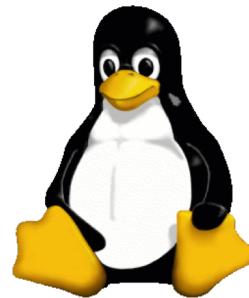
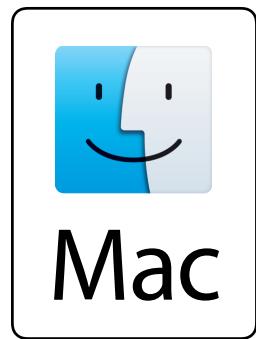
*a.k.a The terminal*

*a.k.a. ‘My worst nightmare’ (but really?)*



# Session Goals

- What is the command line interface (**CLI**)?
- Learn fundamental commands of a **UNIX** operating system
  - Basis for Mac and Linux operating systems

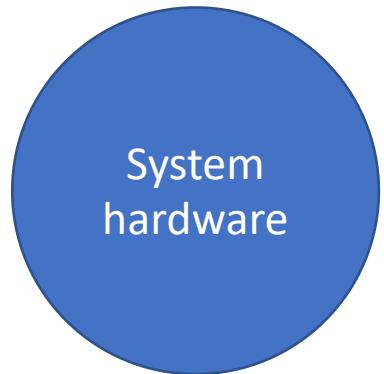


# What is UNIX?

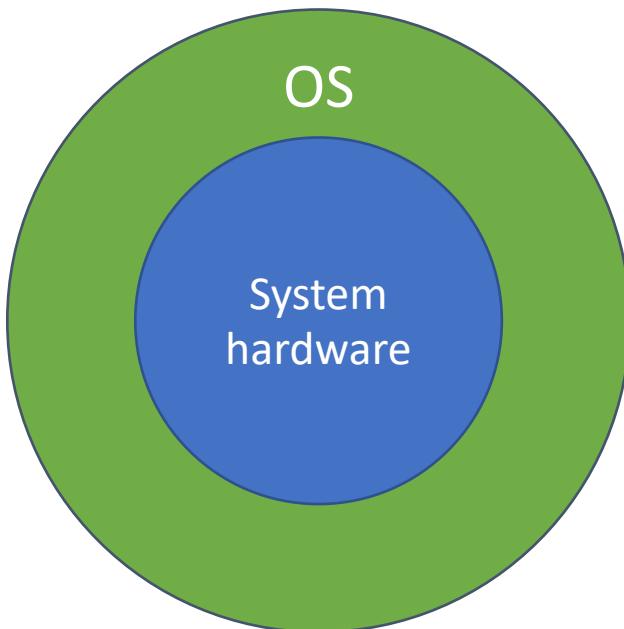
- An operating system
  - Developed in the 1960's by AT&T
  - Flexible and stable
  - Allows users to
    - Run Programs
    - Manage Resources
    - Access the folders and files
    - Communicate with other computer systems



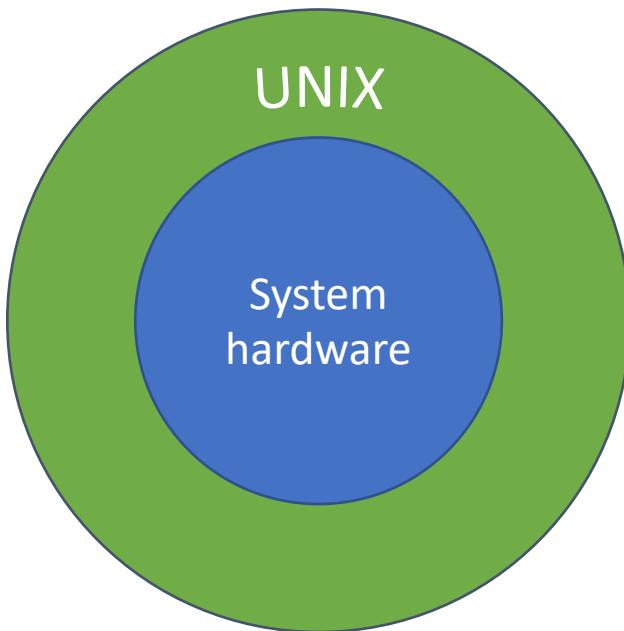
# UNIX



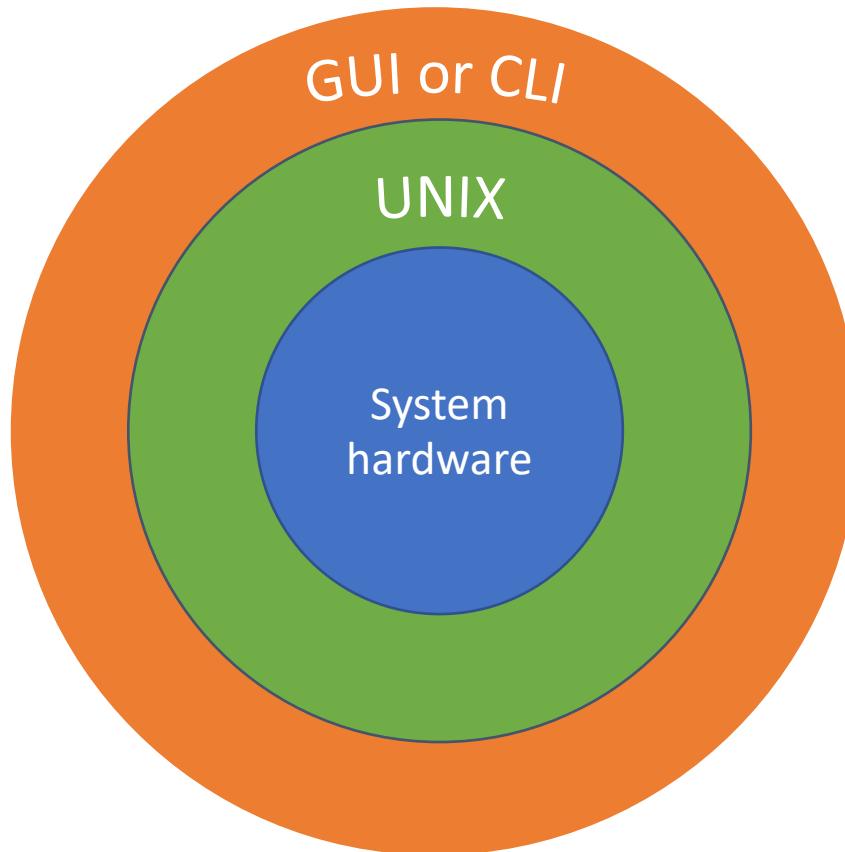
# UNIX



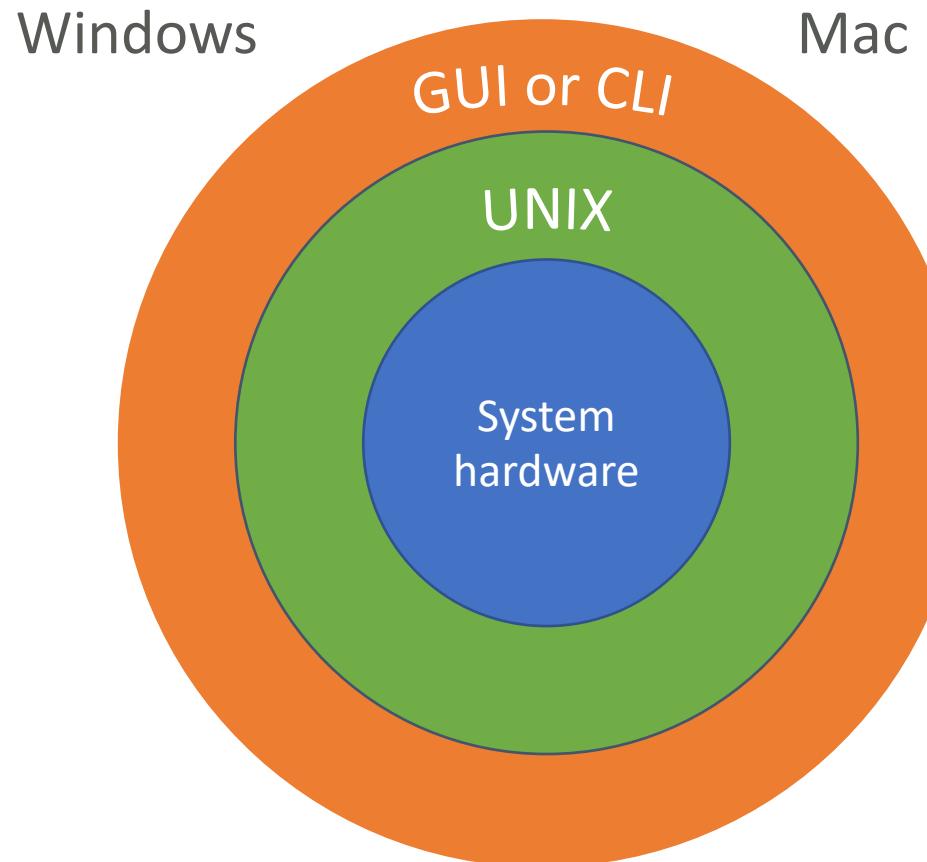
# UNIX



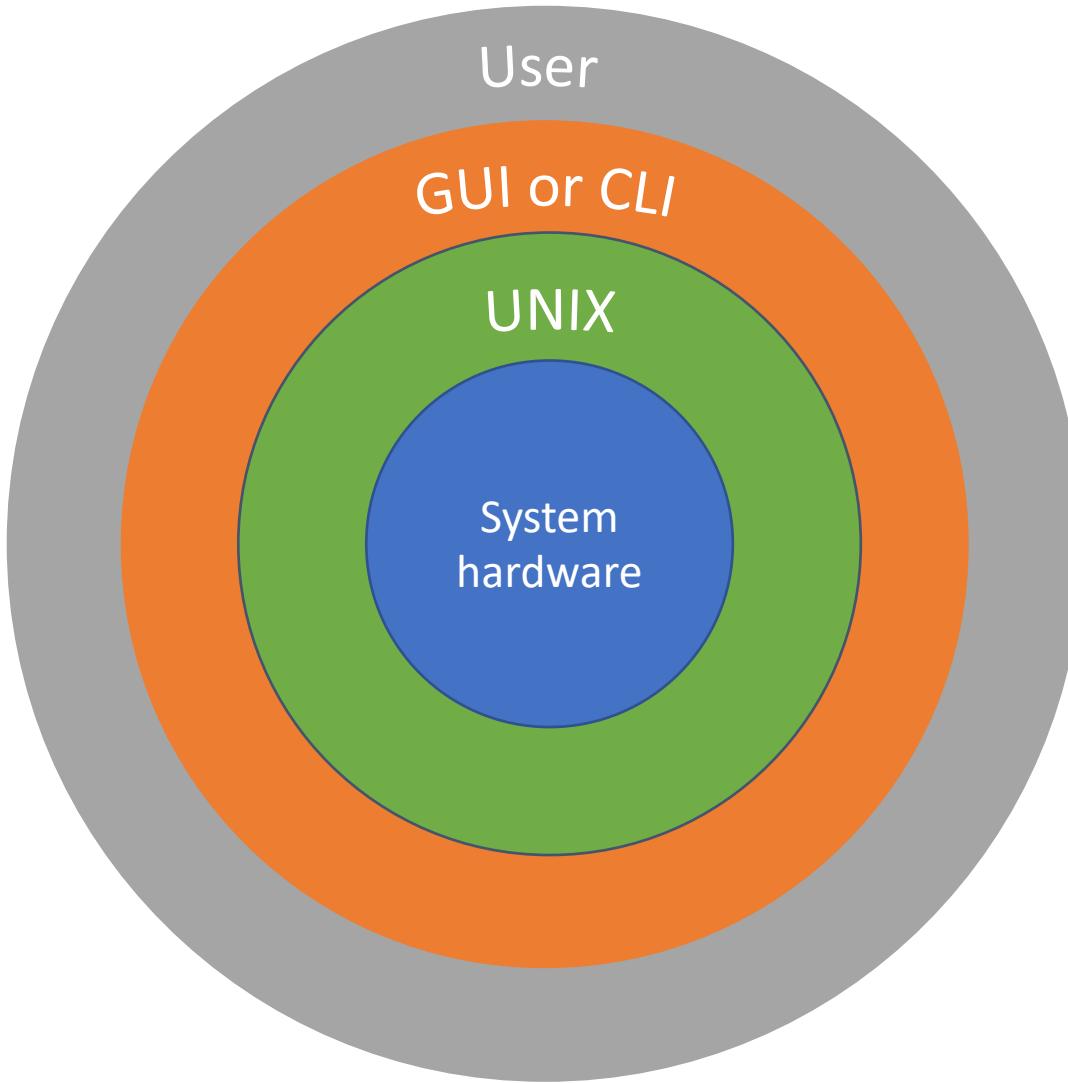
# UNIX



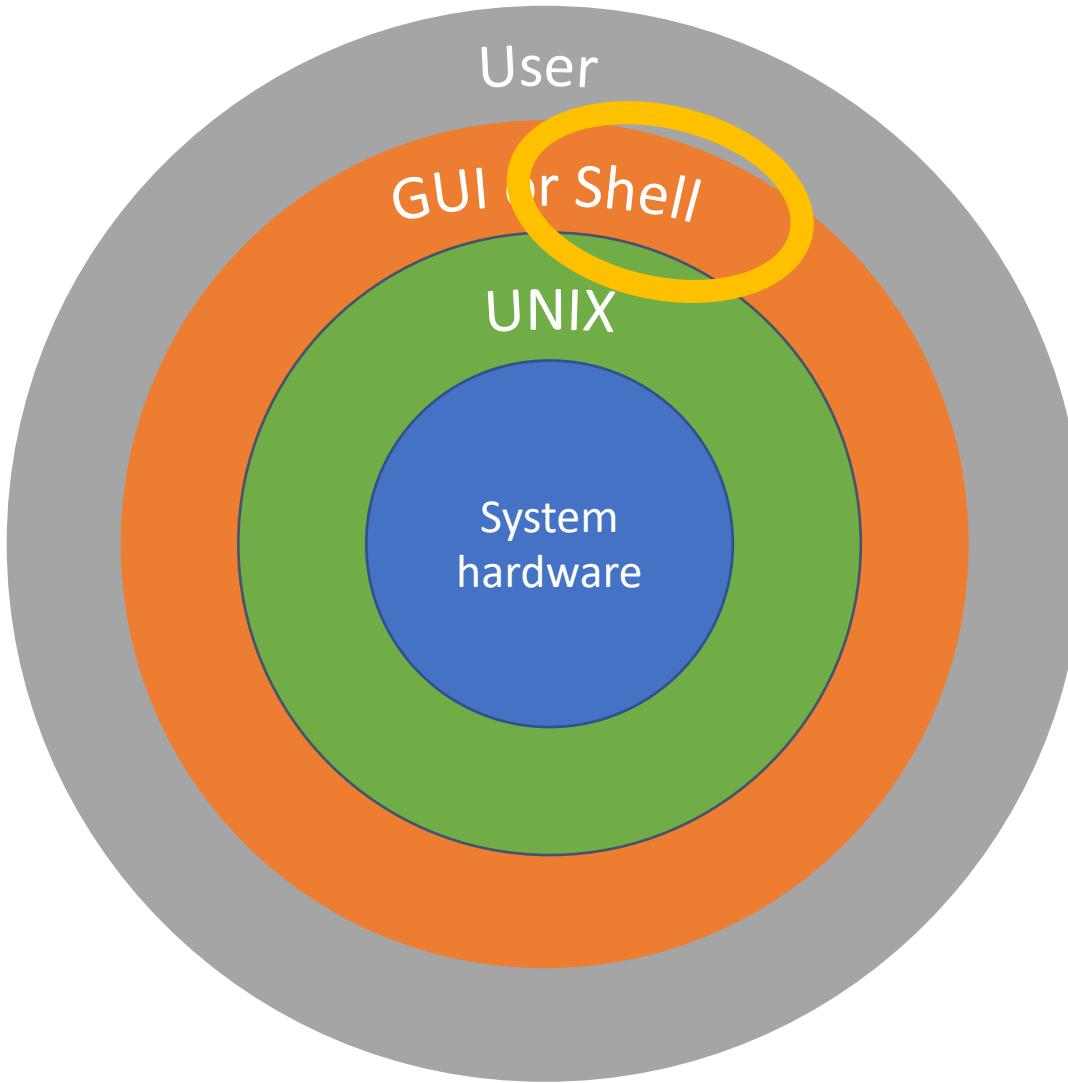
# UNIX



# UNIX



# UNIX



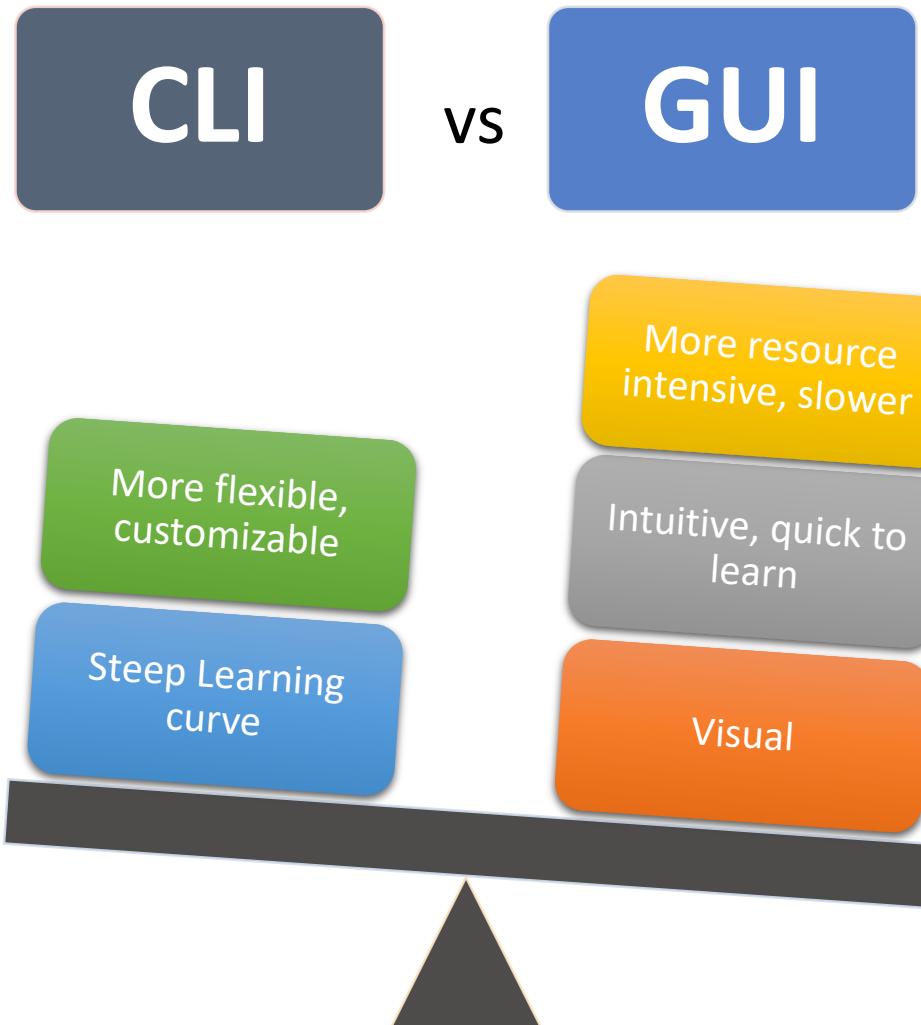
# SHELL (a.k.a. terminal)

- The shell interprets text commands the user types and manages their execution
  - The shell communicates with the core operating system called the **kernel**
  - The most popular shells are: **bash** (default), tcsh, csh, korn
  - The differences are generally subtle
  - For this tutorial, we are using **bash**
- WARNING: Shell commands are **CASE SENSITIVE!**
  - So “**cat**” and “**Cat**” are two different things

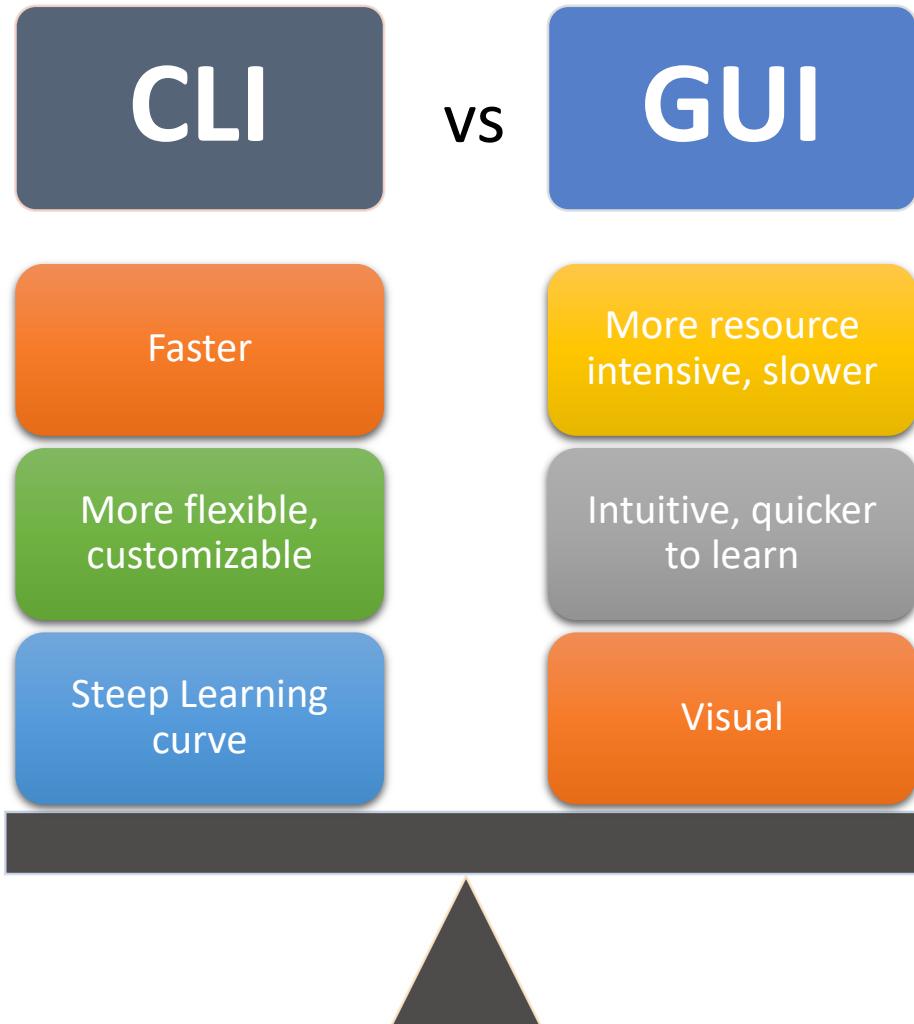
# Command Line Interface (CLI): Advantages vs Disadvantages

The diagram illustrates a comparison between a graphical user interface (Windows Start menu) and a command-line interface (CLI terminal). On the left, the Windows Start menu is displayed with a grid of icons for various applications like Scanner, Games, Photos, Calendar, Word 2013, OneDrive, Mail, Internet Explorer, People, Calculator, Weather, Excel 2013, Outlook, Video, PC Settings, Reader, PowerPoint 2013, Visio 2013, More, Camera, Music, SkyDrive, and Upload Center. On the right, a terminal window shows a command-line session. The user runs the command `./tbg_cli remote;show_issue thebuggenie 389 --include_comments`, which retrieves detailed information about issue #389 from the Bug Genie system. The output includes the issue's title, creation date (Tue, 15 Feb 2011), last update date (Tue, 15 Feb 2011), assignee (zegenie), status (In progress), and a description stating: "I think it would be nice to see what version of Bug Genie you have installed list sometimes the engineer upgrades the system overnight and does not tell me." It also lists Milestone, Category, Estimated time, Spent time, Percent complete, and Priority. Two comments are shown: Comment #1 from zegenie (Tue, 15 Feb 2011) noting changes in status, assignee, and user information; and Comment #2 from zegenie (Tue, 15 Feb 2011) directing users to /about for version information.

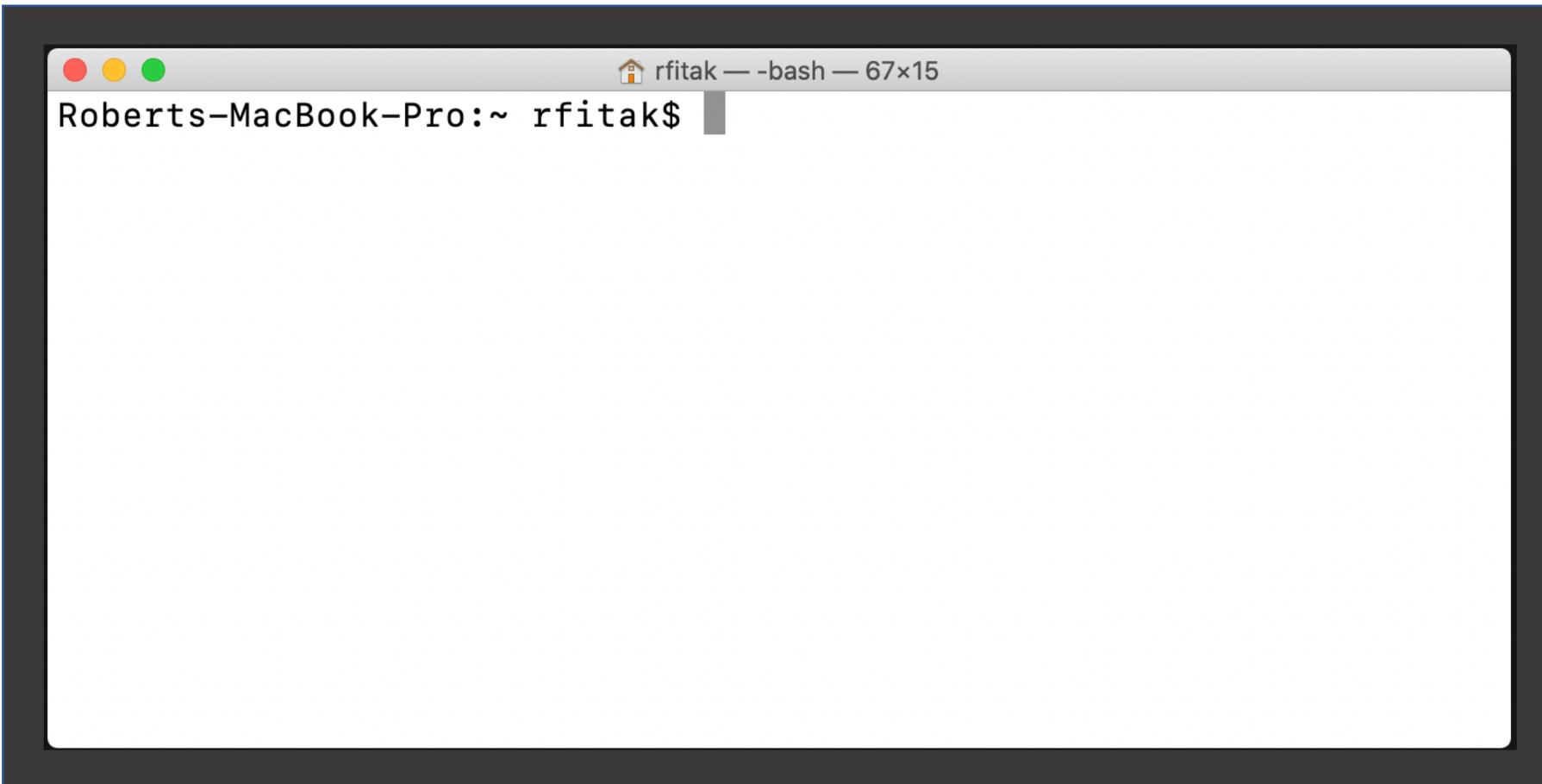
# Command Line Interface (CLI): Advantages vs Disadvantages



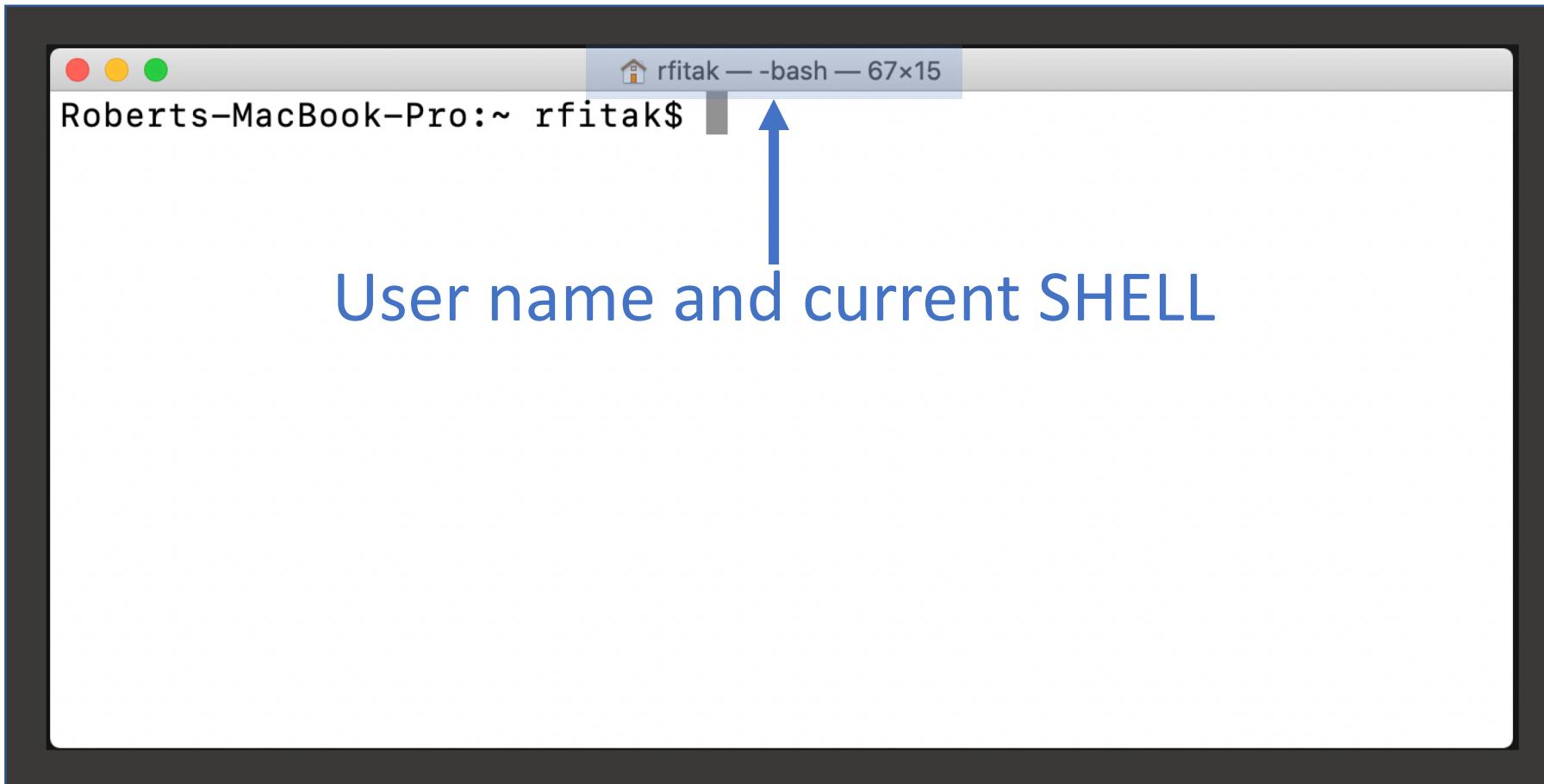
# Command Line Interface (CLI): Advantages vs Disadvantages



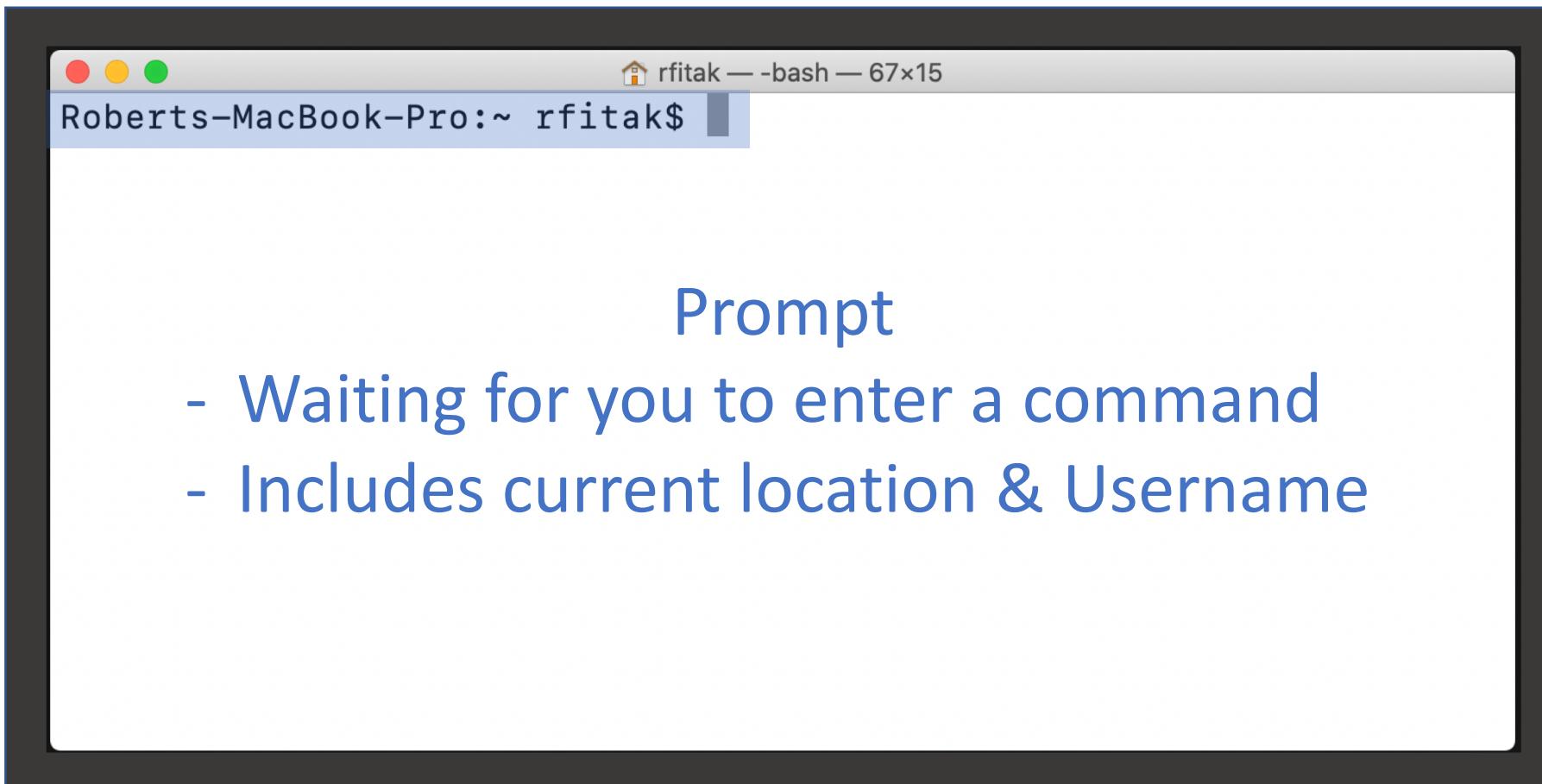
# The Terminal



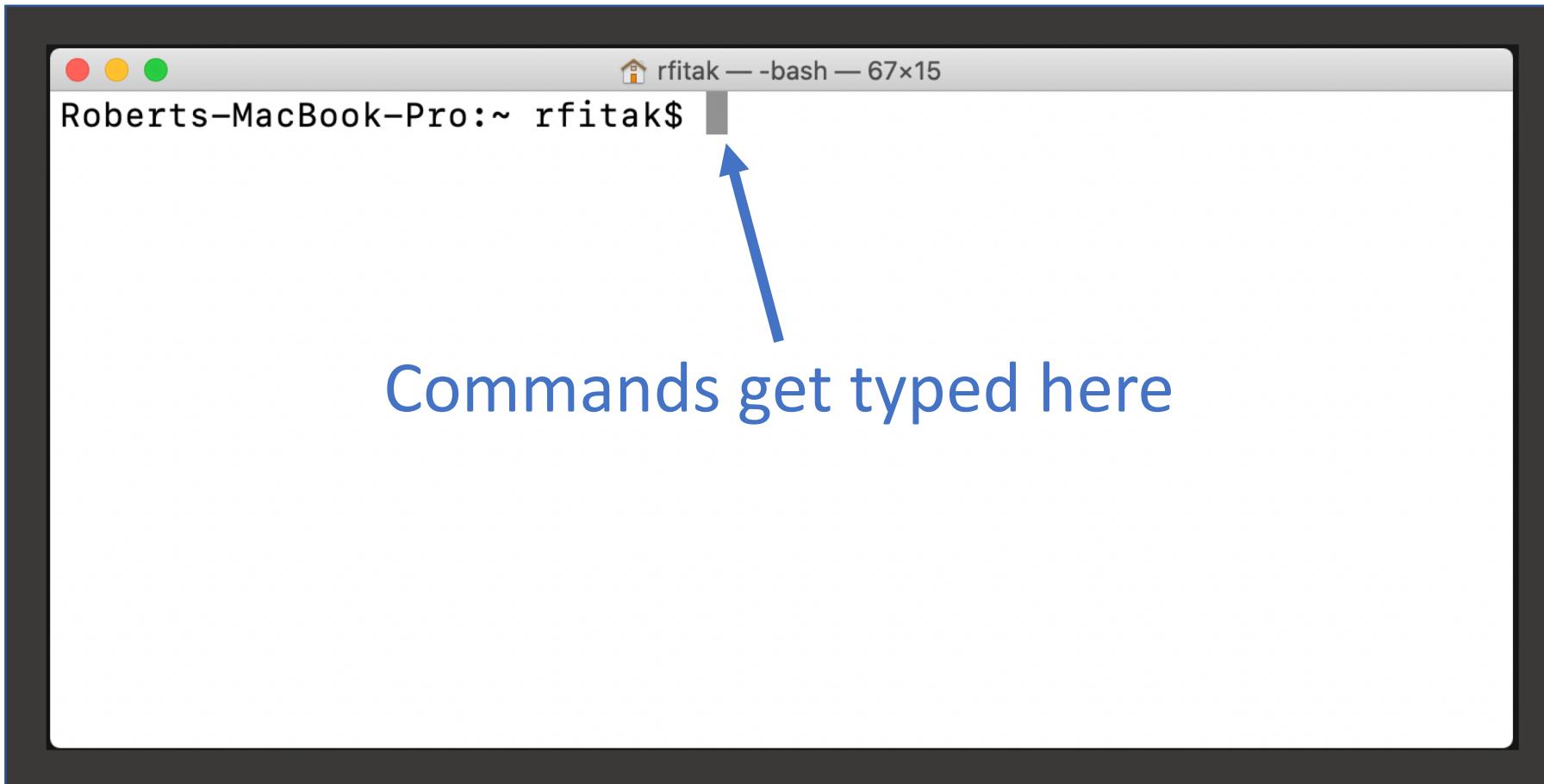
# The Terminal



# The Terminal



# The Terminal



# Commands

- UNIX commands can be very simple one word commands, or have many additional arguments (a.k.a. parameters).
- In general, a UNIX command has the following form:

**command options(s) filename(s)**

- The *command* is the name of the program that we are going to execute.
- The *options* modify the way the command works. Options are typically indicated by one or two hyphens: e.g. **-a** or **--input**.
- The *filename* is the last argument for many UNIX commands.

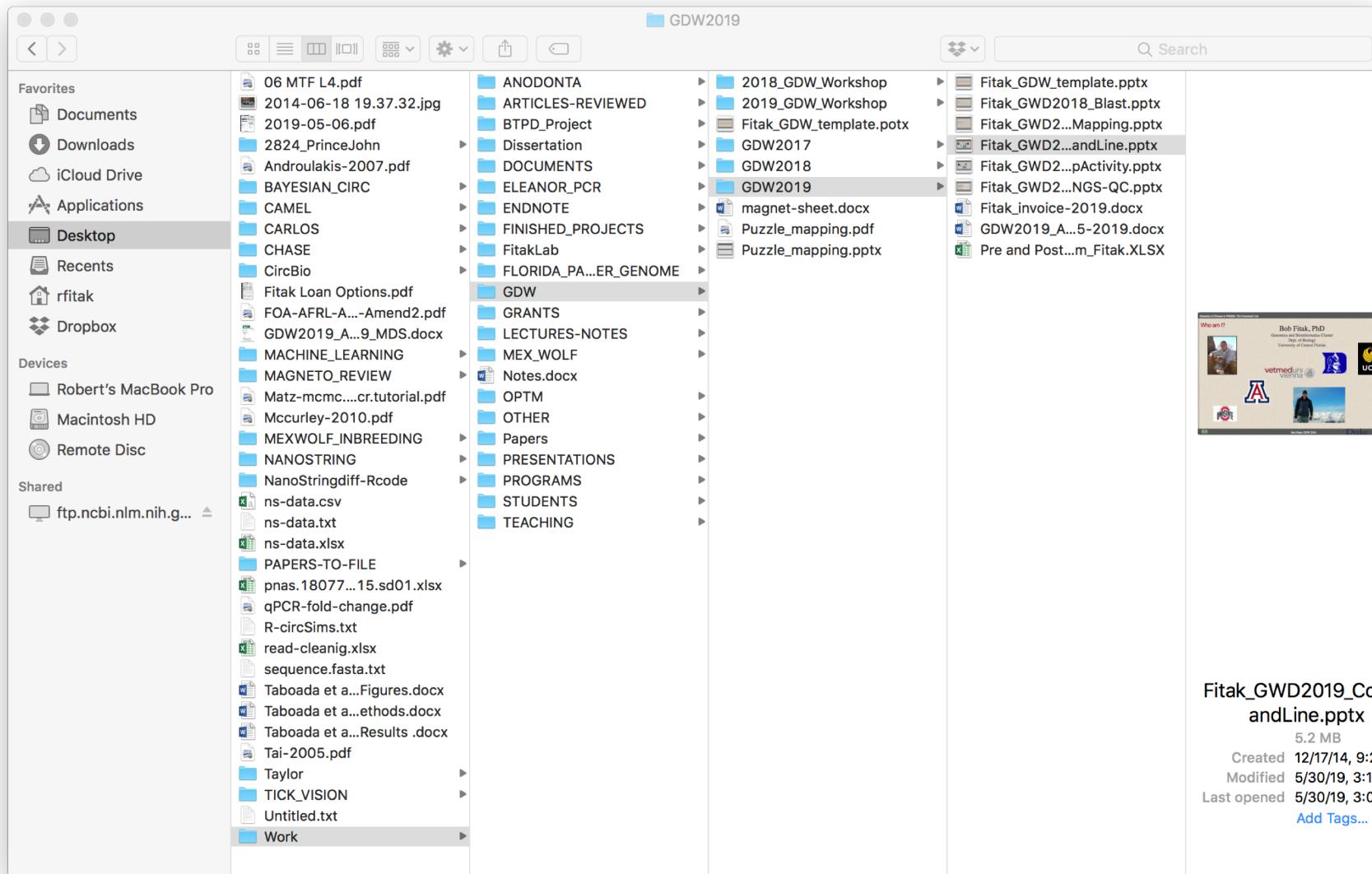
# SCRIPTING

# Navigating your computer

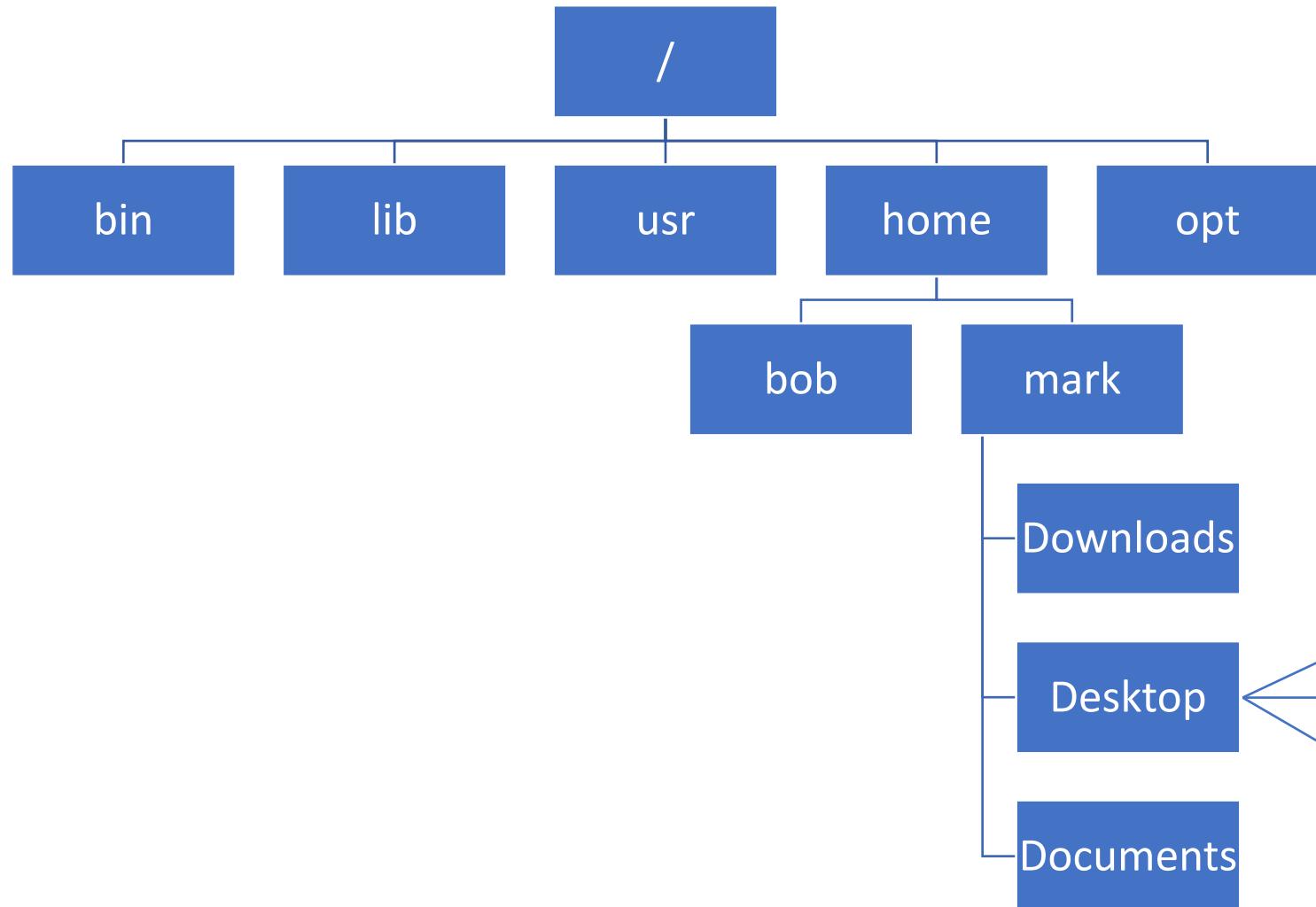
Using the command line



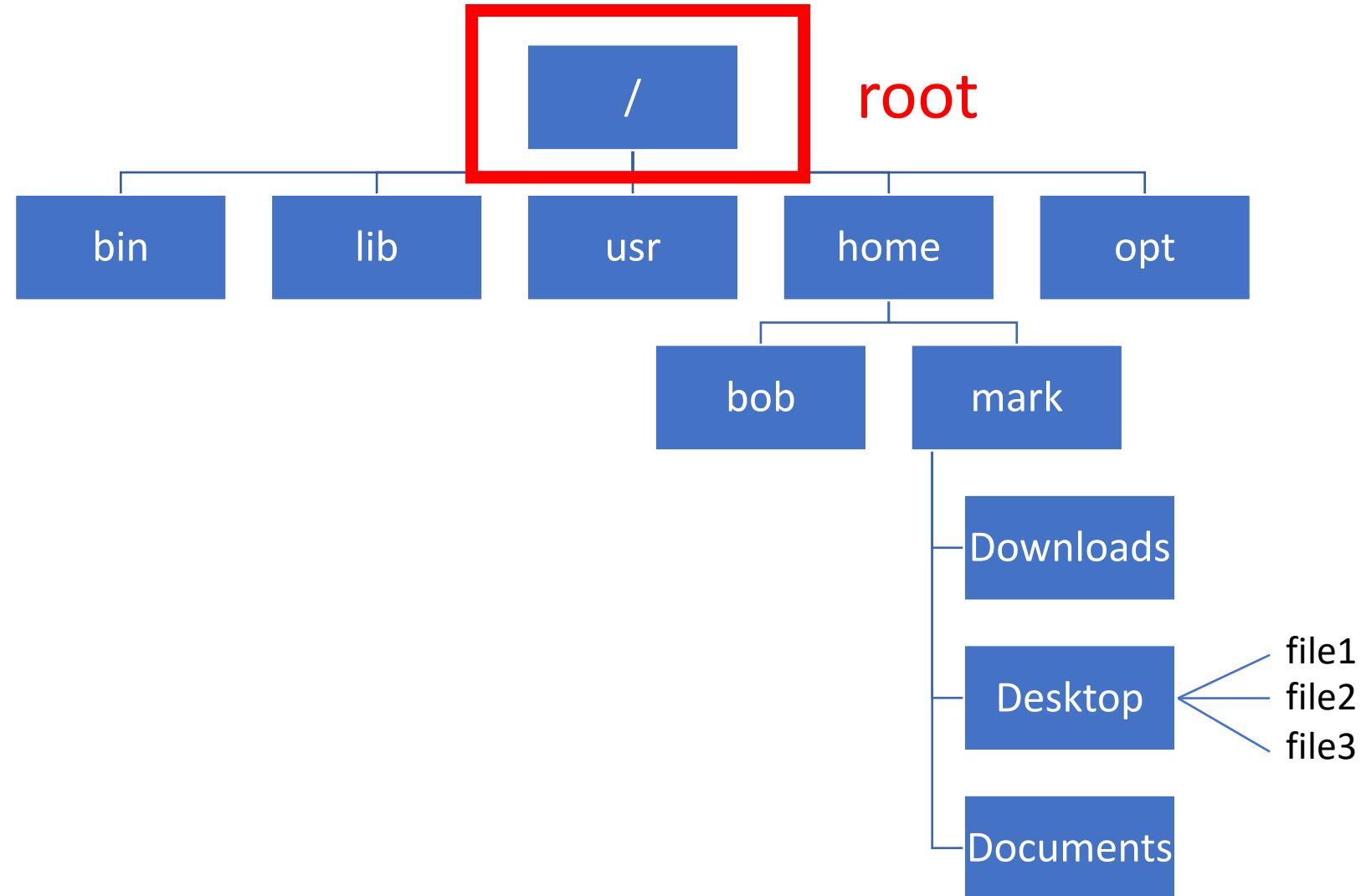
# Navigating your computer



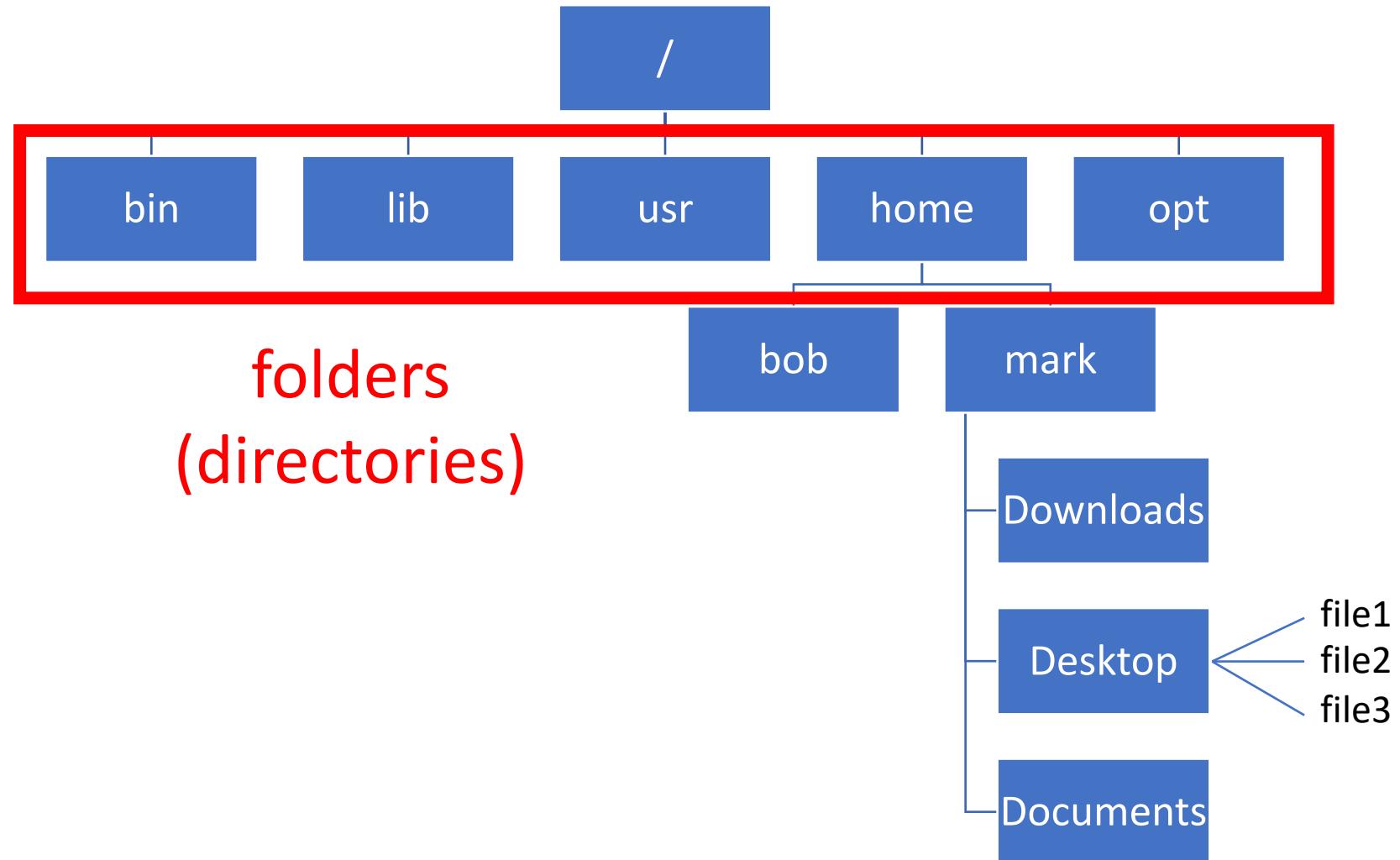
# The File System



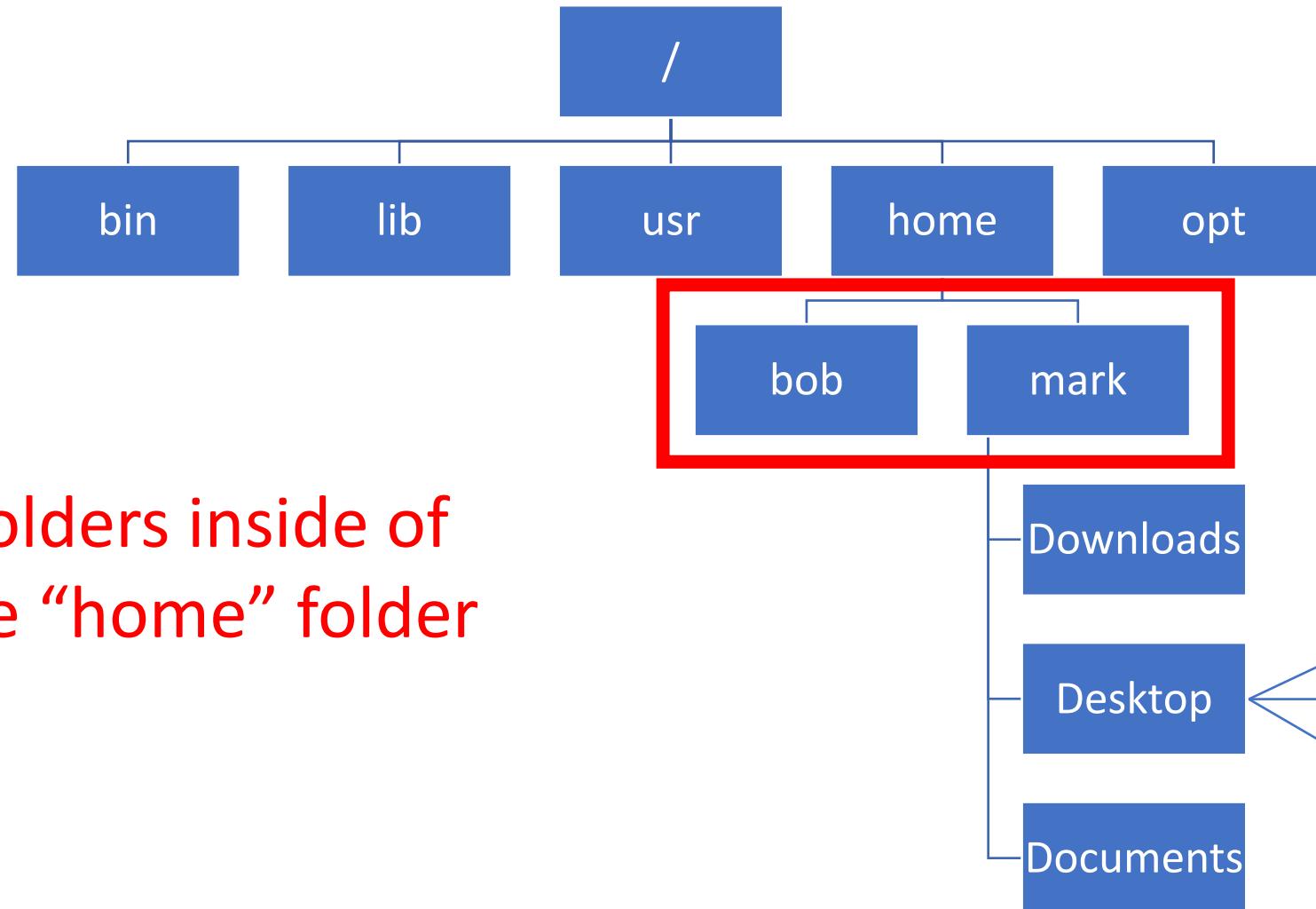
# The File System



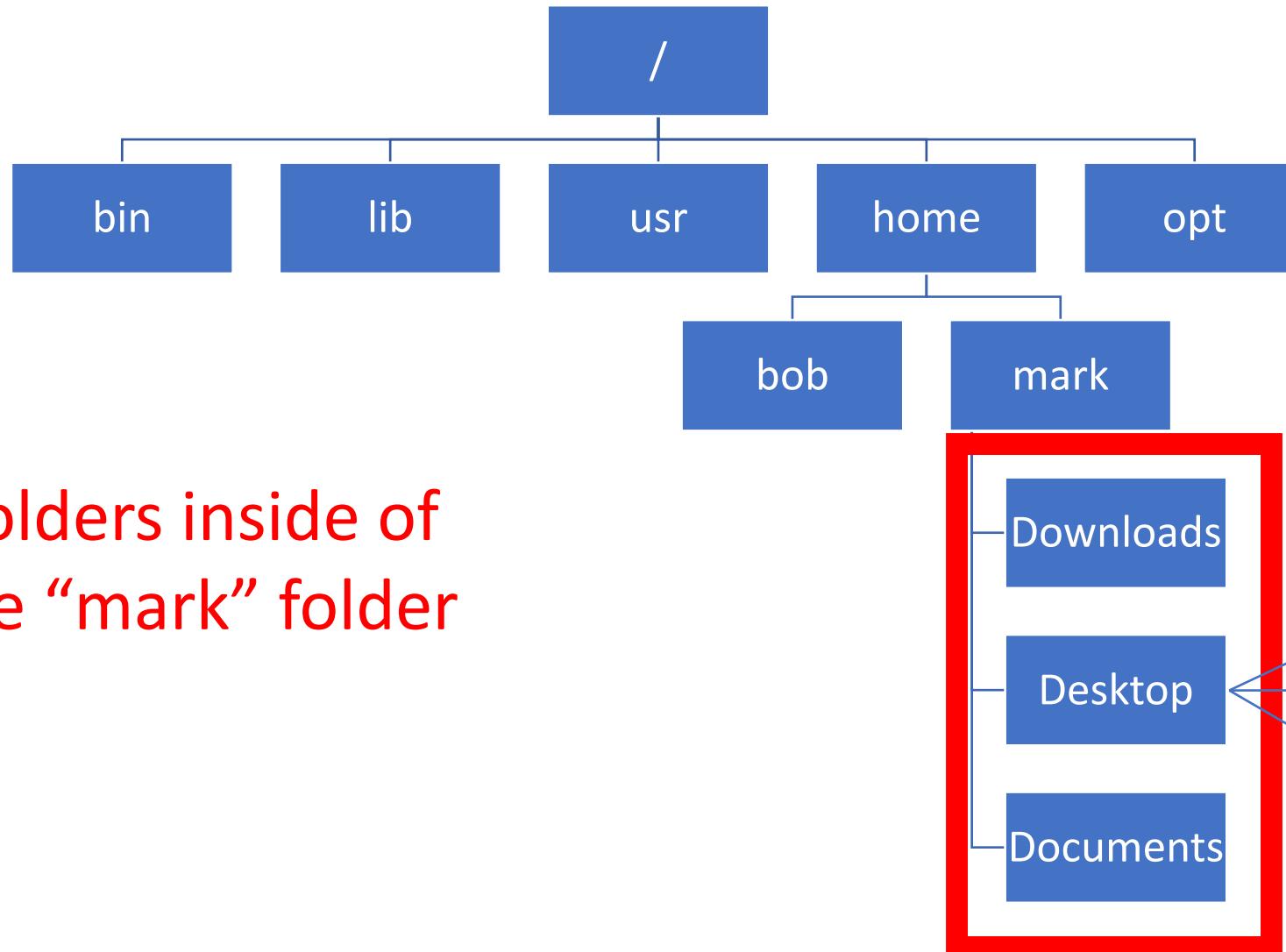
# The File System



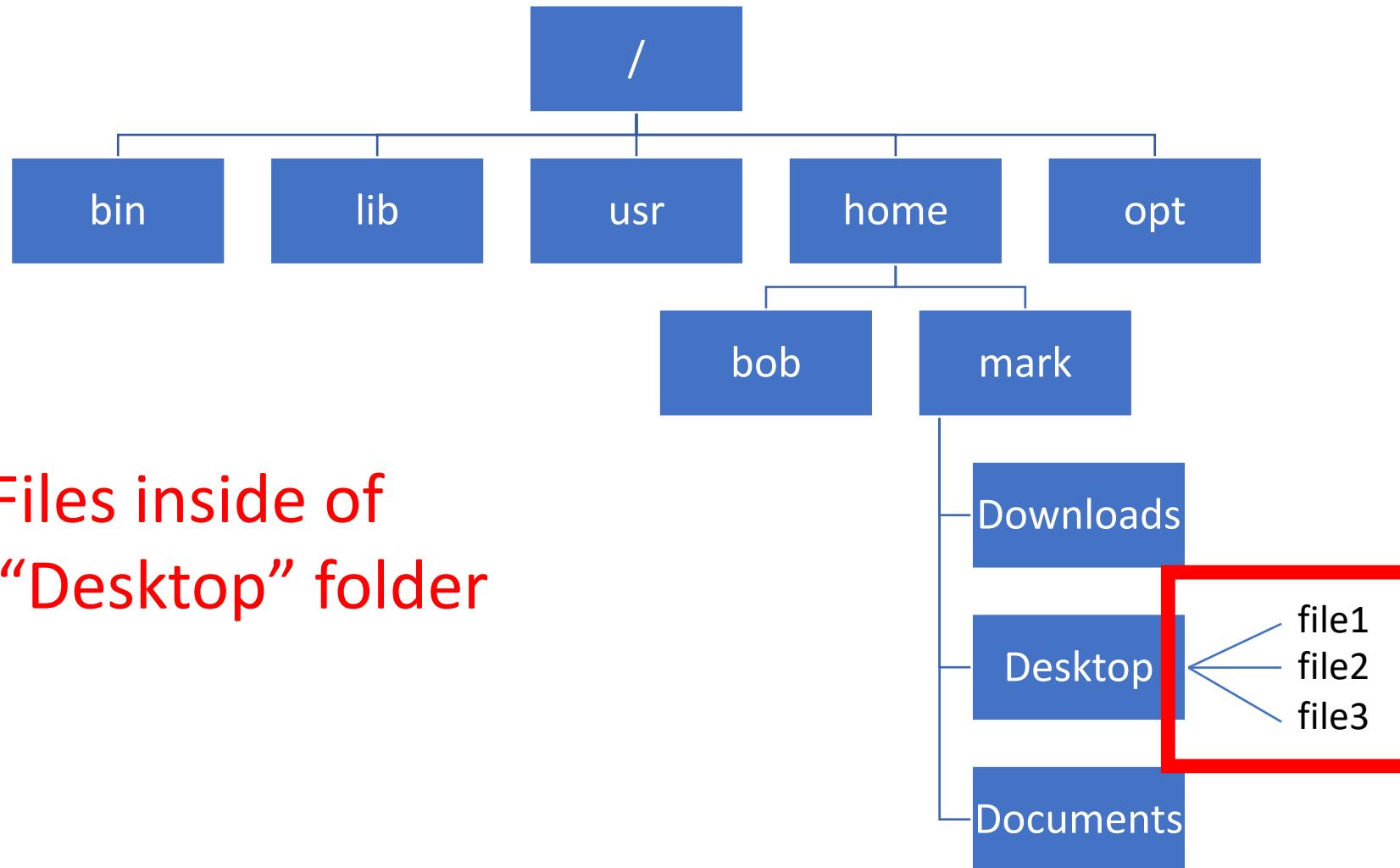
# The File System



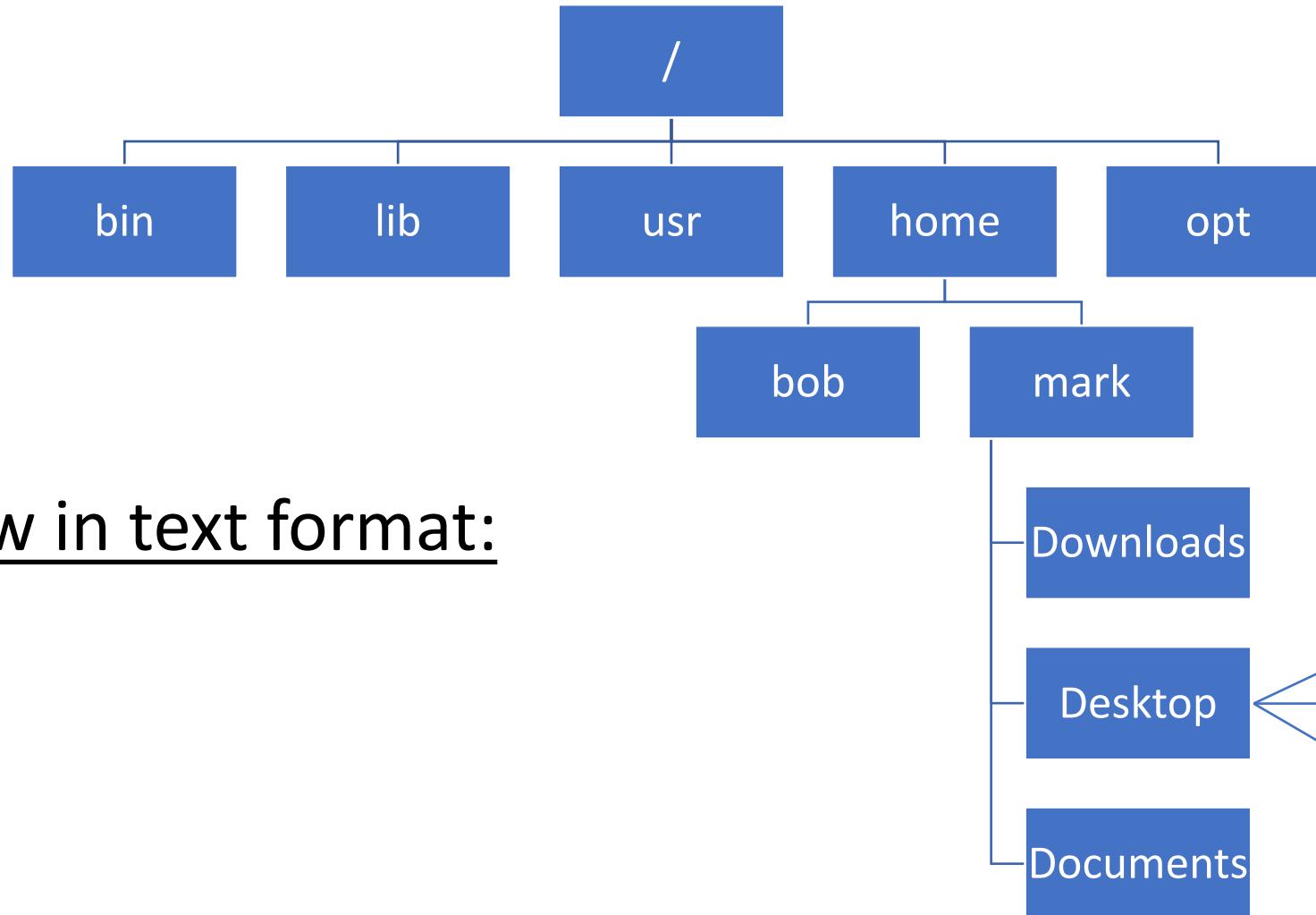
# The File System



# The File System



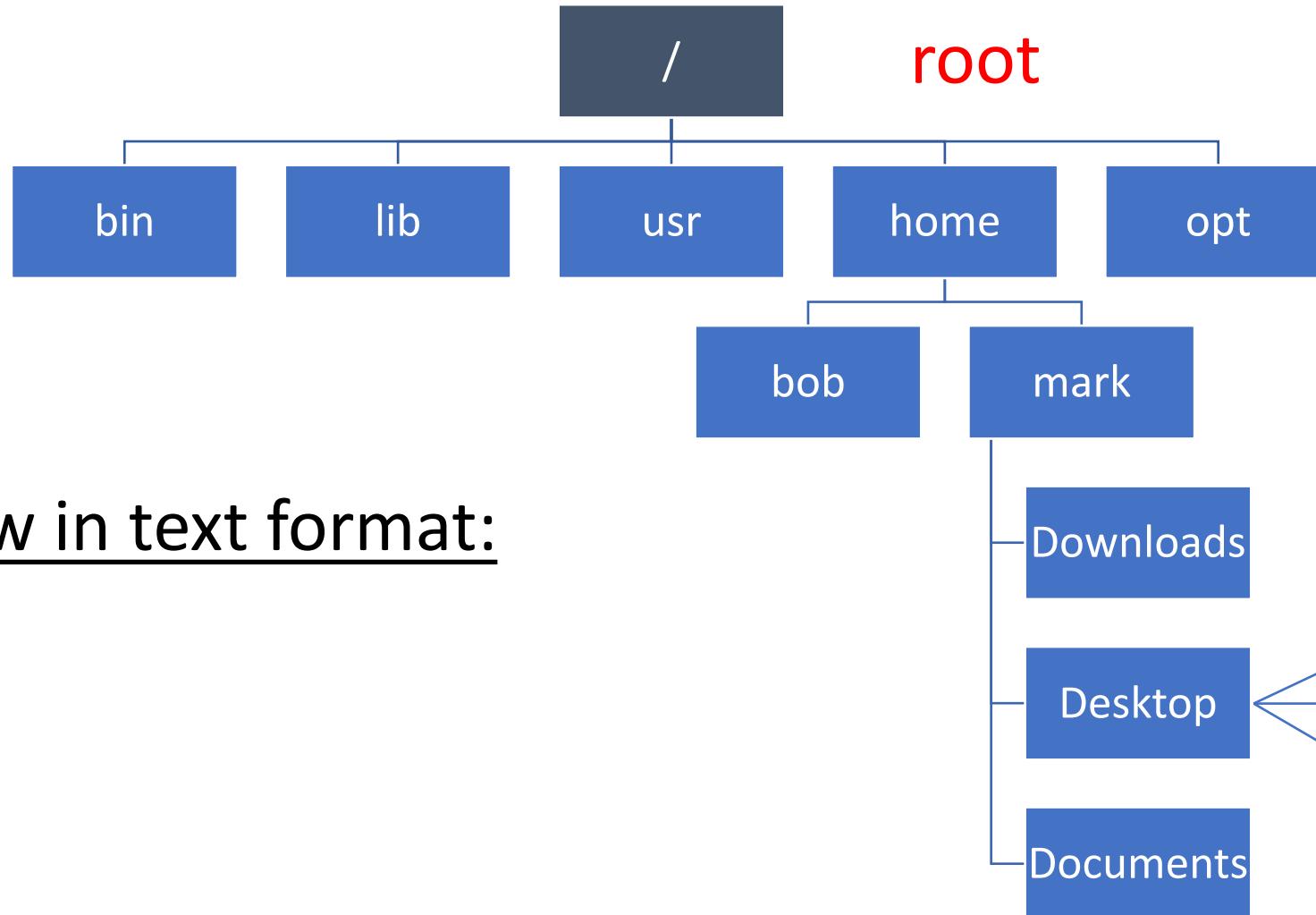
# The File System



Now in text format:



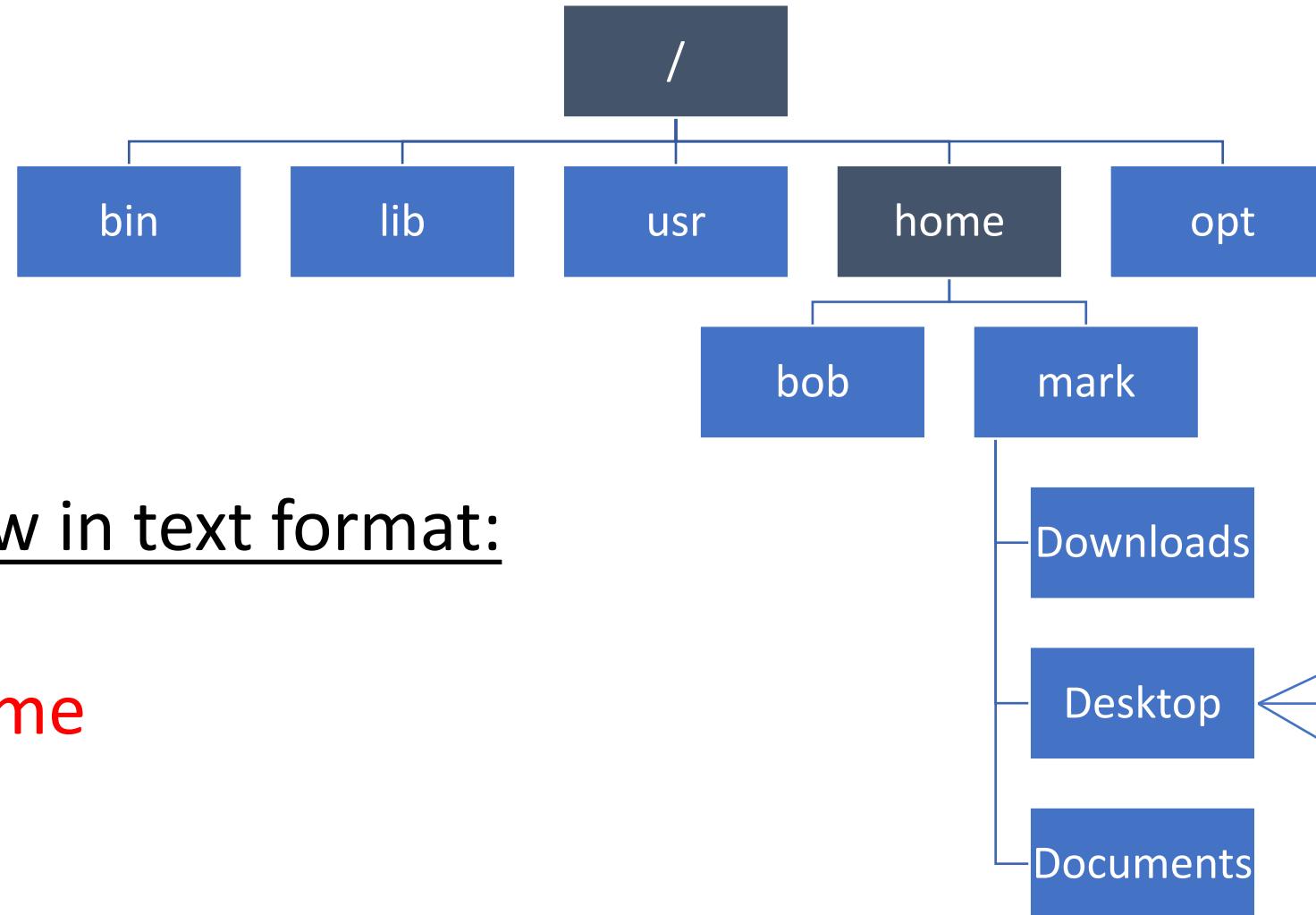
# The File System



Now in text format:

/

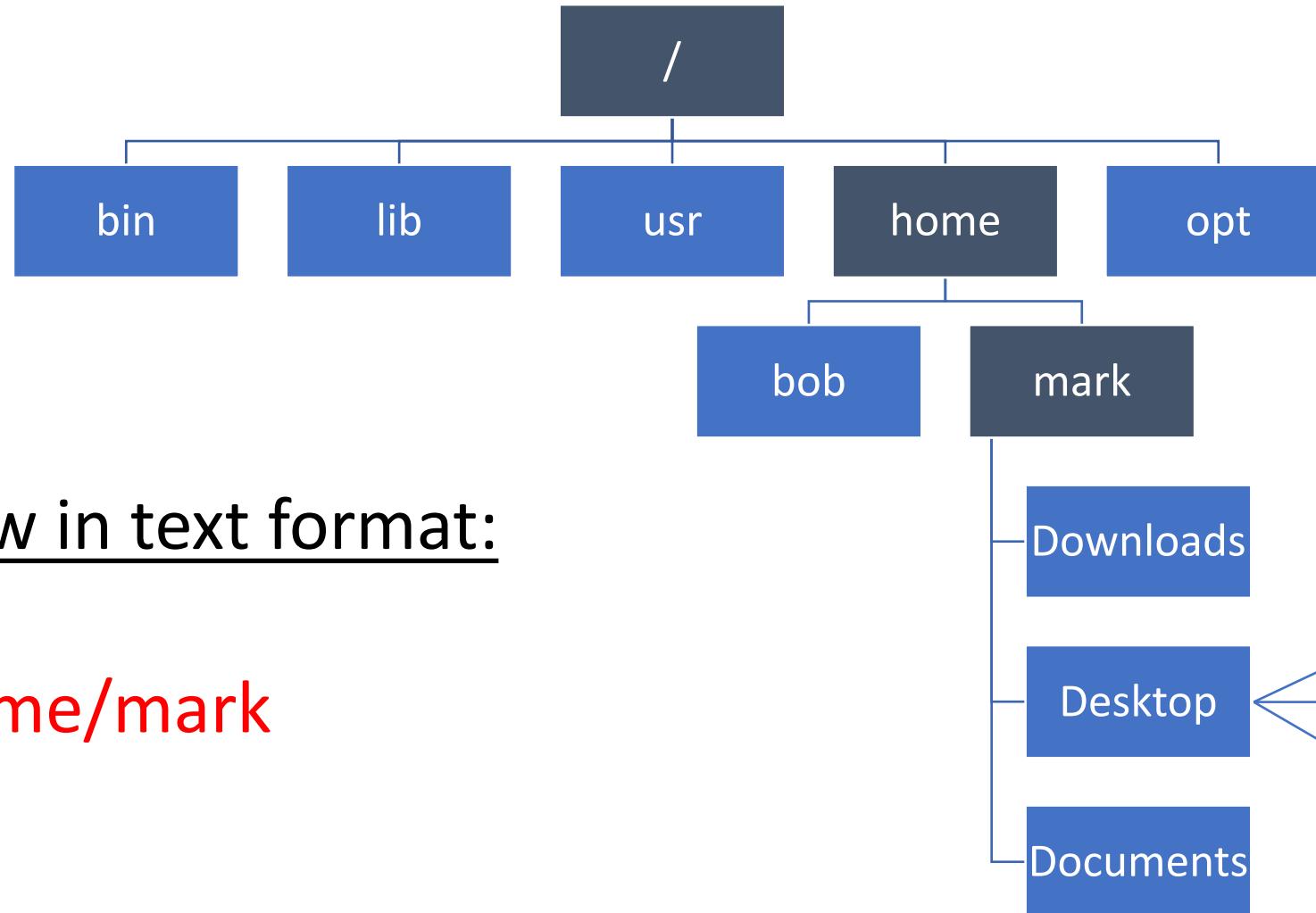
# The File System



Now in text format:

/home

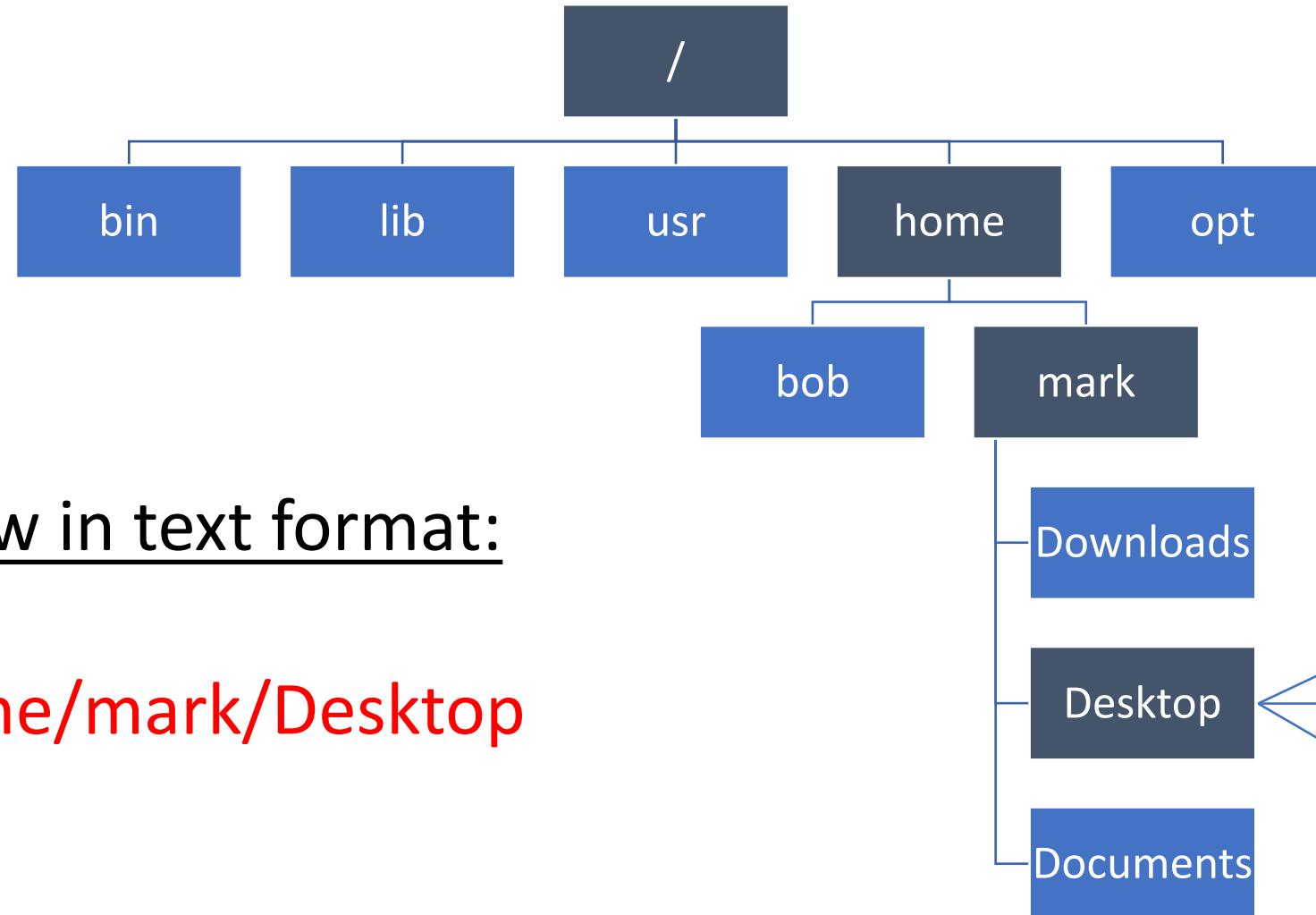
# The File System



Now in text format:

/home/mark

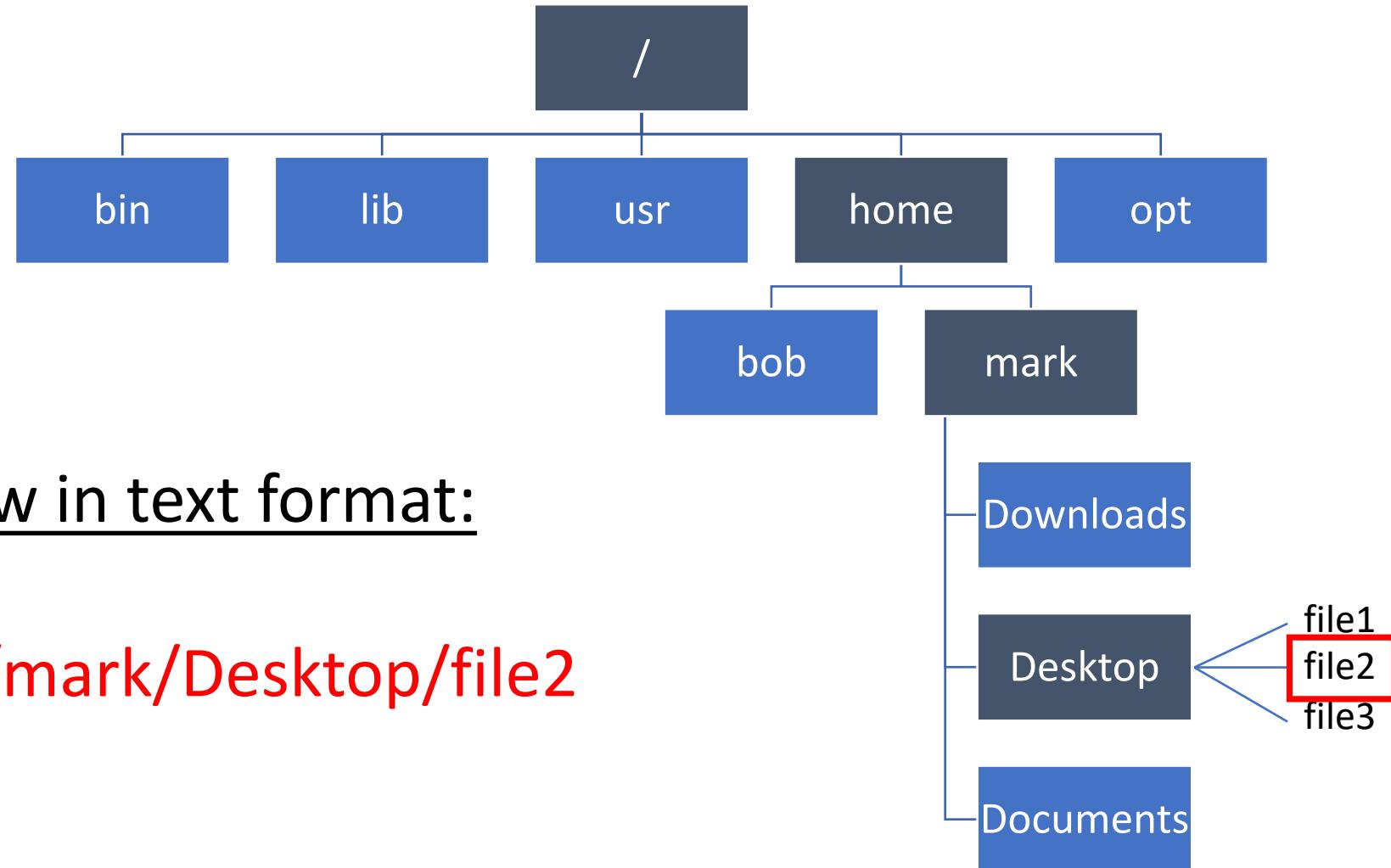
# The File System



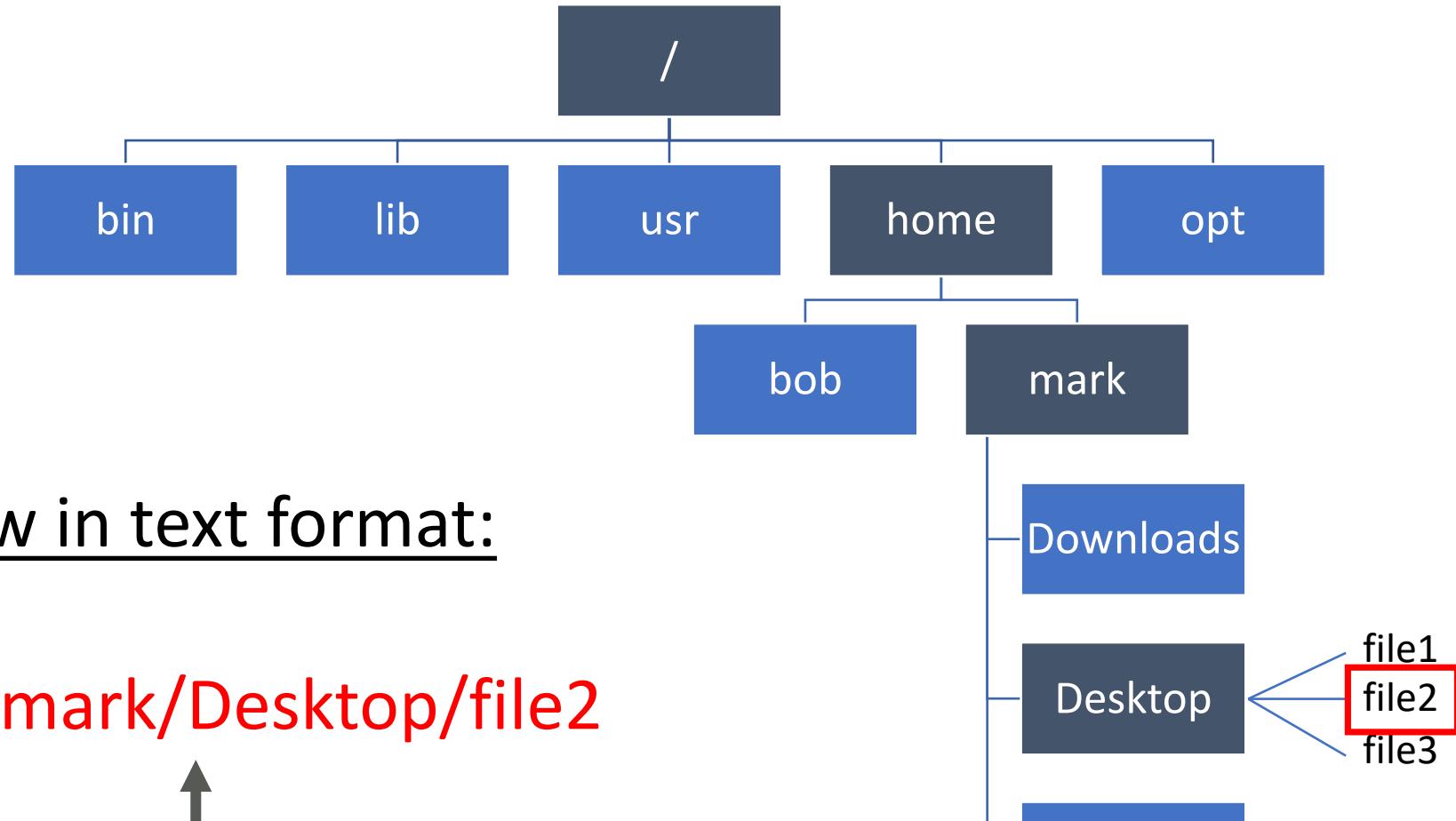
Now in text format:

/home/mark/Desktop

# The File System



# The File System

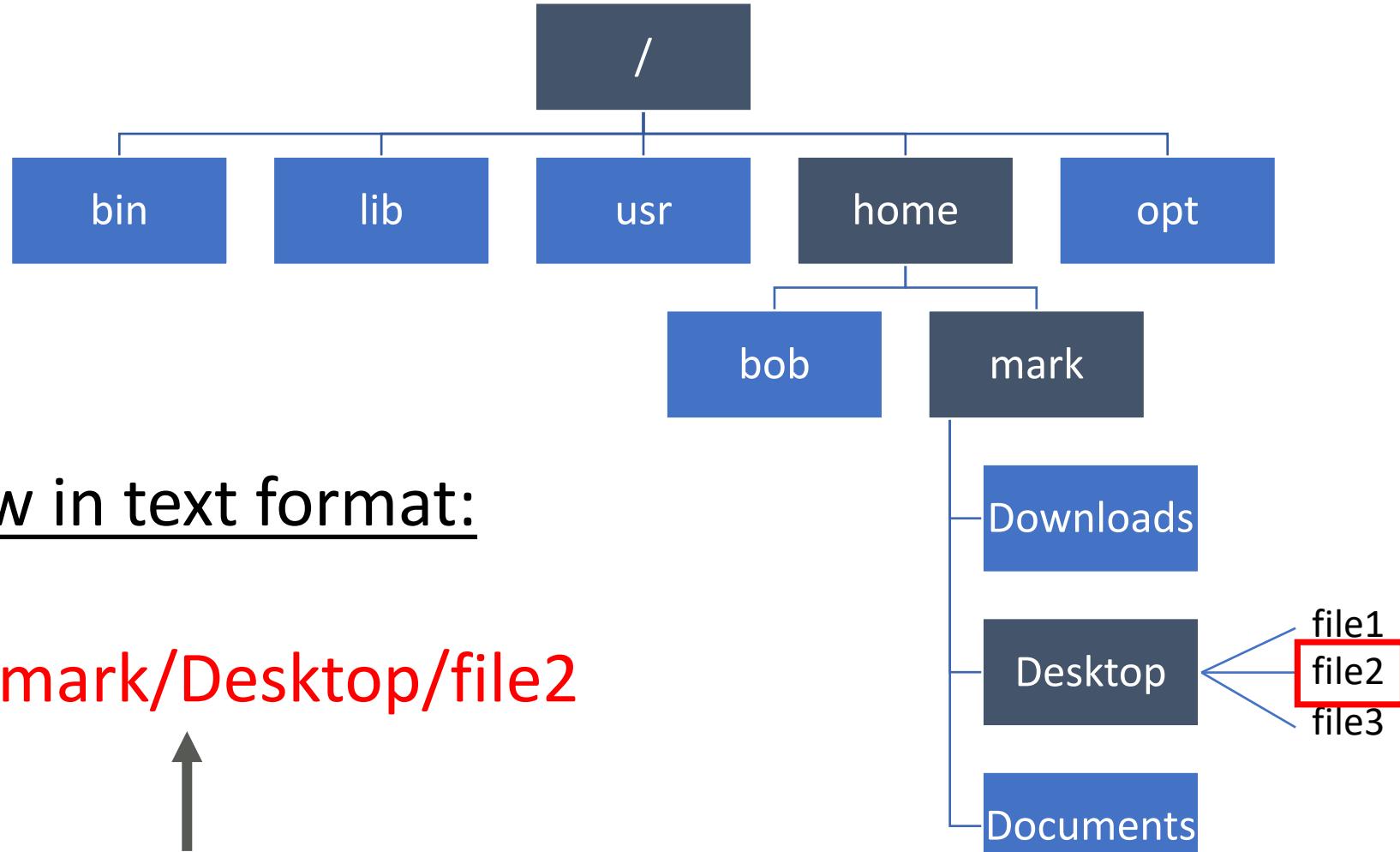


Now in text format:

/home/mark/Desktop/file2

↑  
path

# The File System

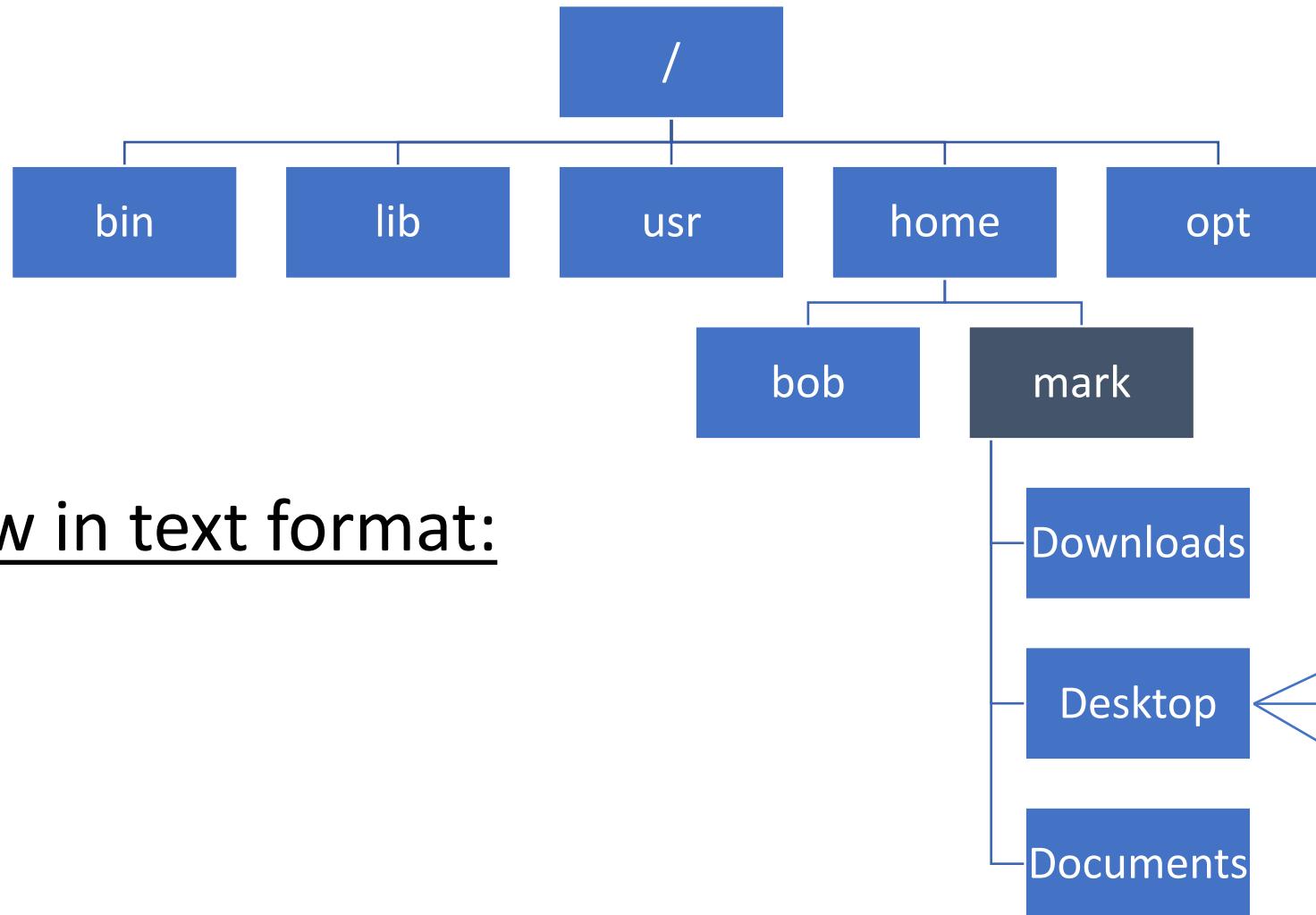


Now in text format:

/home/mark/Desktop/file2

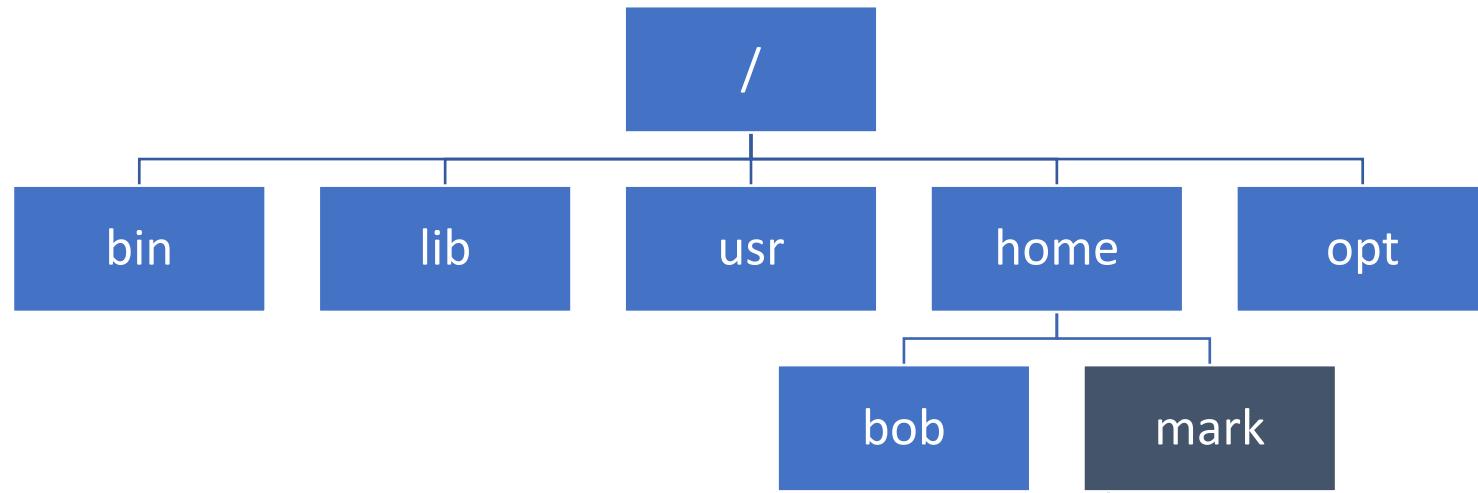
absolute path

# The File System



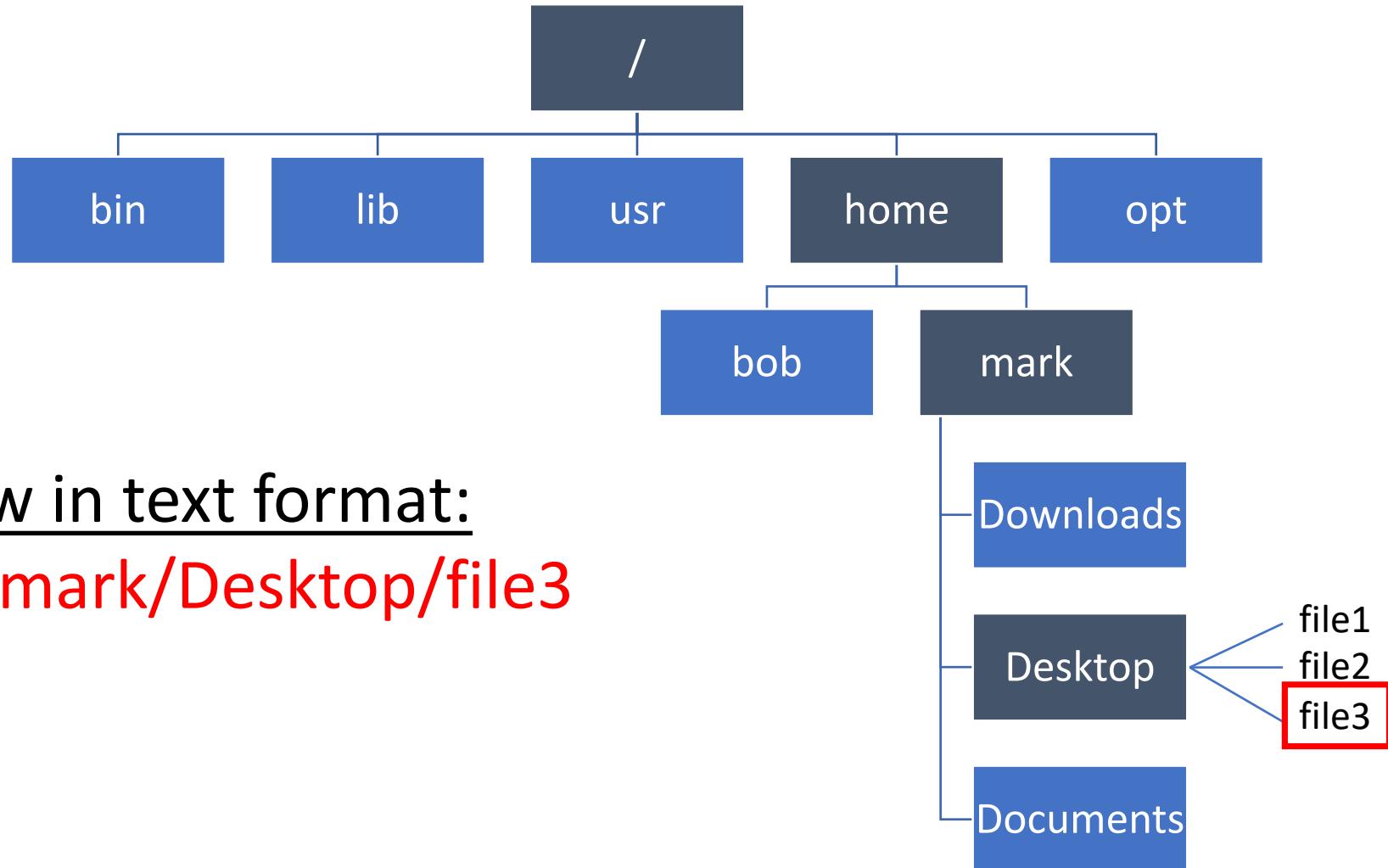
Now in text format:

# The File System



Now in text format:

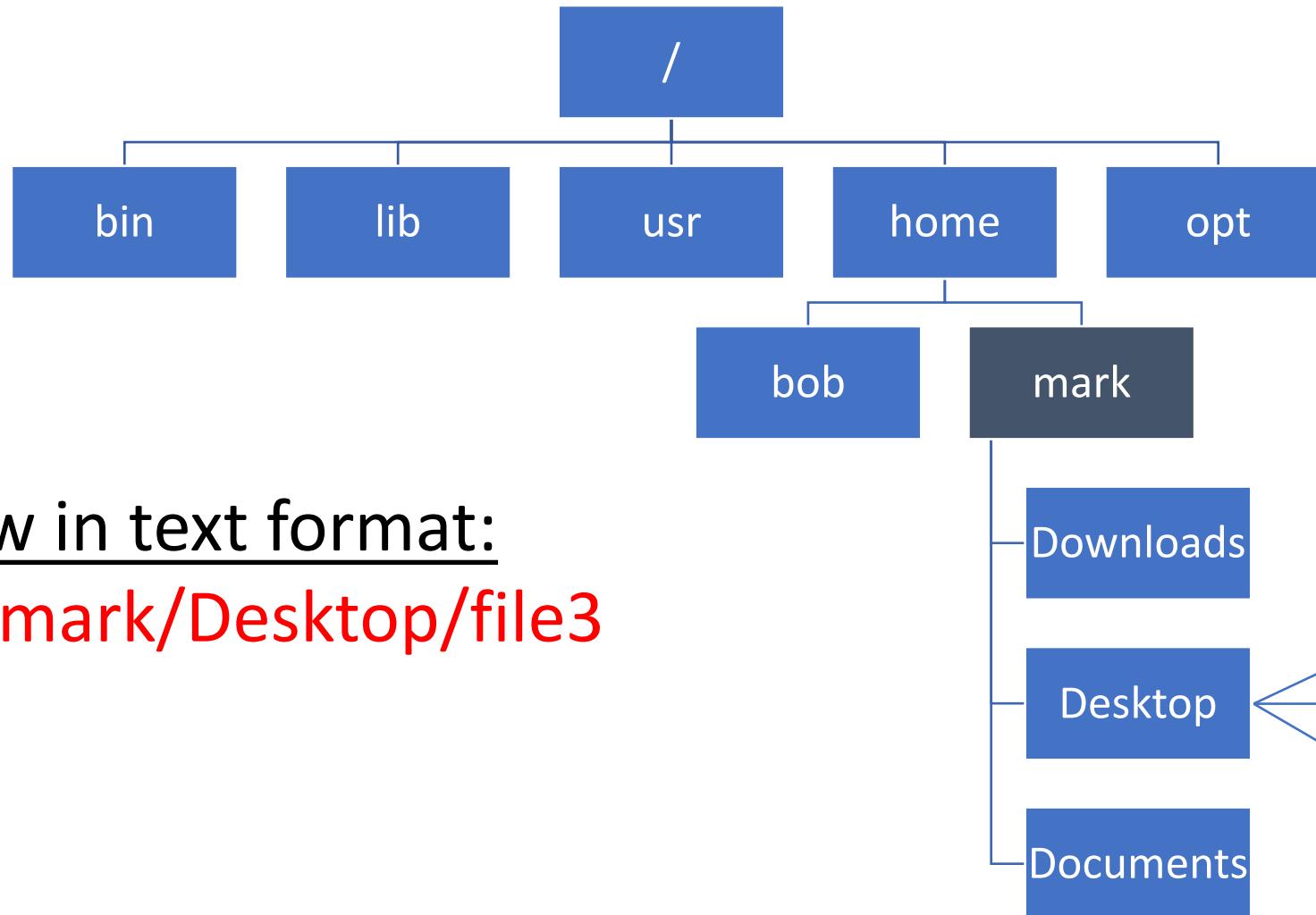
# The File System



Now in text format:

/home/mark/Desktop/file3

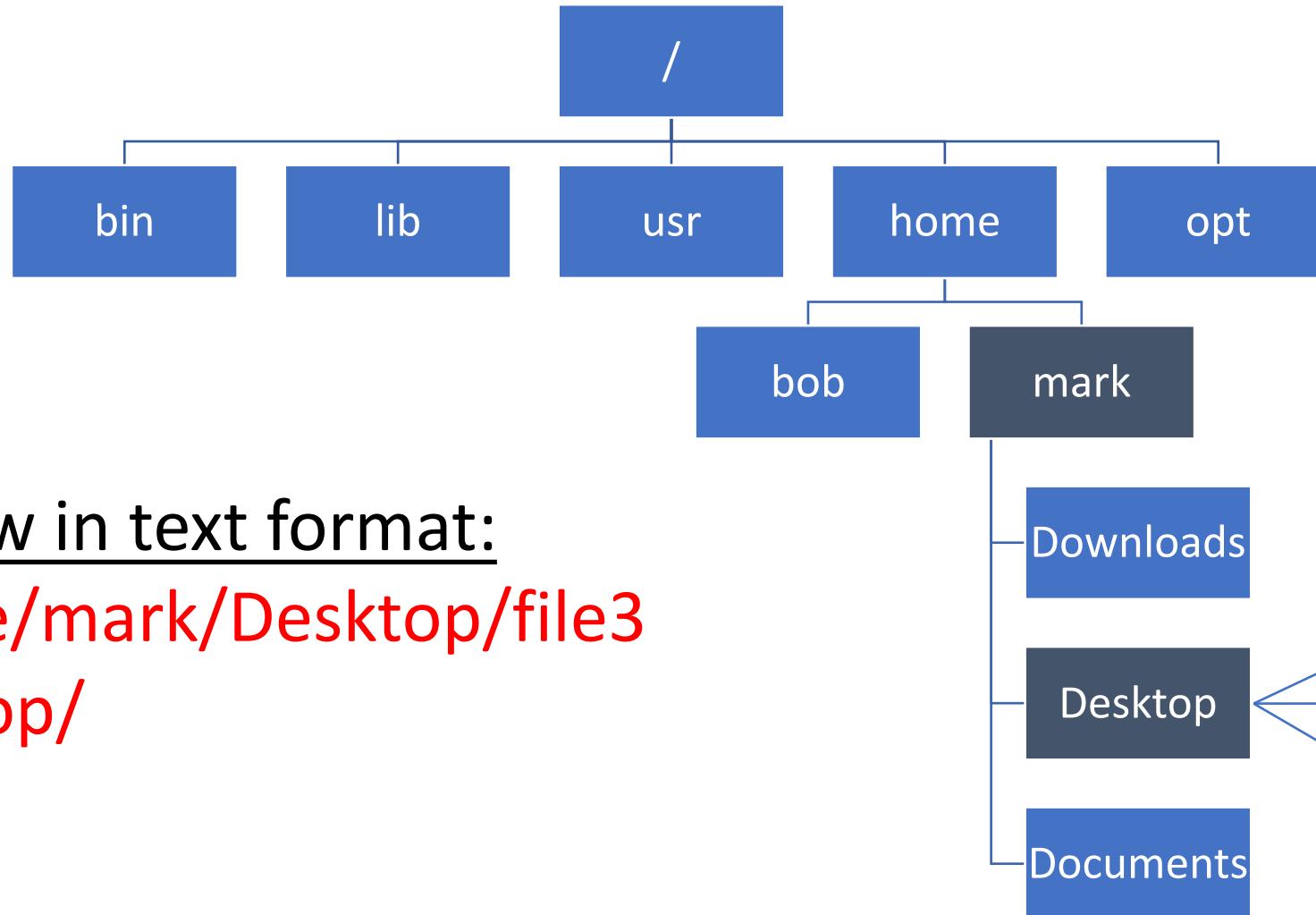
# The File System



Now in text format:

/home/mark/Desktop/file3

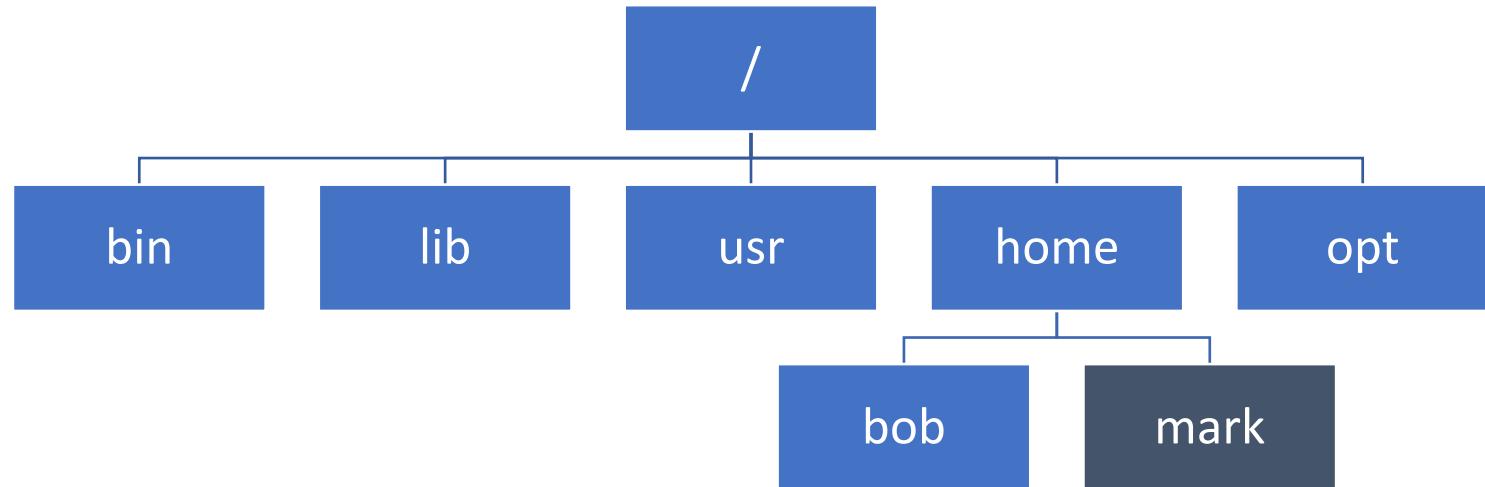
# The File System



Now in text format:

- `/home/mark/Desktop/file3`
- `Desktop/`

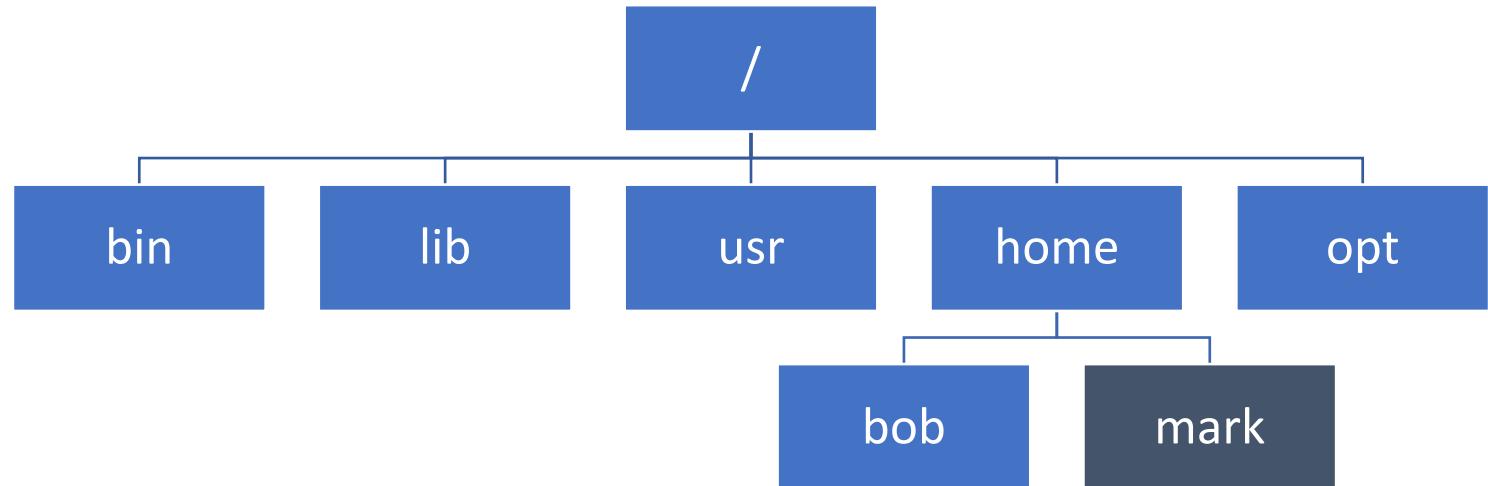
# The File System



Now in text format:

- `/home/mark/Desktop/file3`
- `Desktop/file3`

# The File System

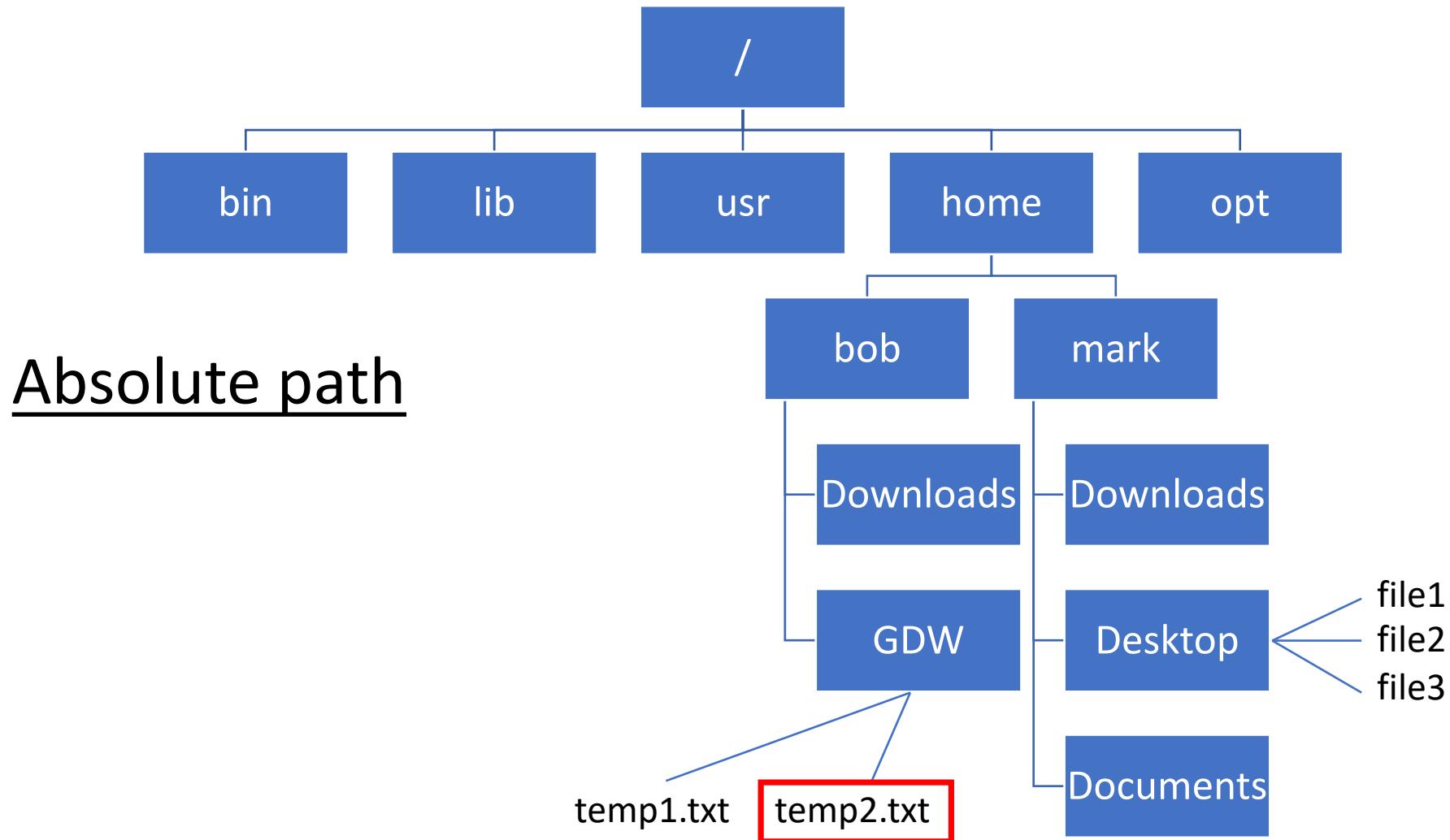


Now in text format:

- `/home/mark/Desktop/file3`
- `Desktop/file3`

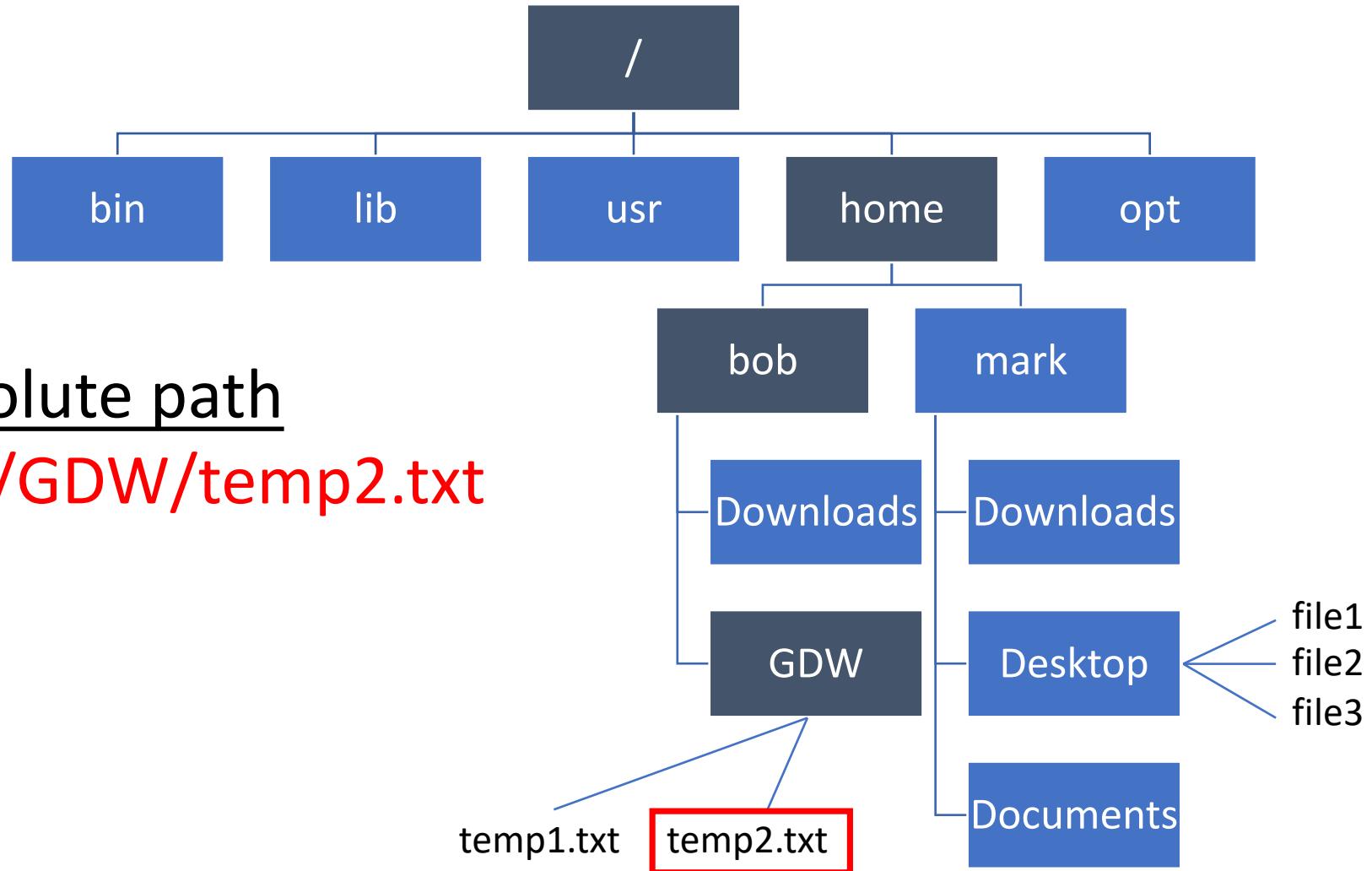
↑  
relative path

# Quiz Time!

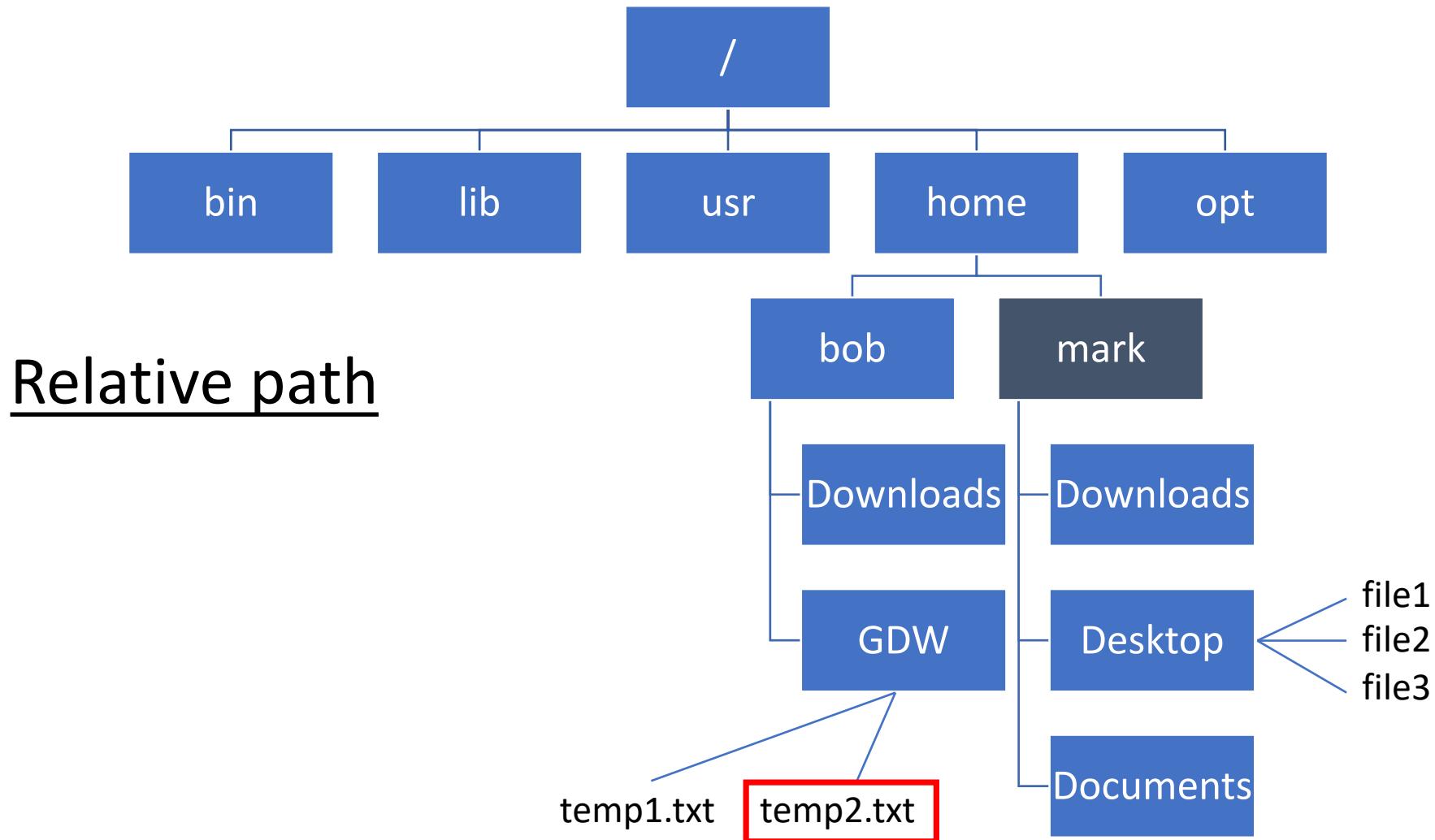


# Quiz Time!

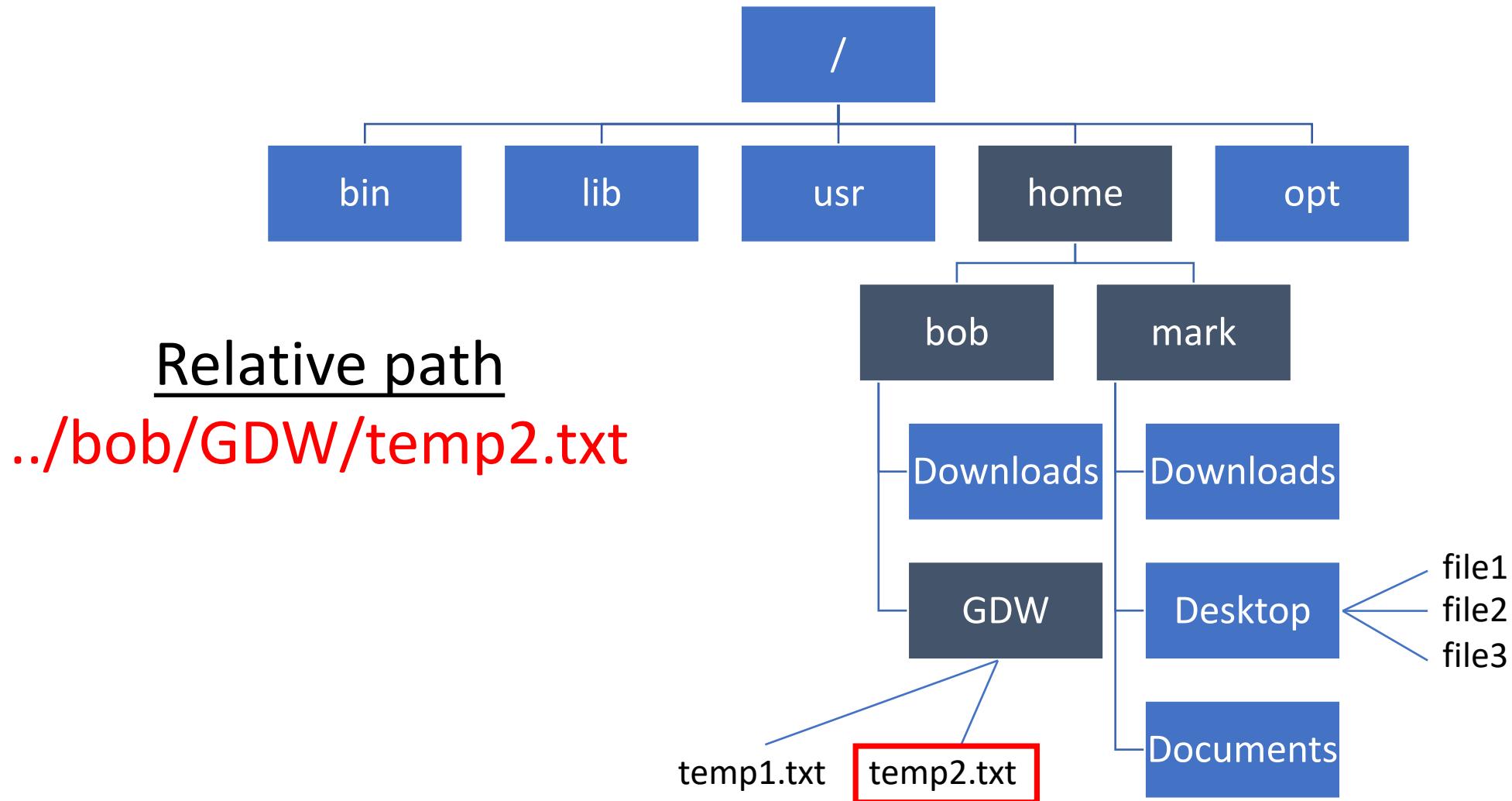
Absolute path  
**/home/bob/GDW/temp2.txt**



# Quiz Time!



# Quiz Time!



# To your terminals!!!

[https://github.com/gdw-workshop/2021\\_GDW\\_Workshop](https://github.com/gdw-workshop/2021_GDW_Workshop)

