Who am I?

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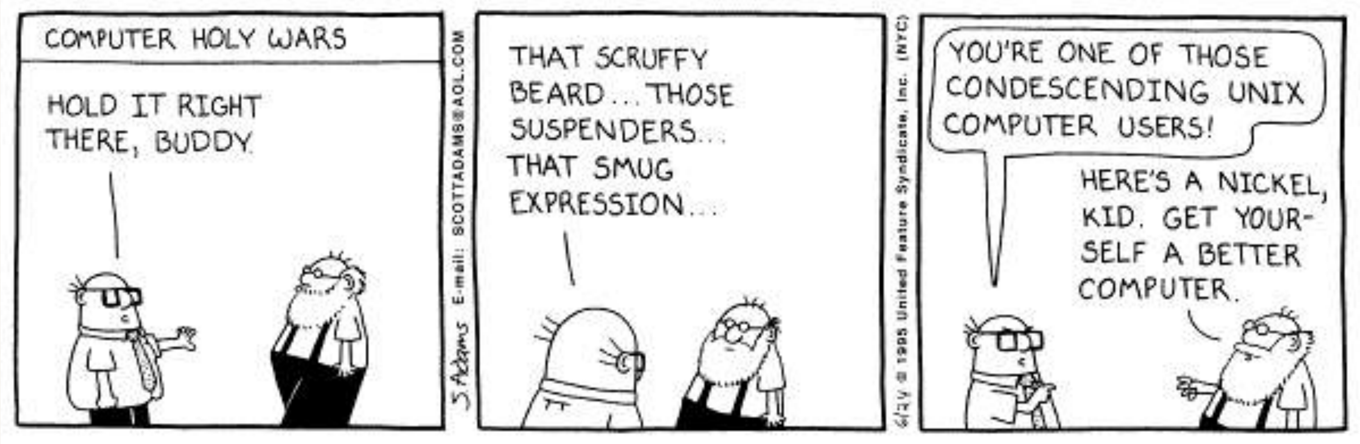
Department of Biology
University of Central Florida

THE COMMAND LINE

a.k.a The terminal

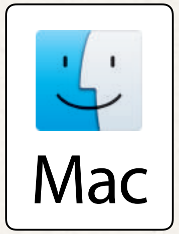
a.k.a. ‘My worst nightmare’ (but really?)


COMPUTER HOLY WARS
HOLD IT RIGHT THERE, BUDDY.
S. Adams E-mail: SCOTTADAMS@AOL.COM
THAT SCRUFFY BEARD... THOSE SUSPENDERS... THAT SMUG EXPRESSION...
6/24 © 1995 United Feature Syndicate, Inc. (NYC)
YOU'RE ONE OF THOSE CONDESCENDING UNIX COMPUTER USERS!
HERE'S A NICKEL, KID. GET YOURSELF A BETTER COMPUTER.

Goals for this session:

- What is the command line interface?

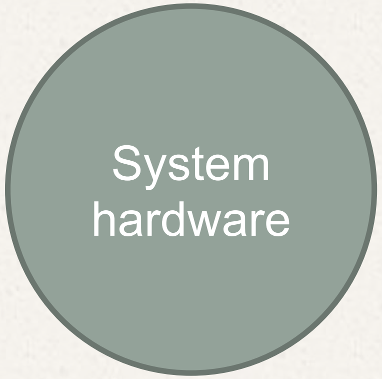
- Learn fundamental commands of a UNIX operating system
  - Basis for Mac and Linux operating systems



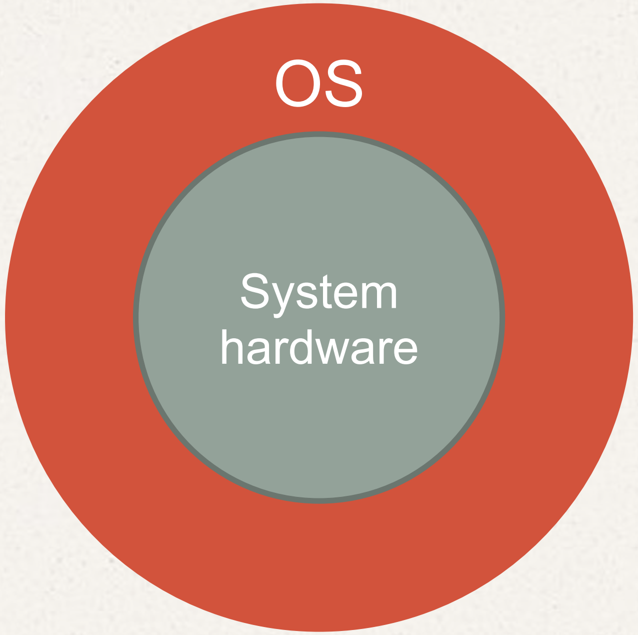
What is UNIX

- 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

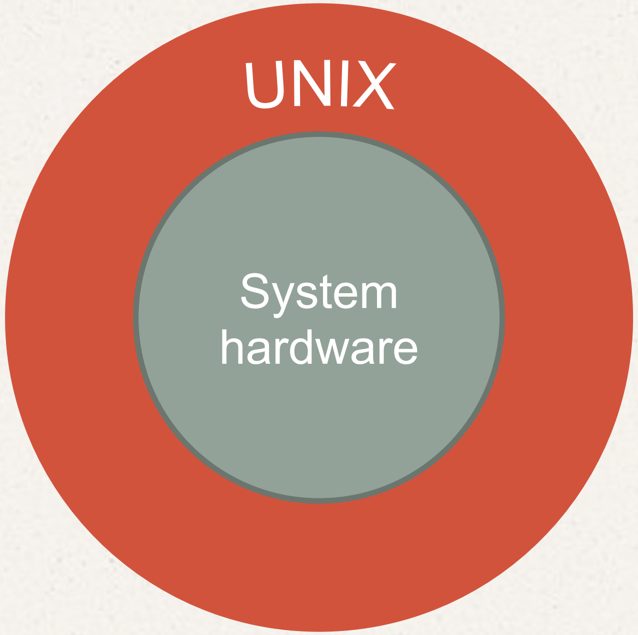
UNIX


System hardware

UNIX


OS
System hardware

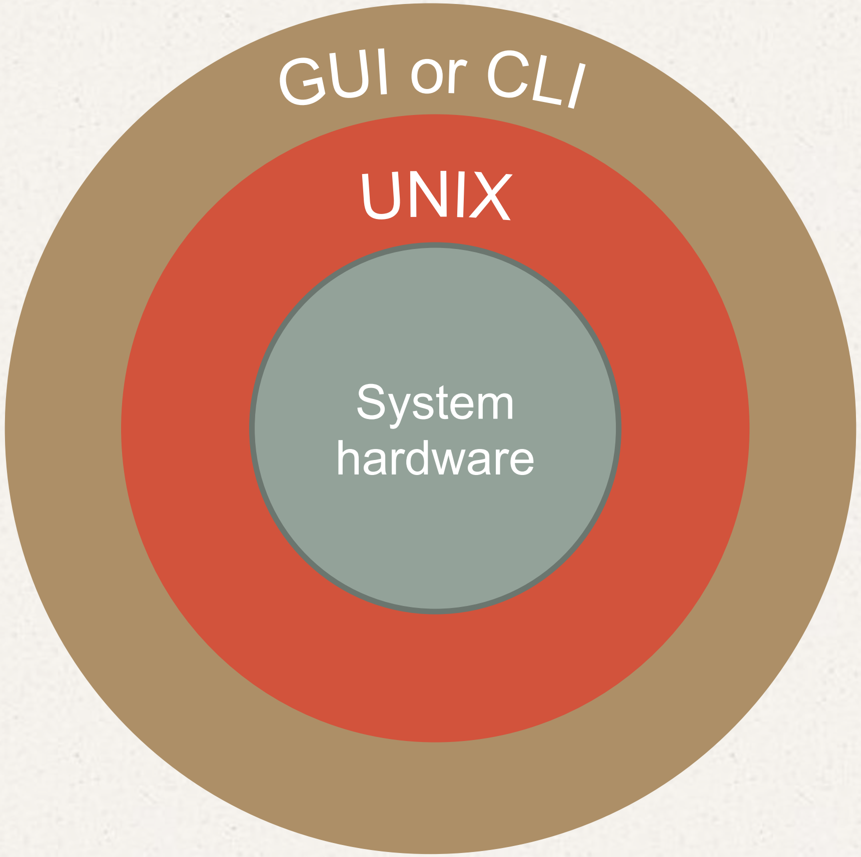
UNIX



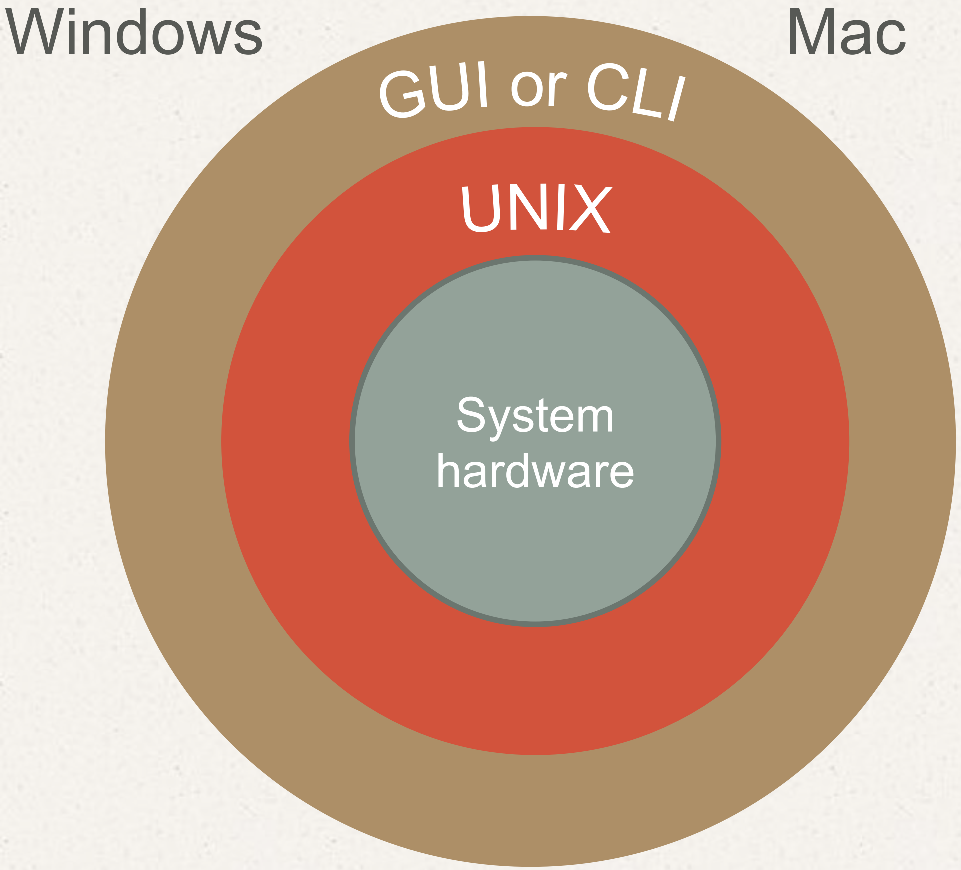
UNIX

System hardware

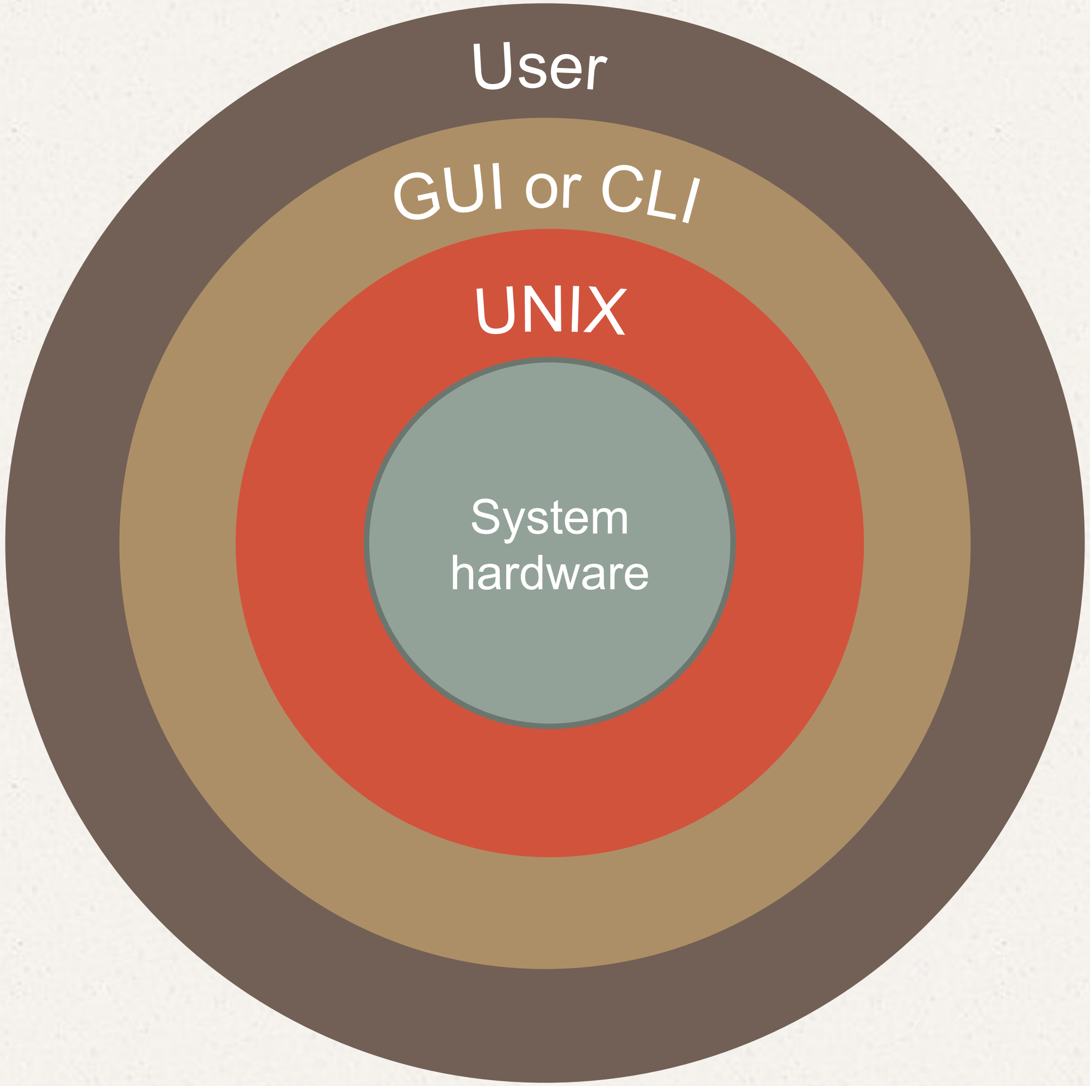
UNIX


GUI or CLI
UNIX
System hardware

UNIX


Windows
Mac
GUI or CLI
UNIX
System hardware

UNIX



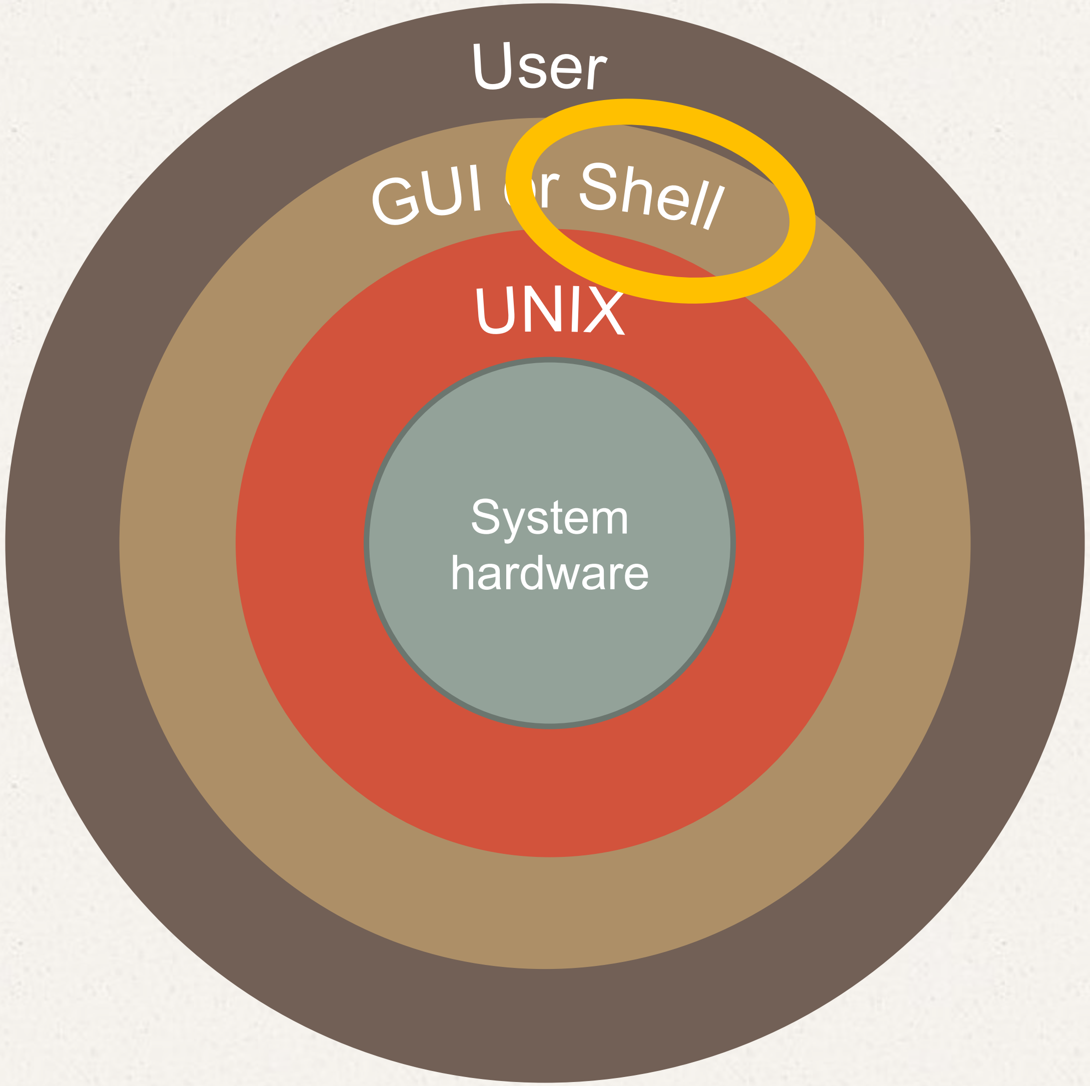
User

GUI or CLI

UNIX

System hardware

UNIX

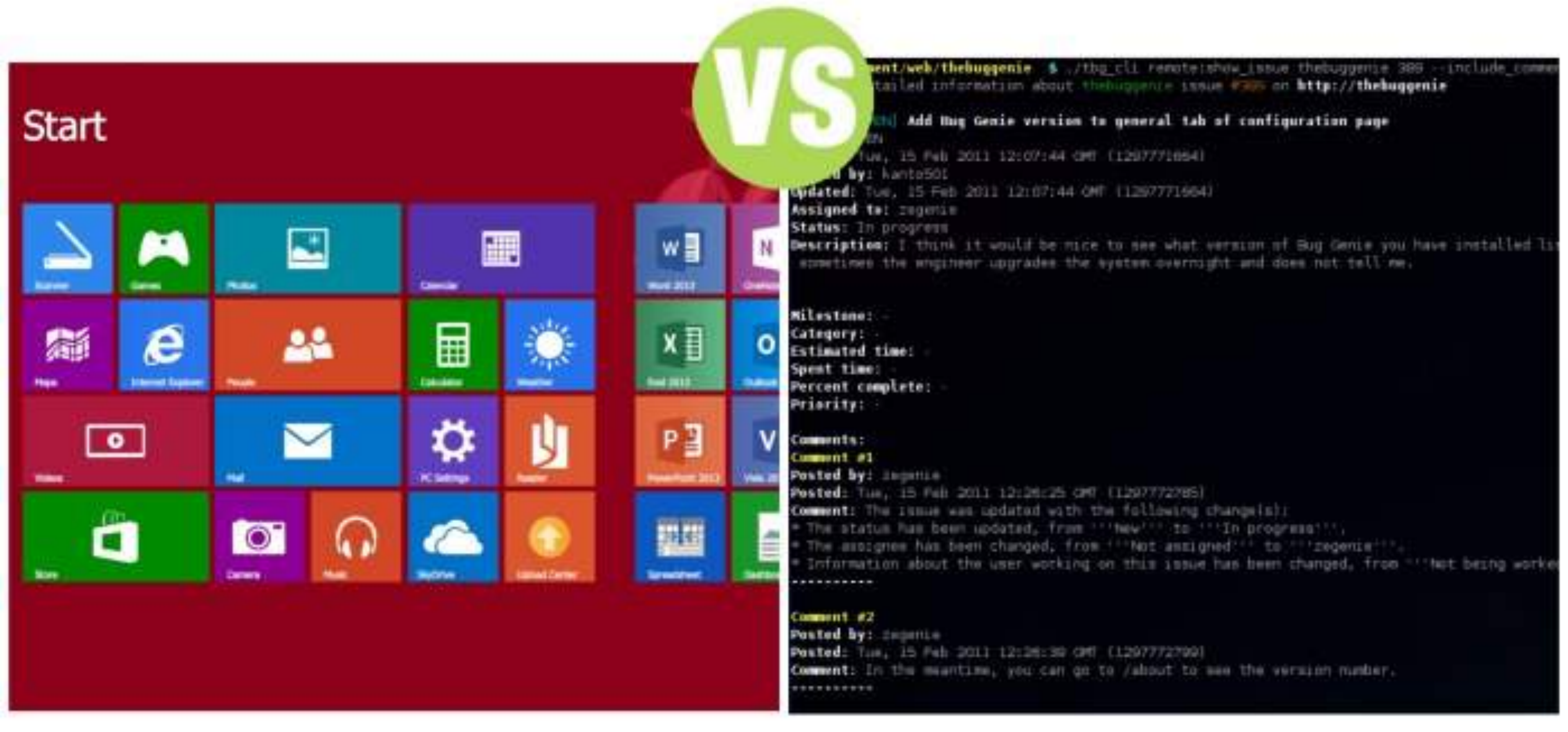

User
GUI or Shell
UNIX
System hardware

The SHELL (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

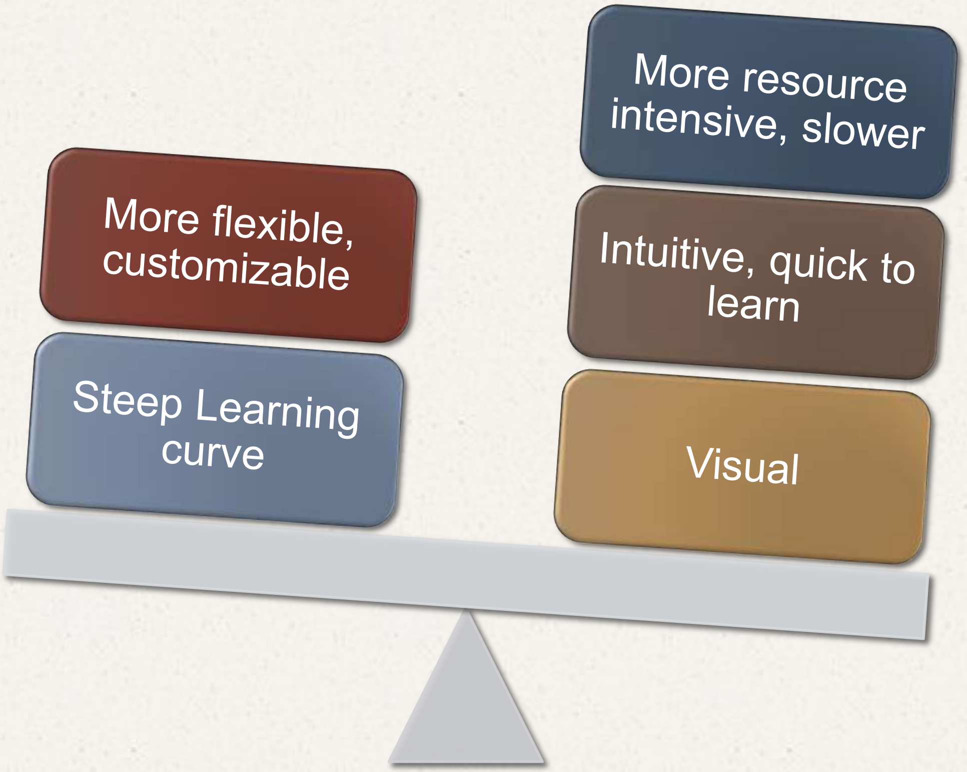
- WARNING: Shell commands are **CASE SENSITIVE!**
  - So “cat” and “Cat” are two different things

Command Line Interface (CLI): Advantages vs Disadvantages



```
ent/web/thebuggenie  $ ./tbg_cli remote:show_issue thebuggenie 389 --include_commen
tailed information about thebuggenie issue #389 on http://thebuggenie

        Add Bug Genie version to general tab of configuration page

 Tue, 15 Feb 2011 12:07:44 GMT (1297771664)
   by: kanto501
Updated: Tue, 15 Feb 2011 12:07:44 GMT (1297771664)
Assigned to: zegenie
Status: In progress
Description: I think it would be nice to see what version of Bug Genie you have installed li
 sometimes the engineer upgrades the system overnight and does not tell me.


Milestone: -
Category: -
Estimated time: -
Spent time: -
Percent complete: -
Priority: -

Comments:
Comment #1
Posted by: zegenie
Posted: Tue, 15 Feb 2011 12:26:25 GMT (1297772785)
Comment: The issue was updated with the following change(s):
* The status has been updated, from '''New''' to '''In progress'''.
* The assignee has been changed, from '''Not assigned''' to '''zegenie'''.
* Information about the user working on this issue has been changed, from '''Not being worke
----------

Comment #2
Posted by: zegenie
Posted: Tue, 15 Feb 2011 12:26:30 GMT (1297772790)
Comment: In the meantime, you can go to /about to see the version number.
----------
```

Command Line Interface (CLI): Advantages vs Disadvantages



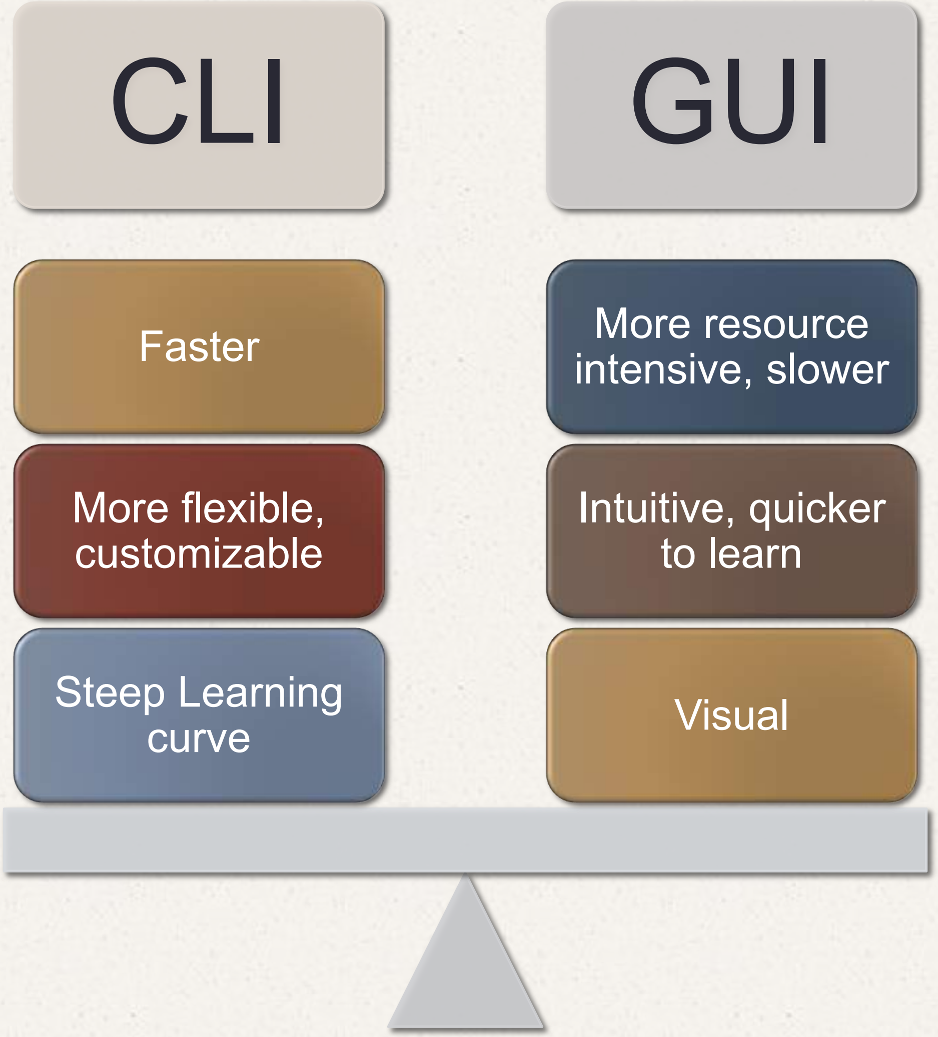
CLI

- More flexible, customizable
- Steep Learning curve

GUI

- More resource intensive, slower
- Intuitive, quick to learn
- Visual

Command Line Interface (CLI): Advantages vs Disadvantages



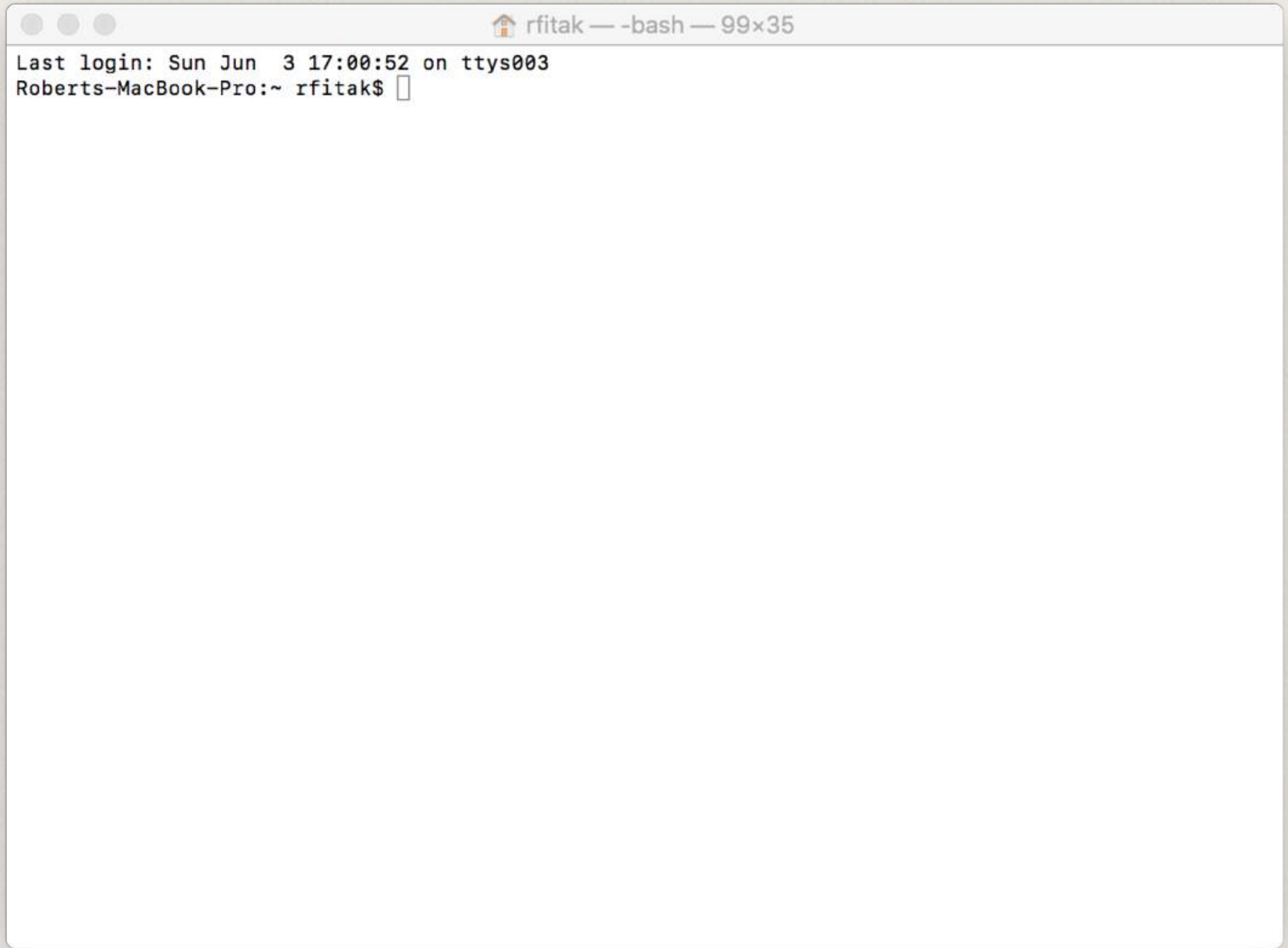
CLI

- Faster
- More flexible, customizable
- Steep Learning curve

GUI

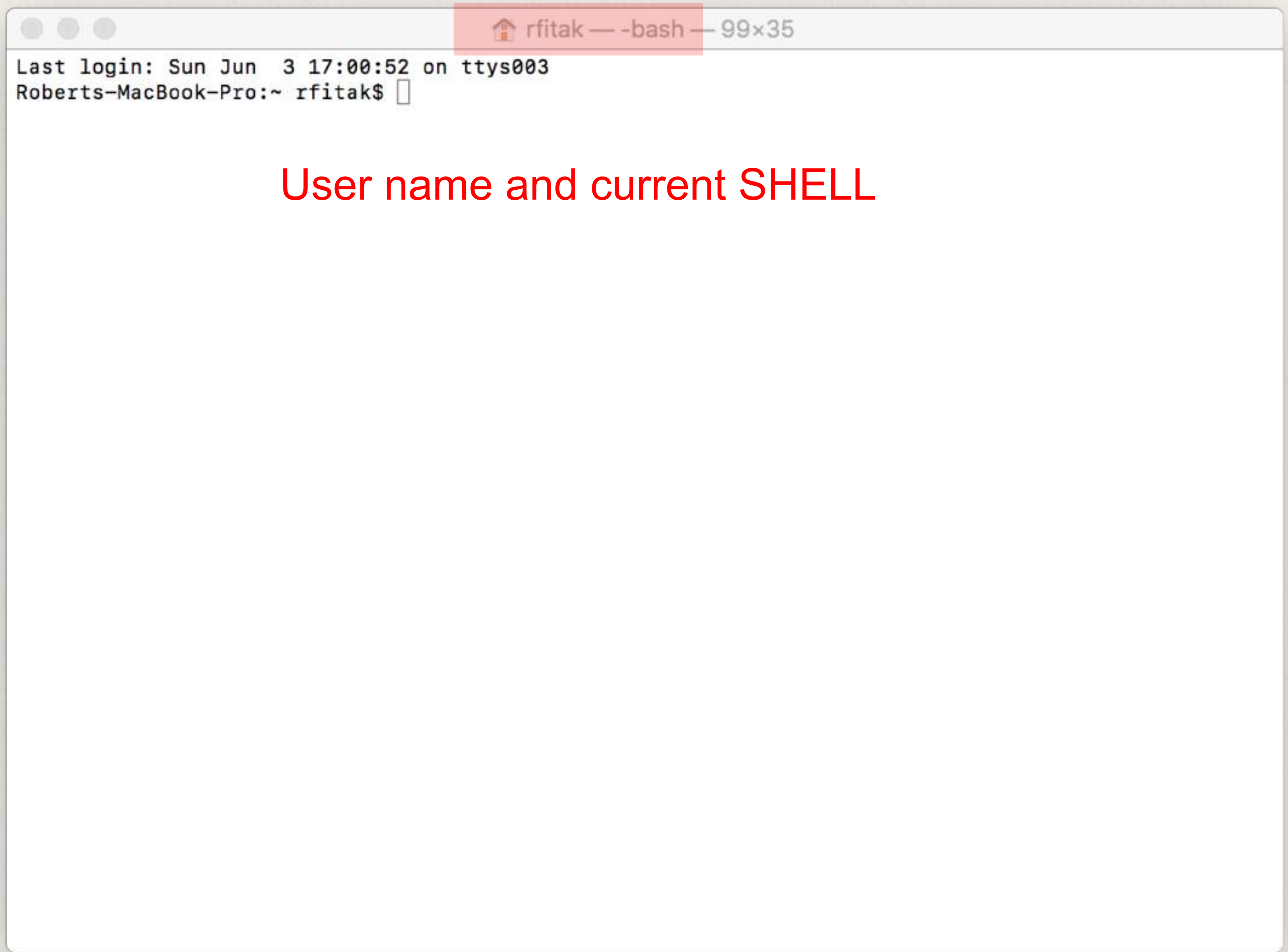
- More resource intensive, slower
- Intuitive, quicker to learn
- Visual

The terminal



```
Last login: Sun Jun  3 17:00:52 on ttys003
Roberts-MacBook-Pro:~ rfitak$ 
```

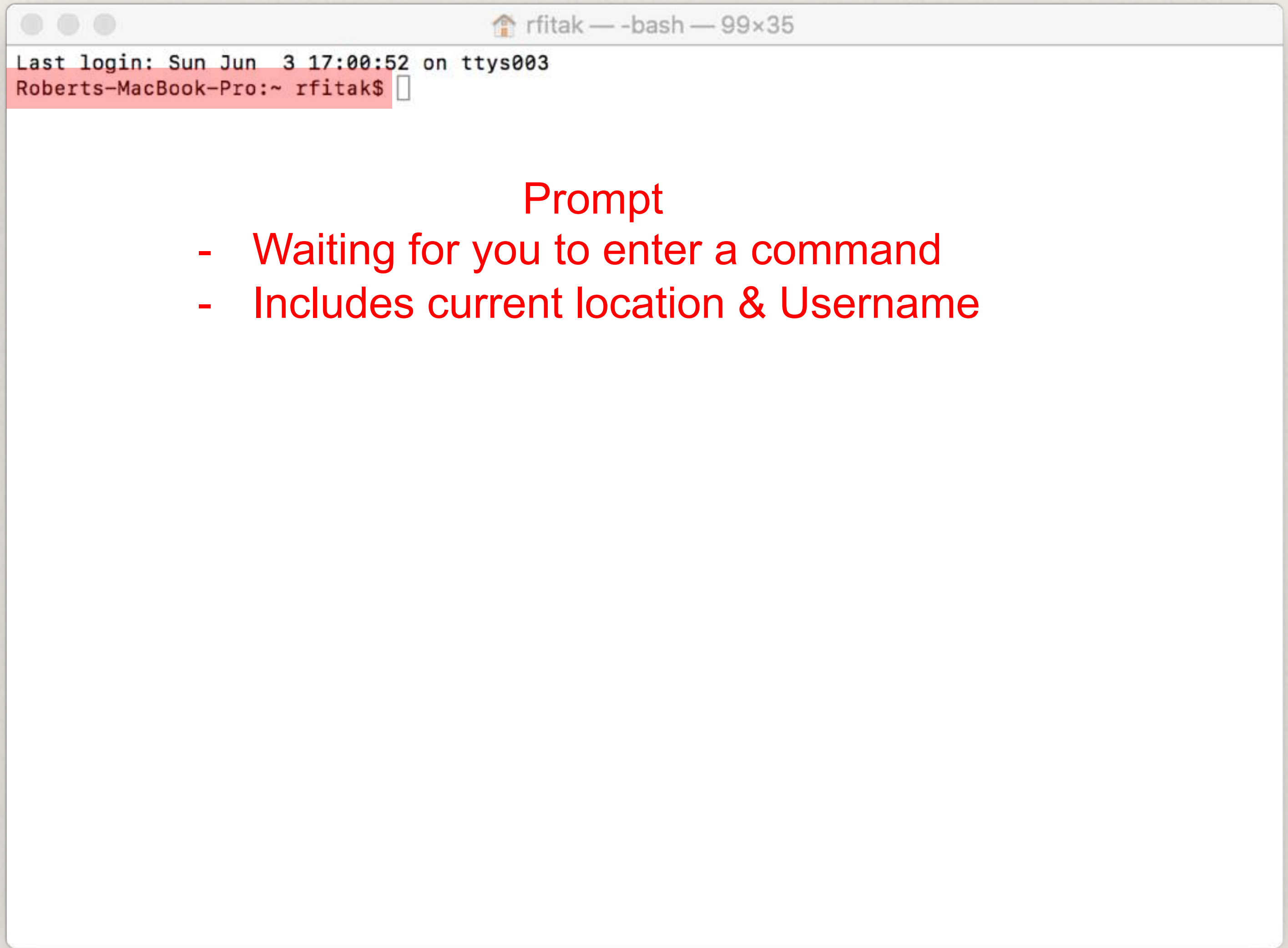
The terminal



```
Last login: Sun Jun  3 17:00:52 on ttys003
Roberts-MacBook-Pro:~ rfitak$ 
```

User name and current SHELL

The terminal

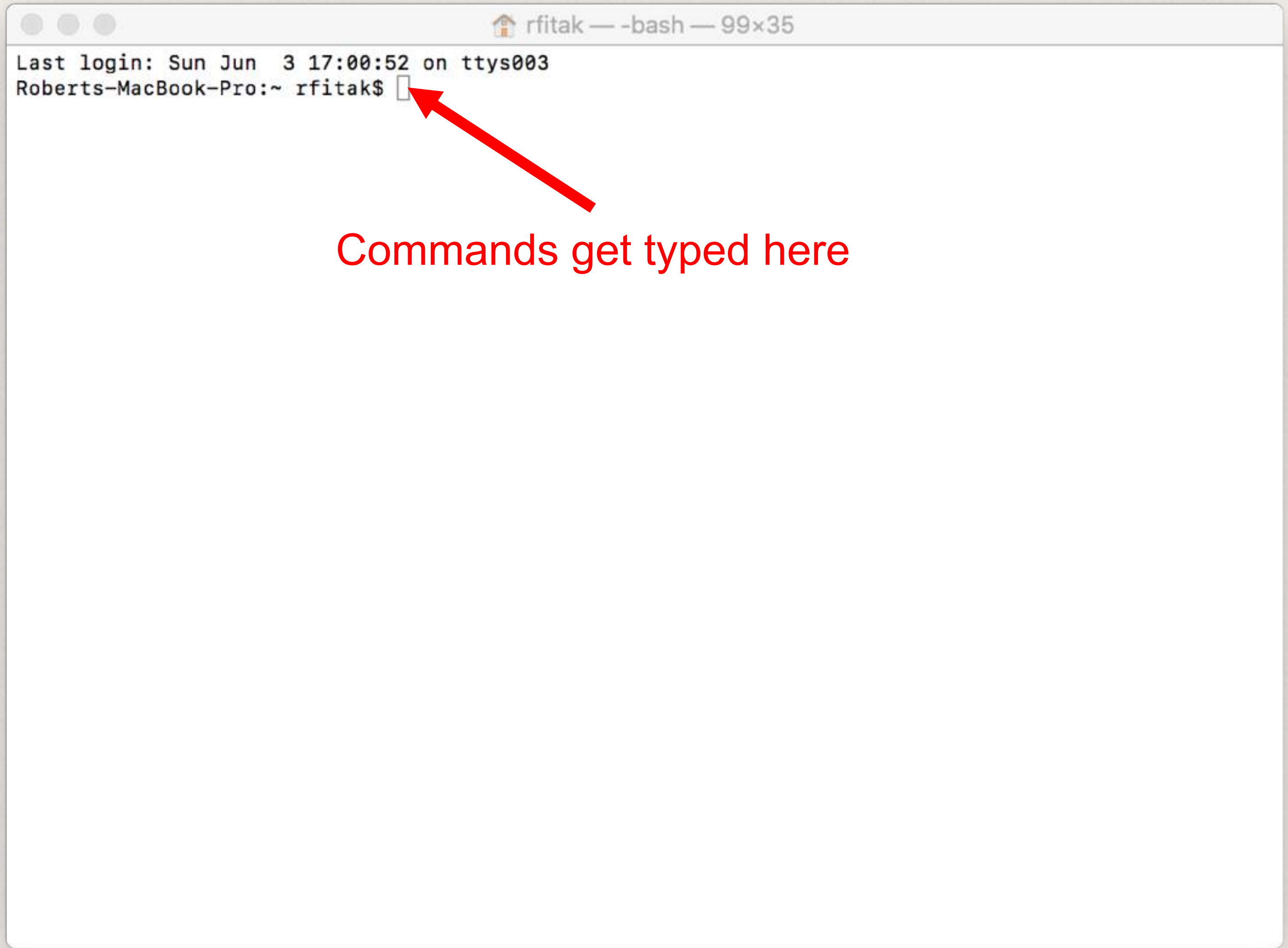


```
Last login: Sun Jun  3 17:00:52 on ttys003
Roberts-MacBook-Pro:~ rfitak$ 
```

Prompt

- Waiting for you to enter a command
- Includes current location & Username

The terminal



```
Last login: Sun Jun  3 17:00:52 on ttys003
Roberts-MacBook-Pro:~ rfitak$ 
```

Commands get typed here

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:

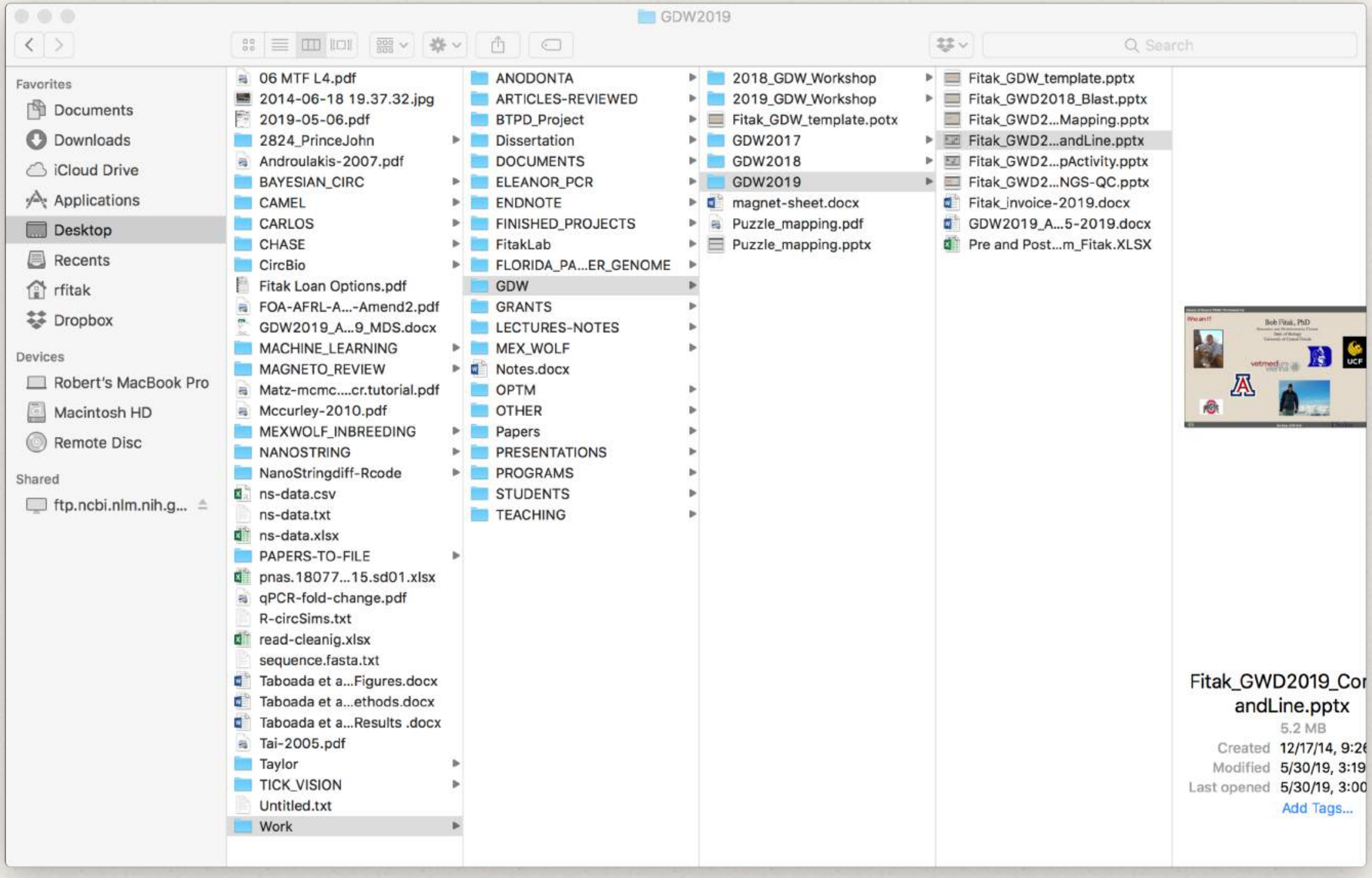
command options(s) filename(s)

- 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.

Navigating your computer

with the command line

Navigating your computer


GDW2019
Search
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Downloads
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Applications
Desktop
Recents
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Dropbox
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Robert's MacBook Pro
Macintosh HD
Remote Disc
Shared
ftp.ncbi.nlm.nih.g...

- 06 MTF L4.pdf
- 2014-06-18 19.37.32.jpg
- 2019-05-06.pdf
- 2824_PrinceJohn
- Androulakis-2007.pdf
- BAYESIAN_CIRC
- CAMEL
- CARLOS
- CHASE
- CircBio
- Fitak Loan Options.pdf
- FOA-AFRL-A...-Amend2.pdf
- GDW2019_A...9_MDS.docx
- MACHINE_LEARNING
- MAGNETO_REVIEW
- Matz-mcmc....cr.tutorial.pdf
- Mccurley-2010.pdf
- MEXWOLF_INBREEDING
- NANOSTRING
- NanoStringdiff-Rcode
- ns-data.csv
- ns-data.txt
- ns-data.xlsx
- PAPERS-TO-FILE
- pnas.18077...15.sd01.xlsx
- qPCR-fold-change.pdf
- R-circSims.txt
- read-cleanig.xlsx
- sequence.fasta.txt
- Taboada et a...Figures.docx
- Taboada et a...ethods.docx
- Taboada et a...Results .docx
- Tai-2005.pdf
- Taylor
- TICK_VISION
- Untitled.txt
- Work

- ANODONTA
- ARTICLES-REVIEWED
- BTPD_Project
- Dissertation
- DOCUMENTS
- ELEANOR_PCR
- ENDNOTE
- FINISHED_PROJECTS
- FitakLab
- FLORIDA_PA...ER_GENOME
- GDW
- GRANTS
- LECTURES-NOTES
- MEX_WOLF
- Notes.docx
- OPTM
- OTHER
- Papers
- PRESENTATIONS
- PROGRAMS
- STUDENTS
- TEACHING

- 2018_GDW_Workshop
- 2019_GDW_Workshop
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- GDW2017
- GDW2018
- GDW2019
- magnet-sheet.docx
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- Puzzle_mapping.pptx

- Fitak_GDW_template.pptx
- Fitak_GWD2018_Blast.pptx
- Fitak_GWD2...Mapping.pptx
- Fitak_GWD2...andLine.pptx
- Fitak_GWD2...pActivity.pptx
- Fitak_GWD2...NGS-QC.pptx
- Fitak_invoice-2019.docx
- GDW2019_A...5-2019.docx
- Pre and Post...m_Fitak.XLSX

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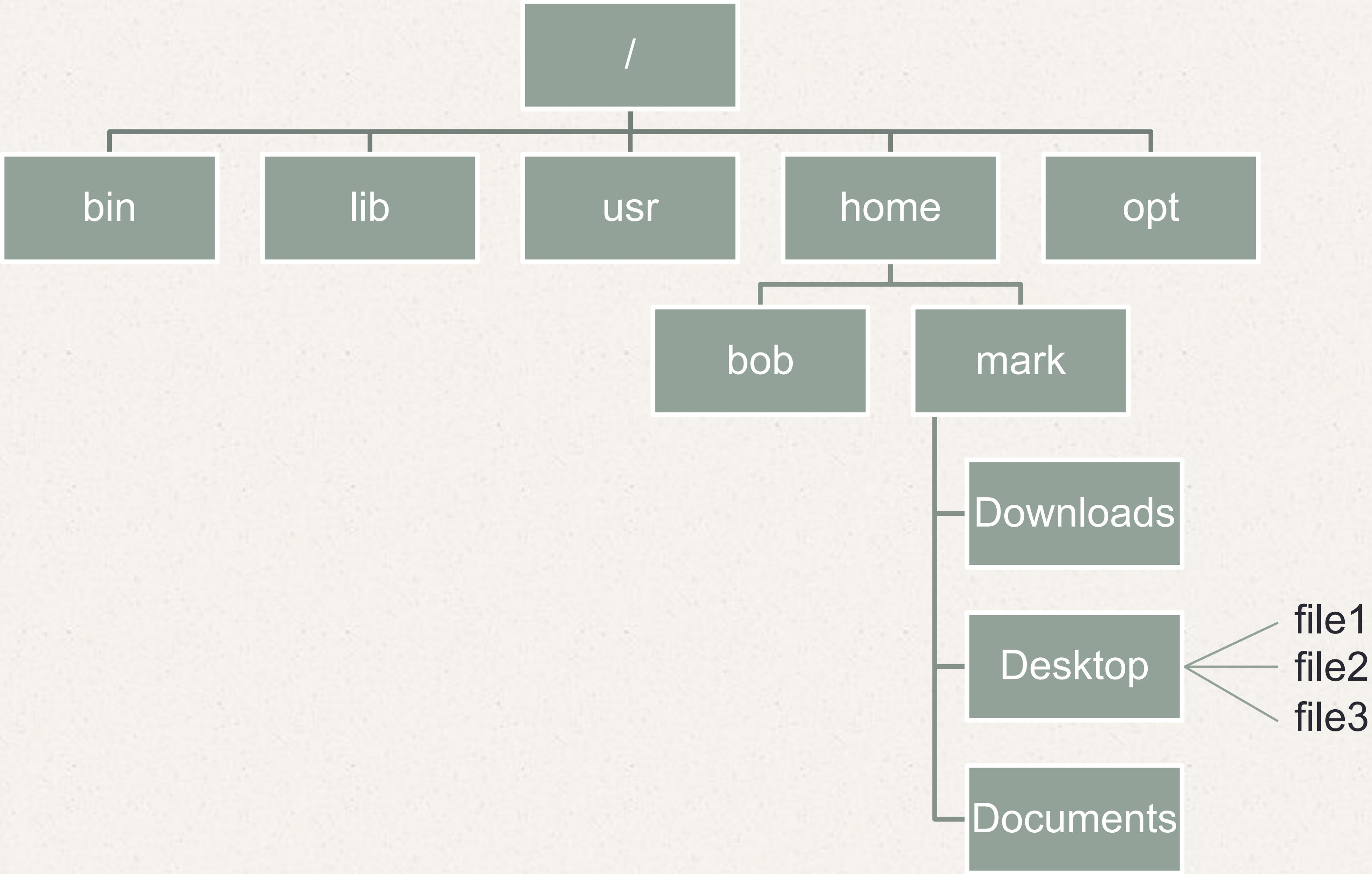
andLine.pptx
5.2 MB
Created 12/17/14, 9:2
Modified 5/30/19, 3:19
Last opened 5/30/19, 3:00
Add Tags...

The file system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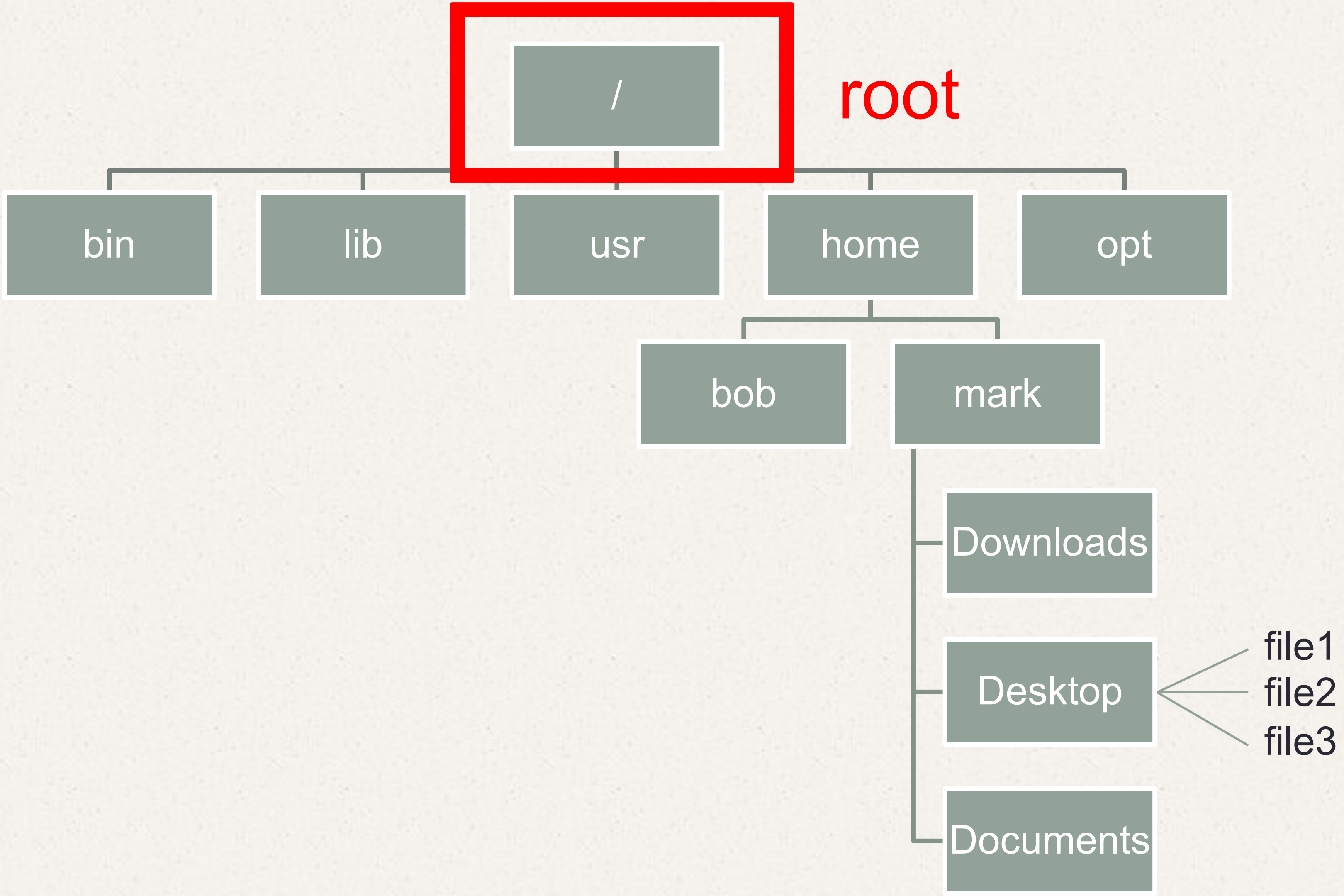
The file system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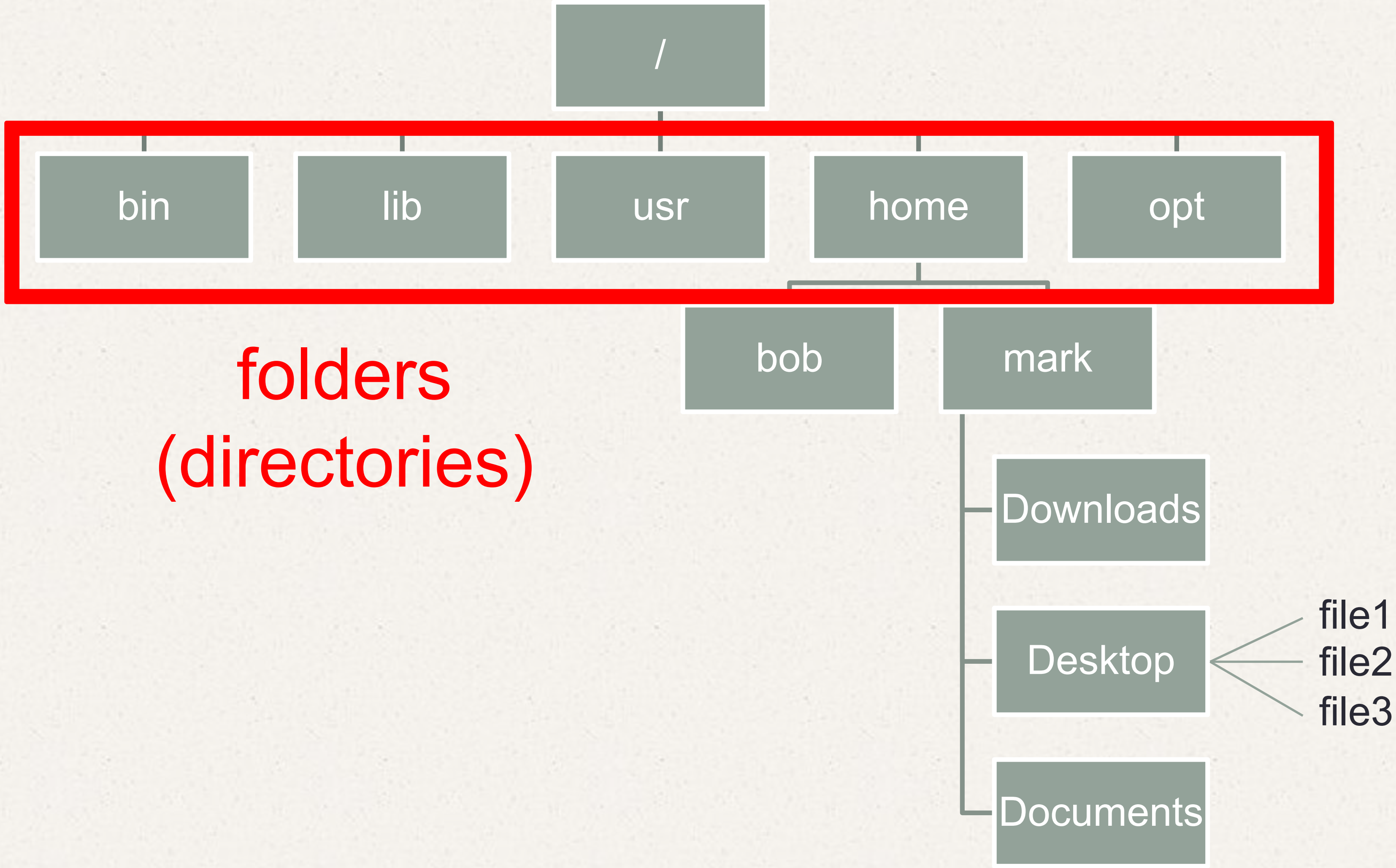
The file system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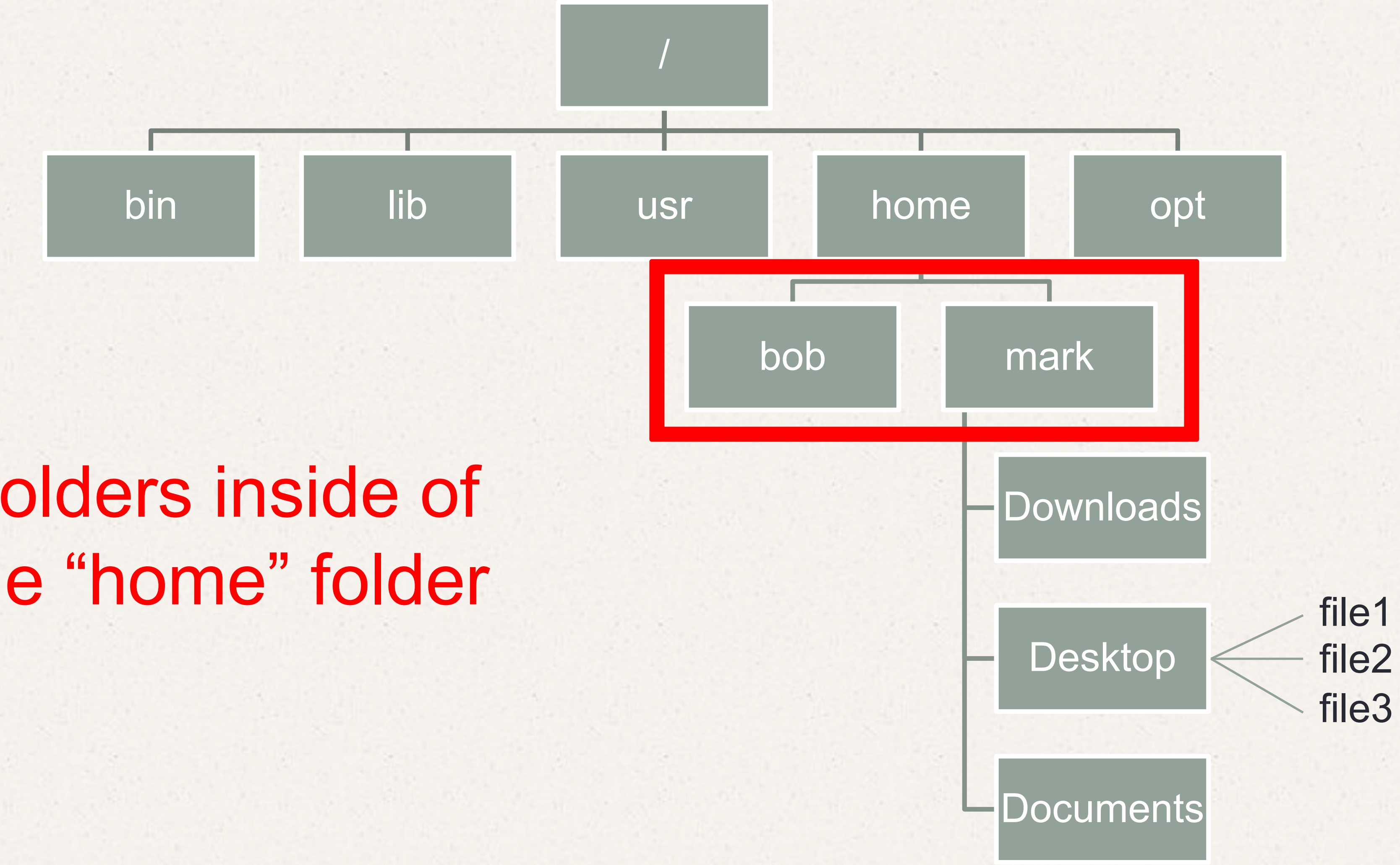
folders
(directories)

The file system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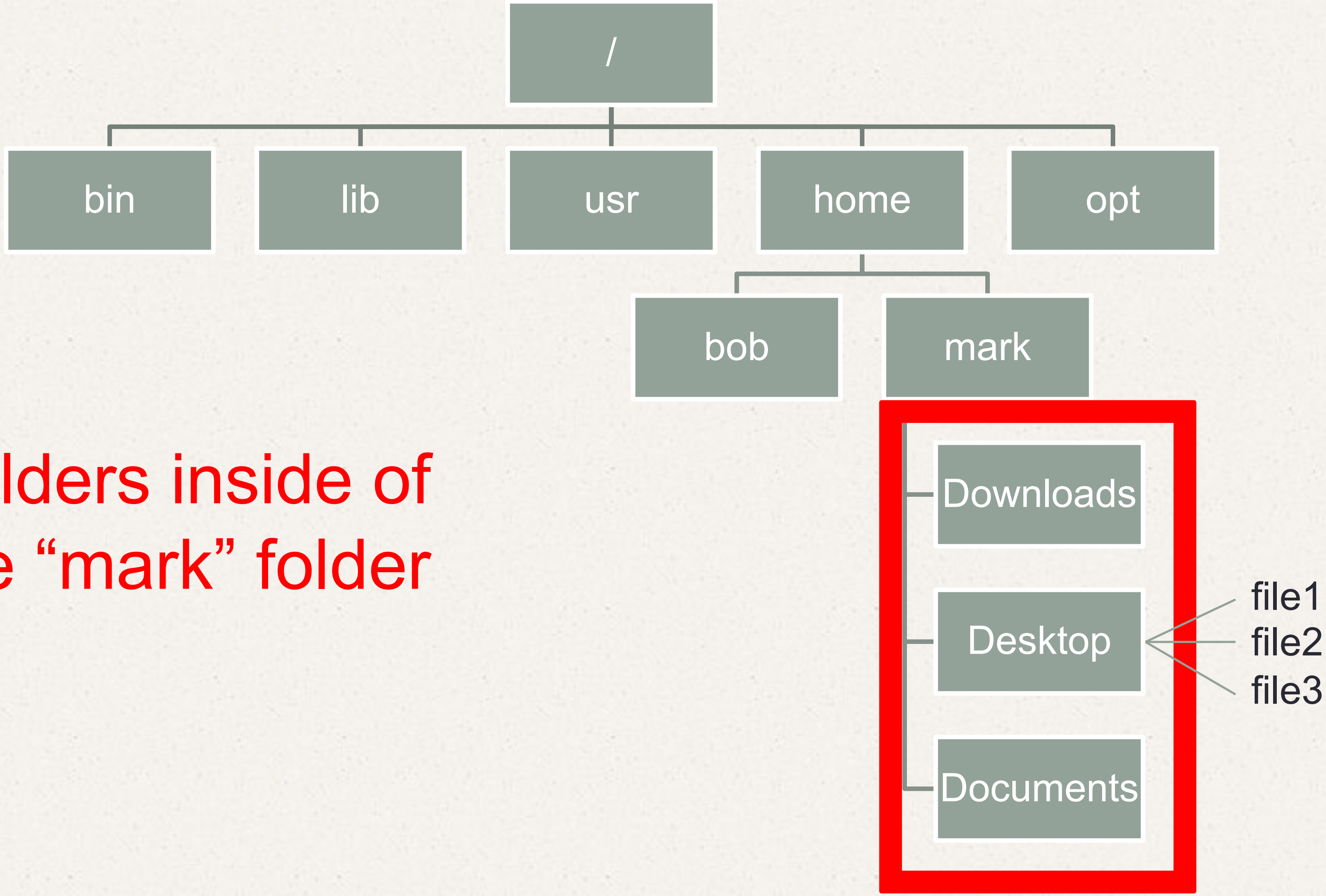
Folders inside of the “home” folder

The file system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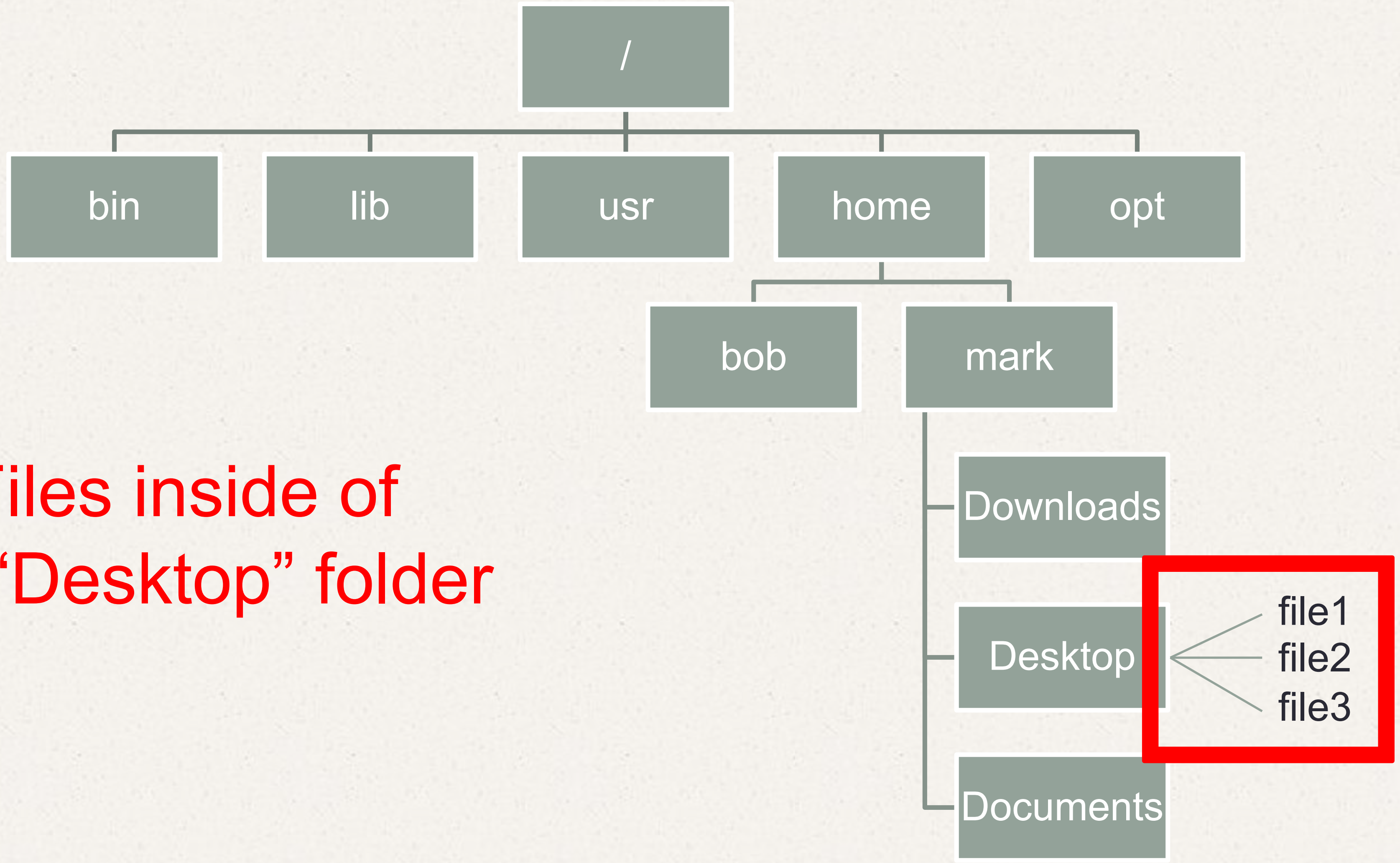
Folders inside of the “mark” folder

The file system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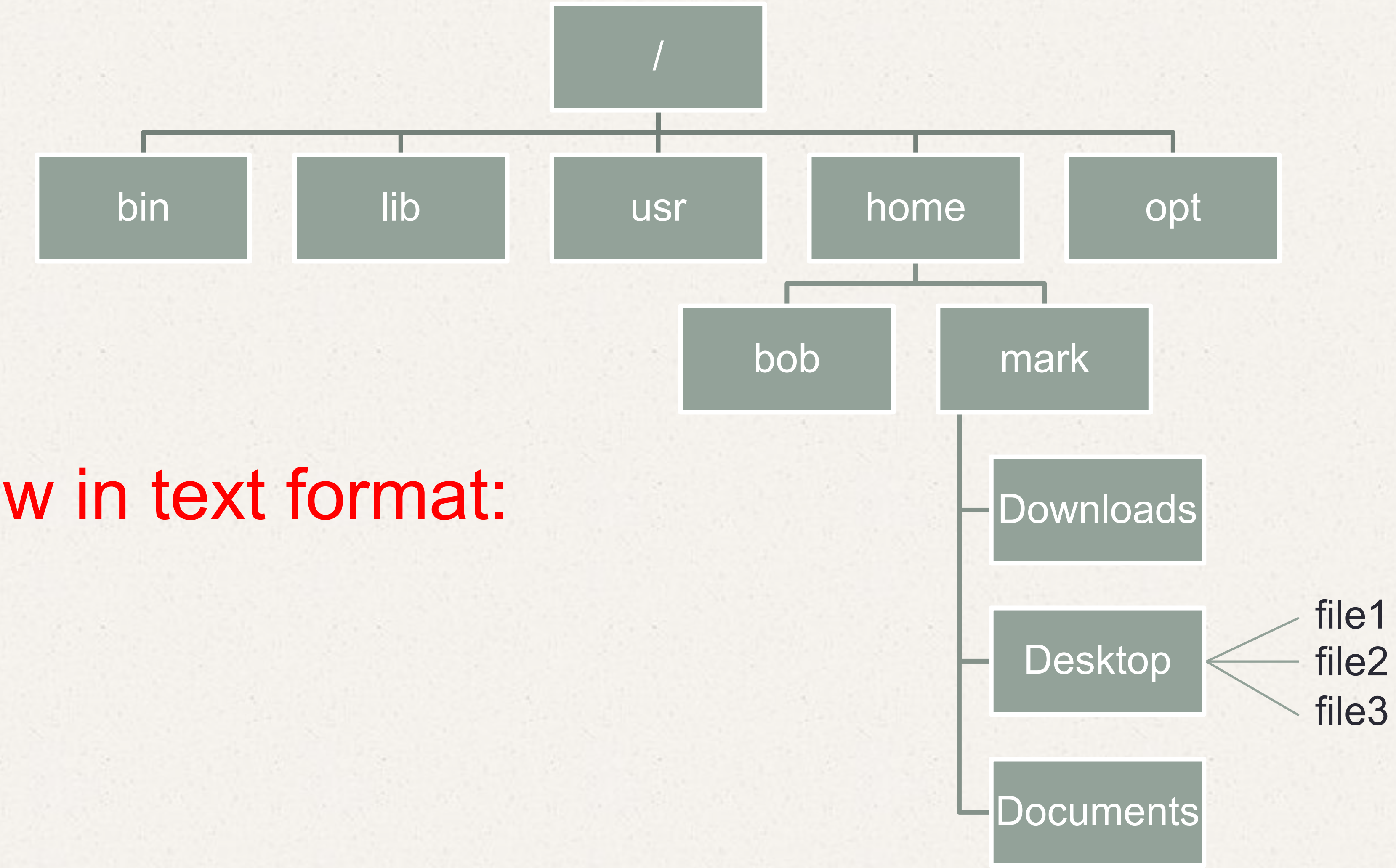
Files inside of the “Desktop” folder

The file system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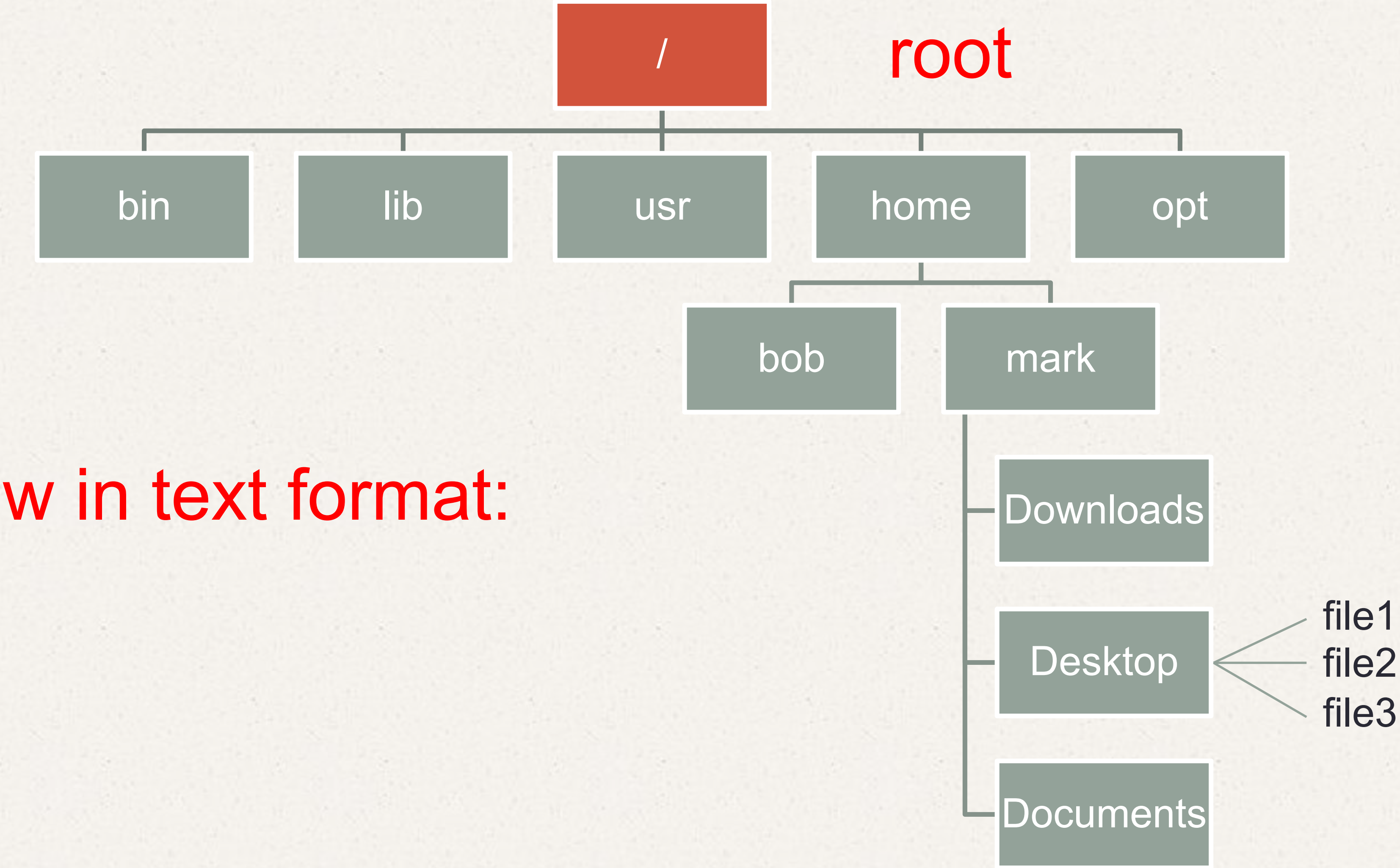
Now in text format:

The file system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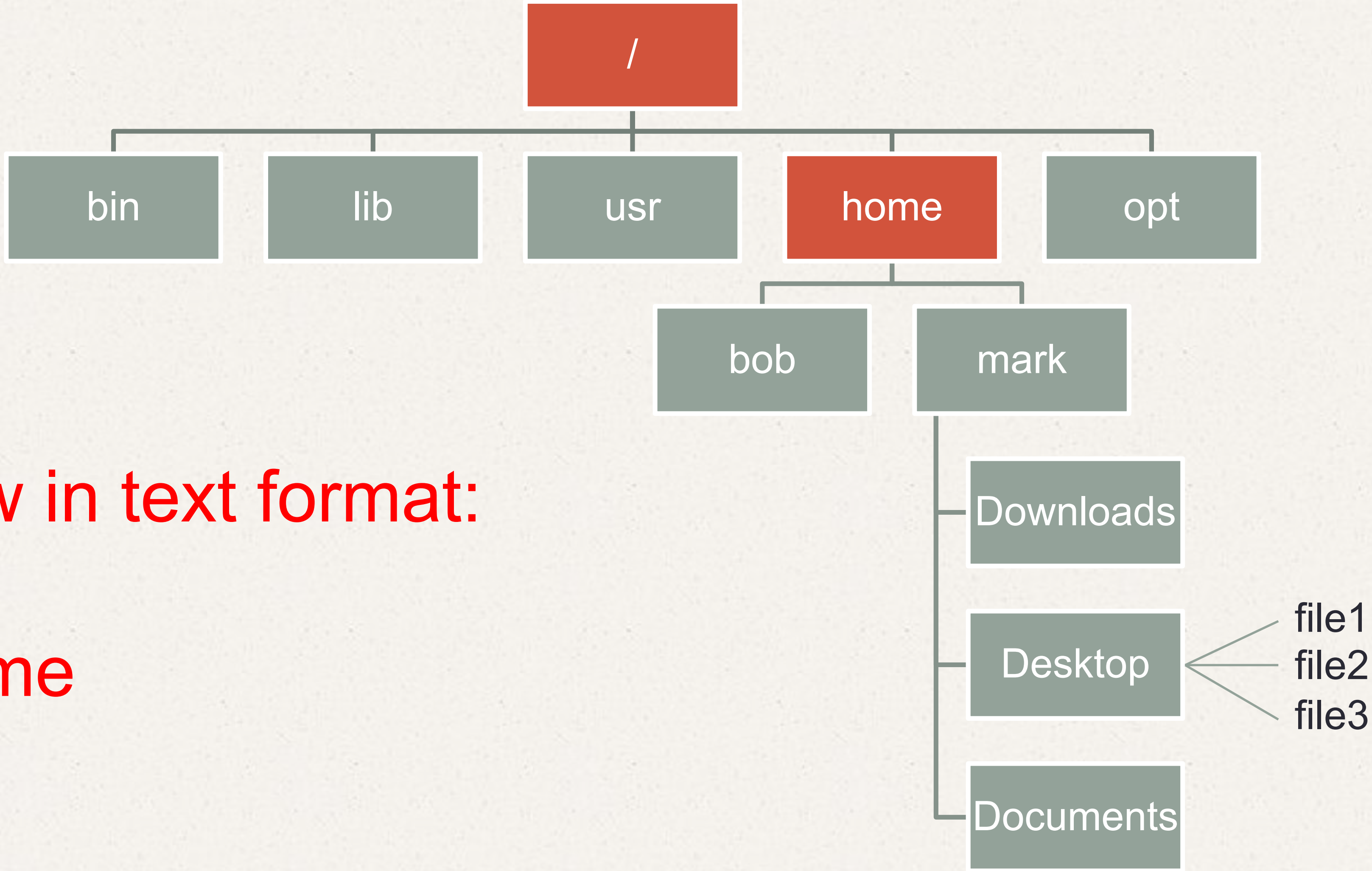
The file system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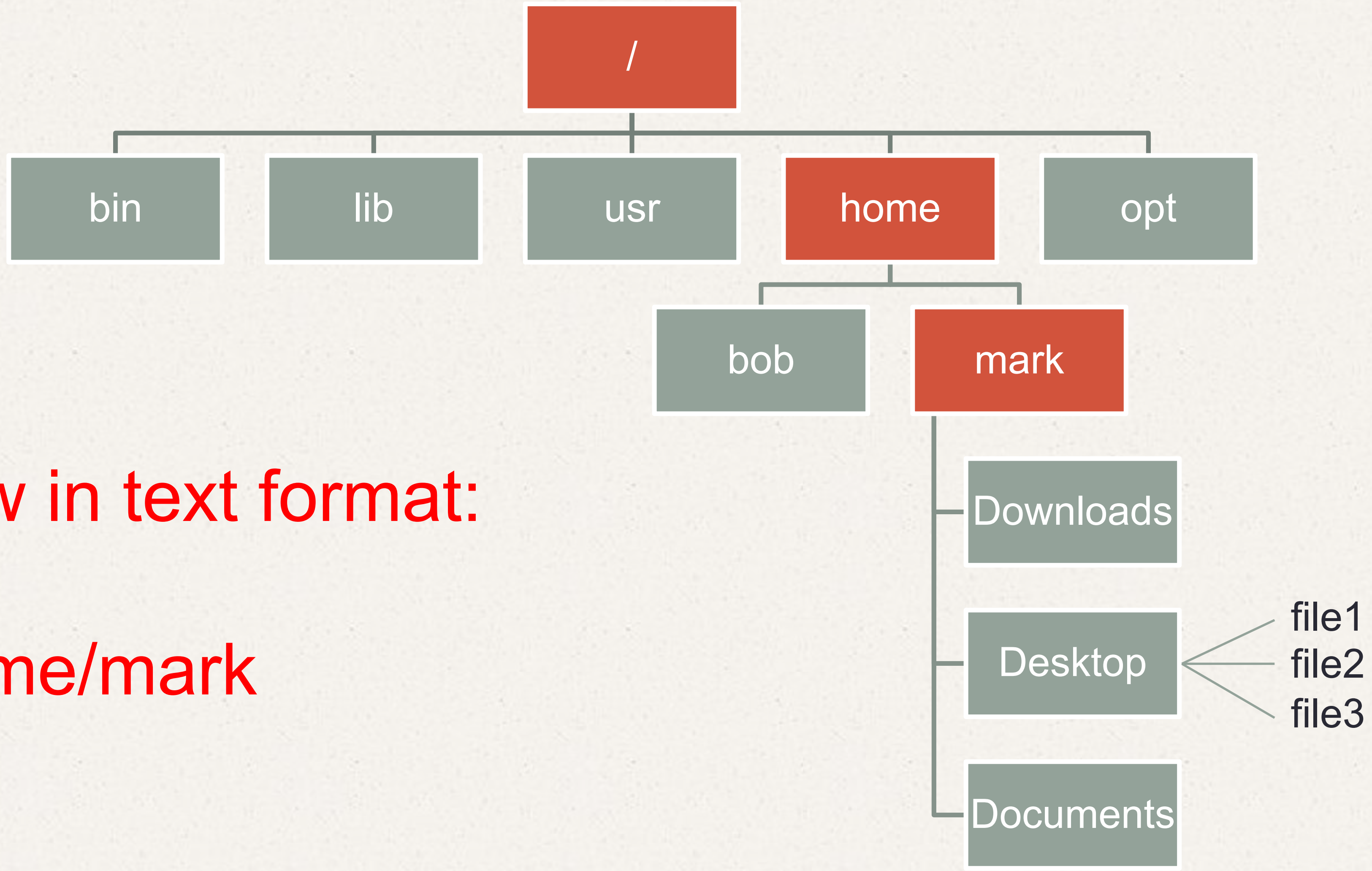
Now in text format:

/home

The file system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Now in text format:

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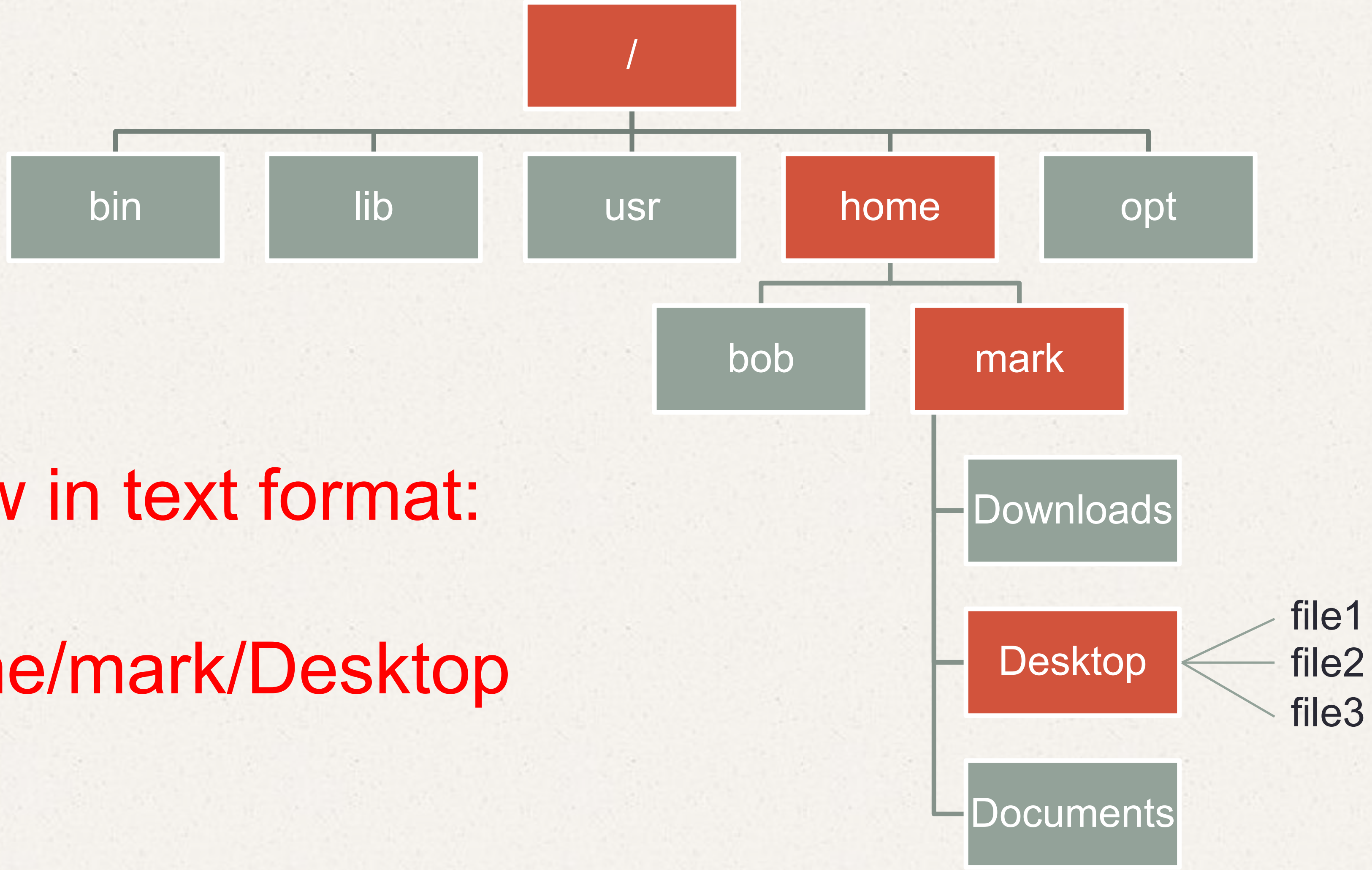
The file system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Now in text format:

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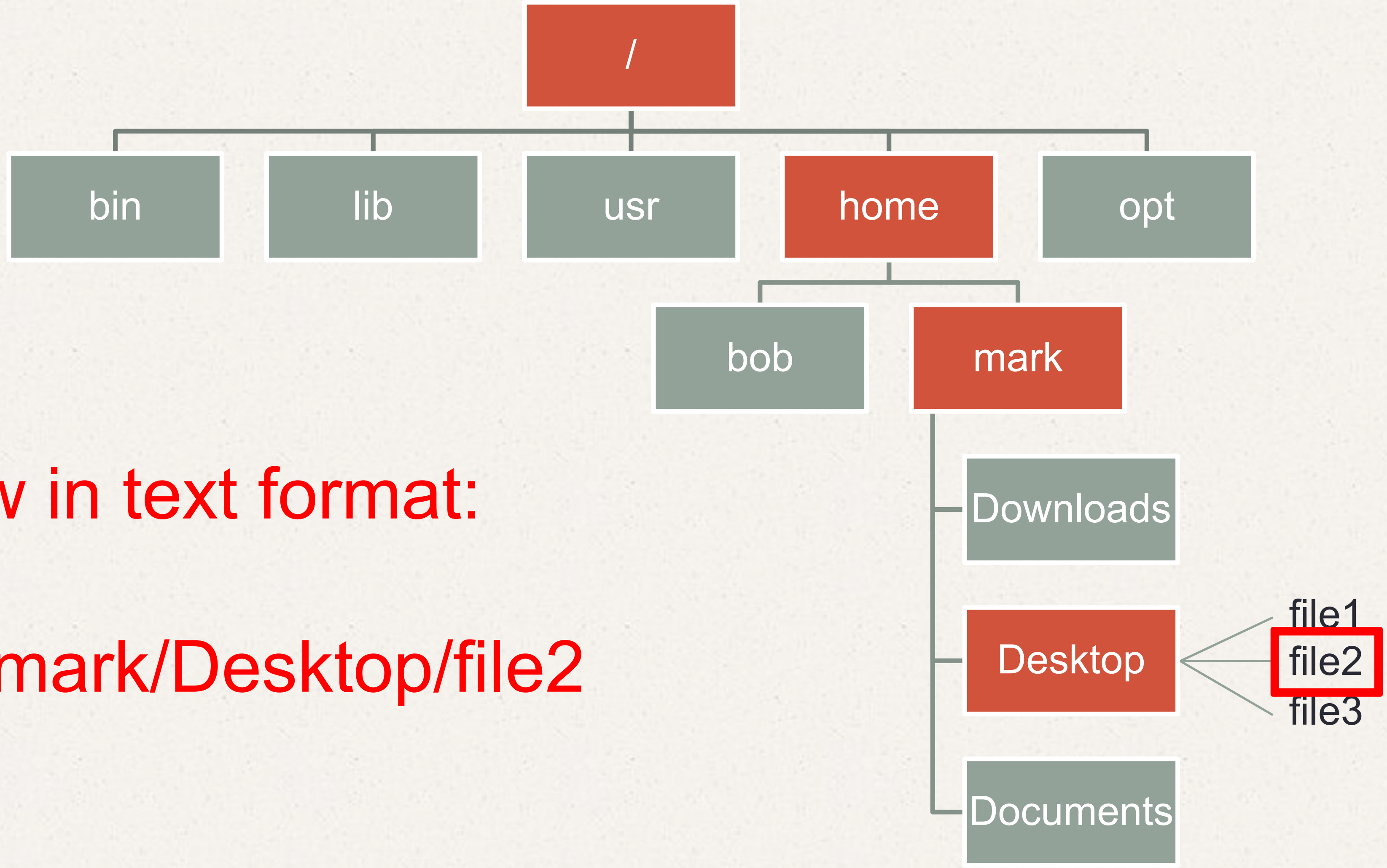
The file system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Now in text format:

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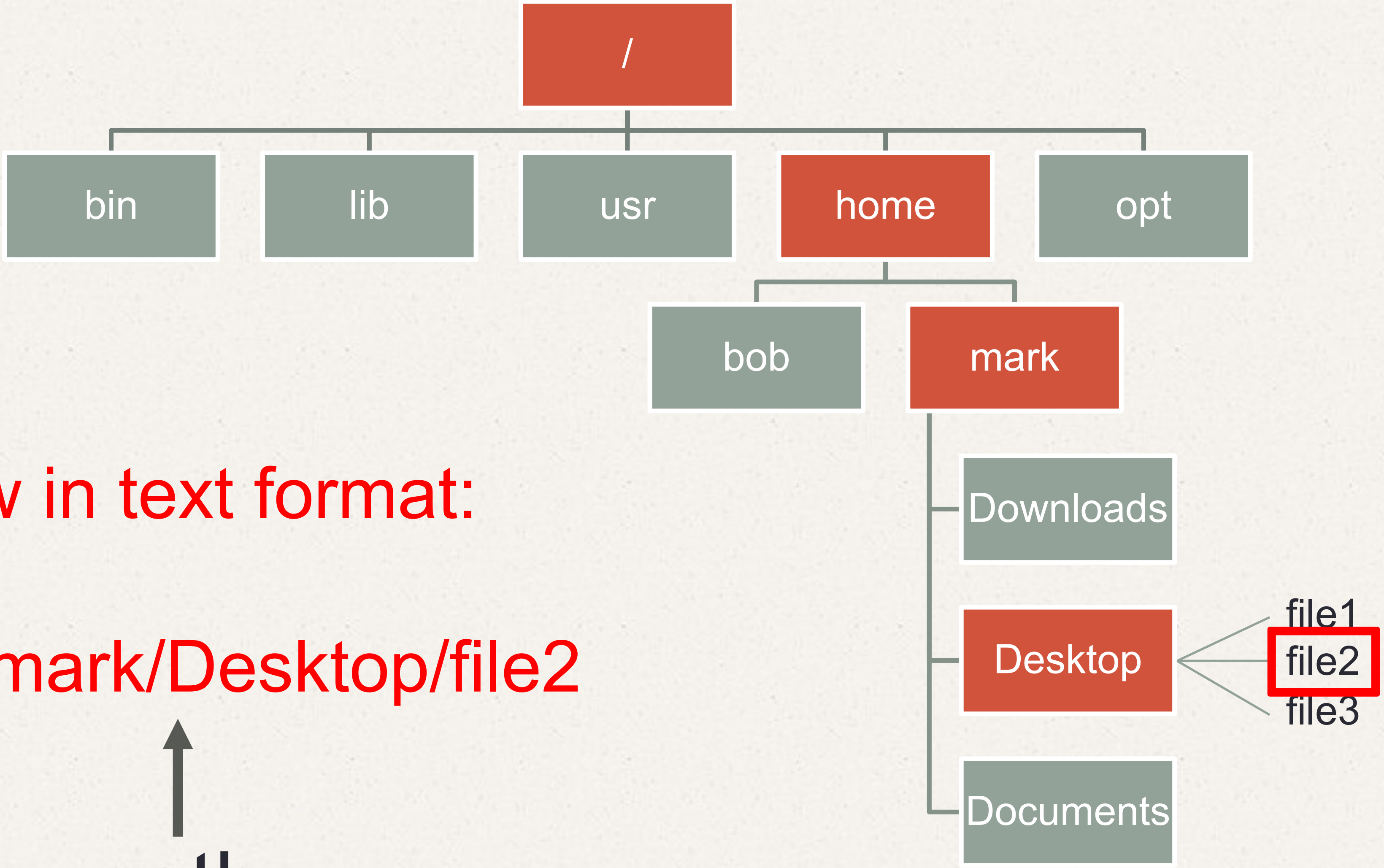
The file system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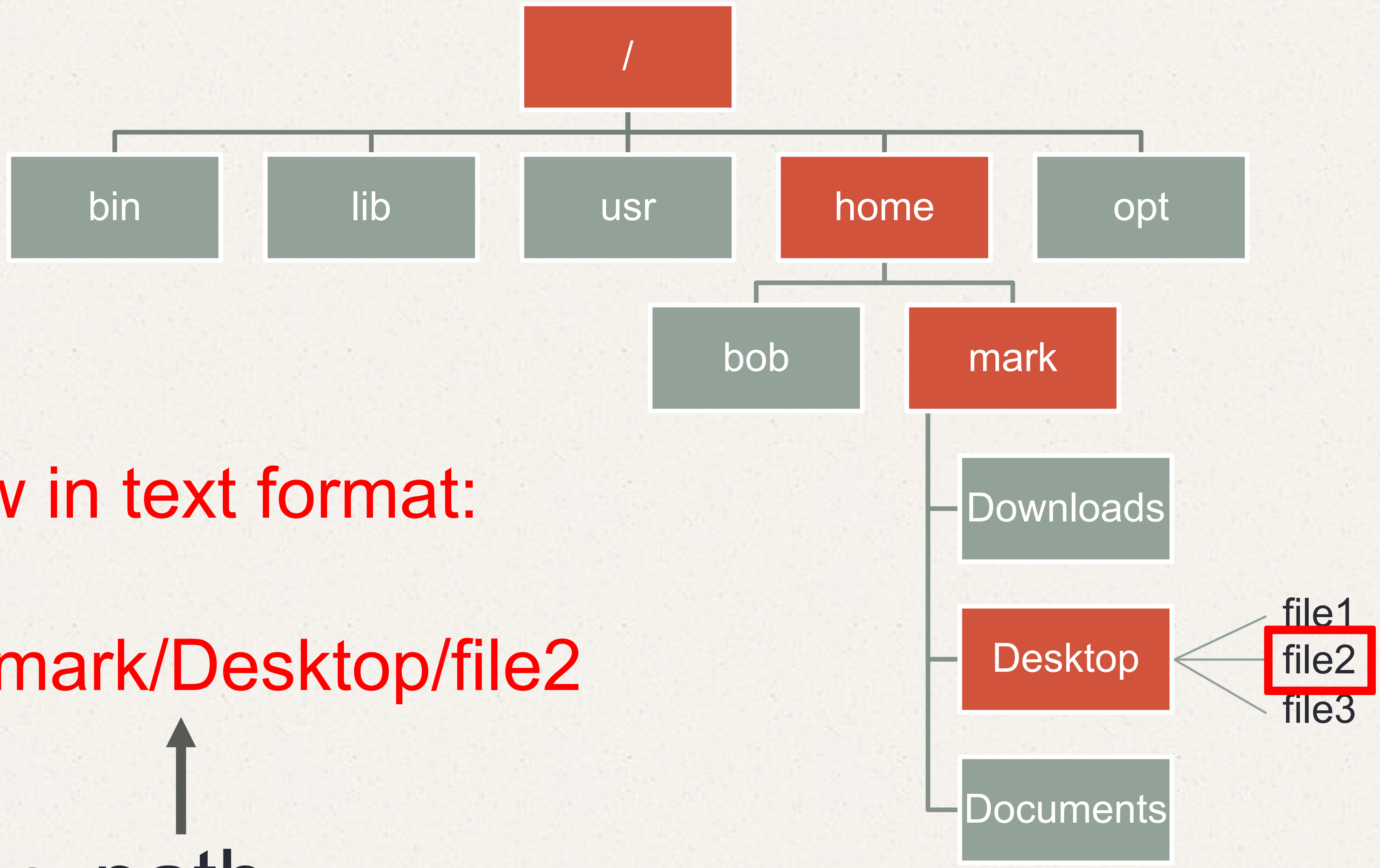
Now in text format:

/home/mark/Desktop/file2

↑

path

The file system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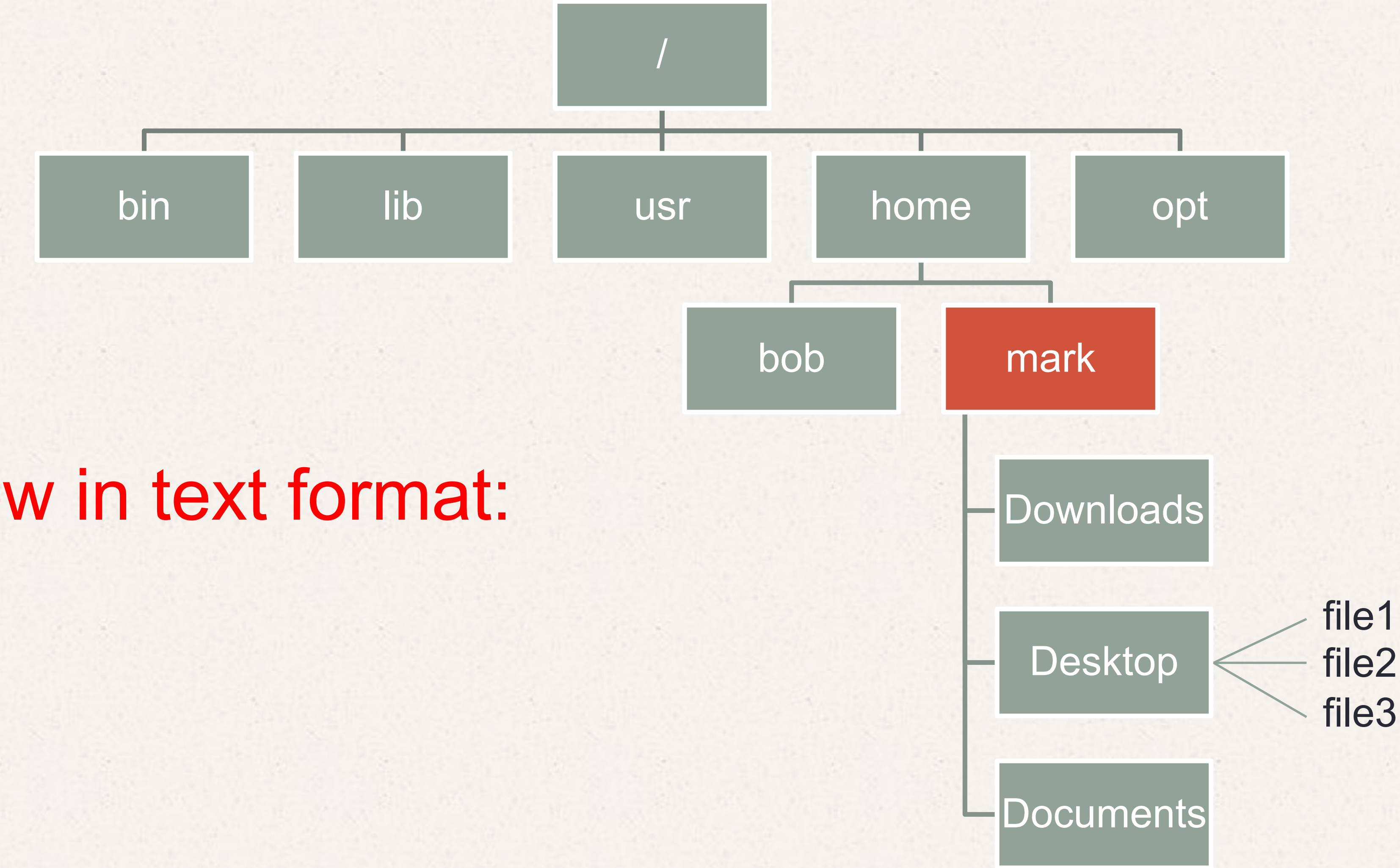
Now in text format:

/home/mark/Desktop/file2

↑

absolute path

The file system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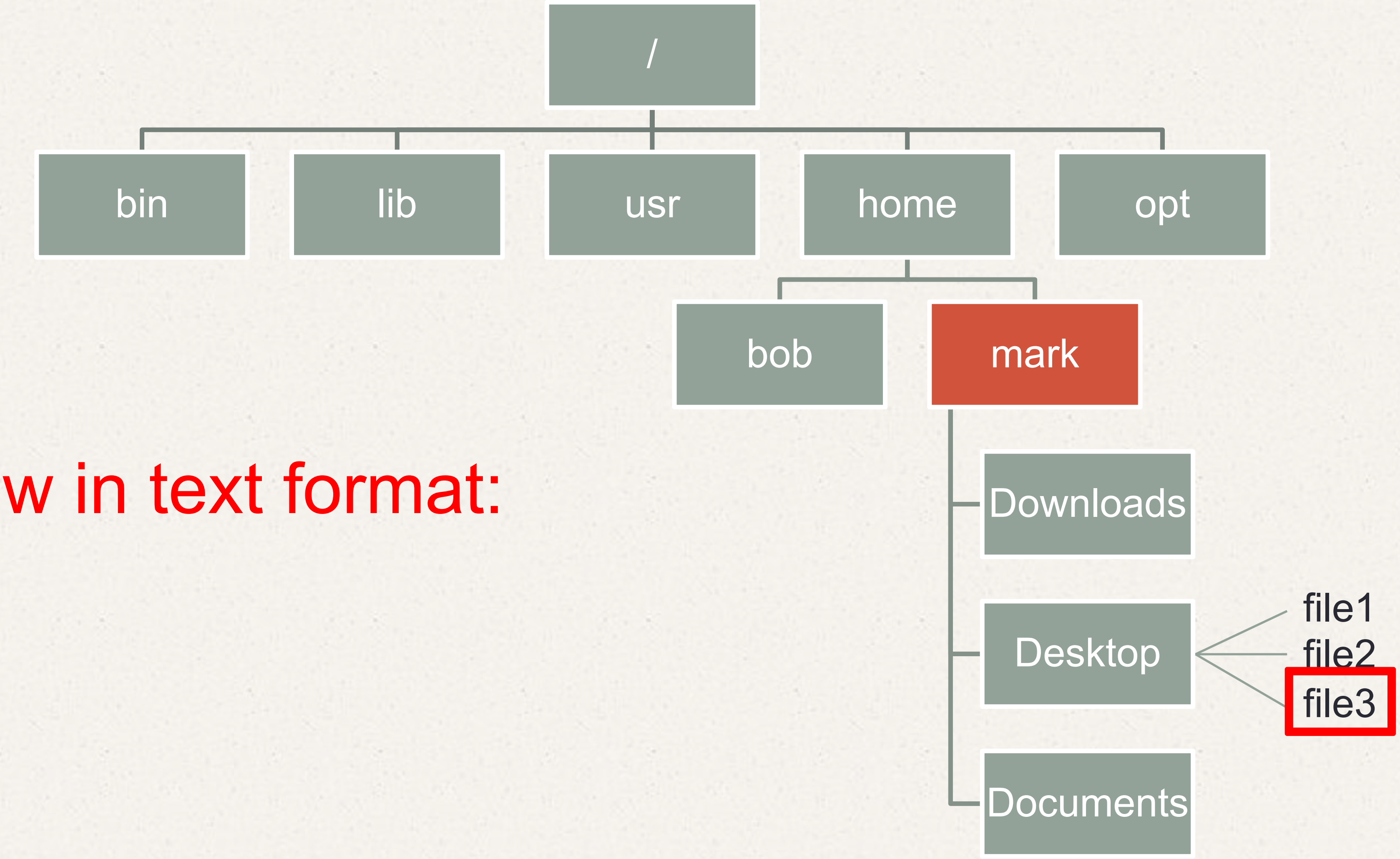
Now in text format:

The file system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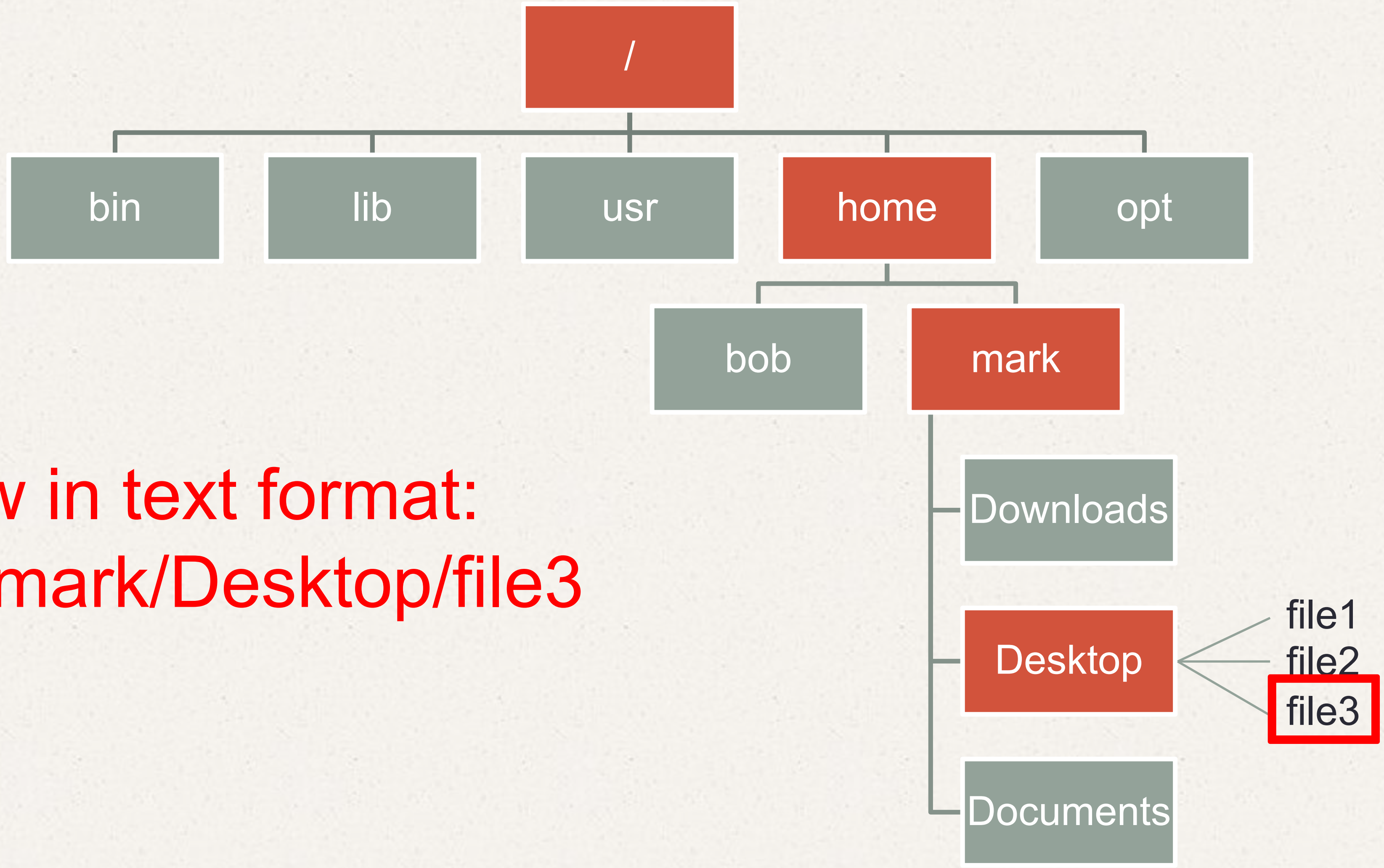
The file system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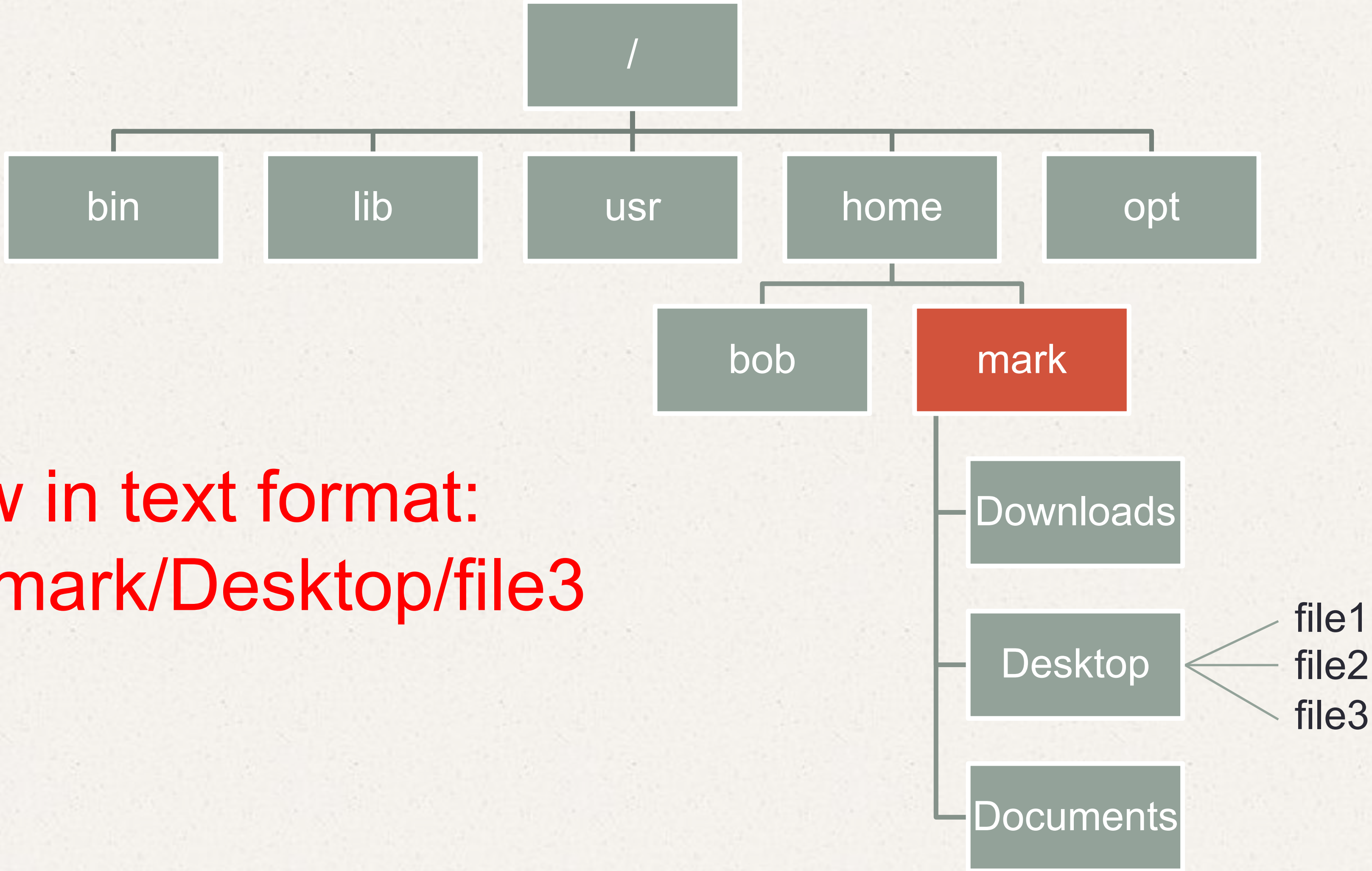
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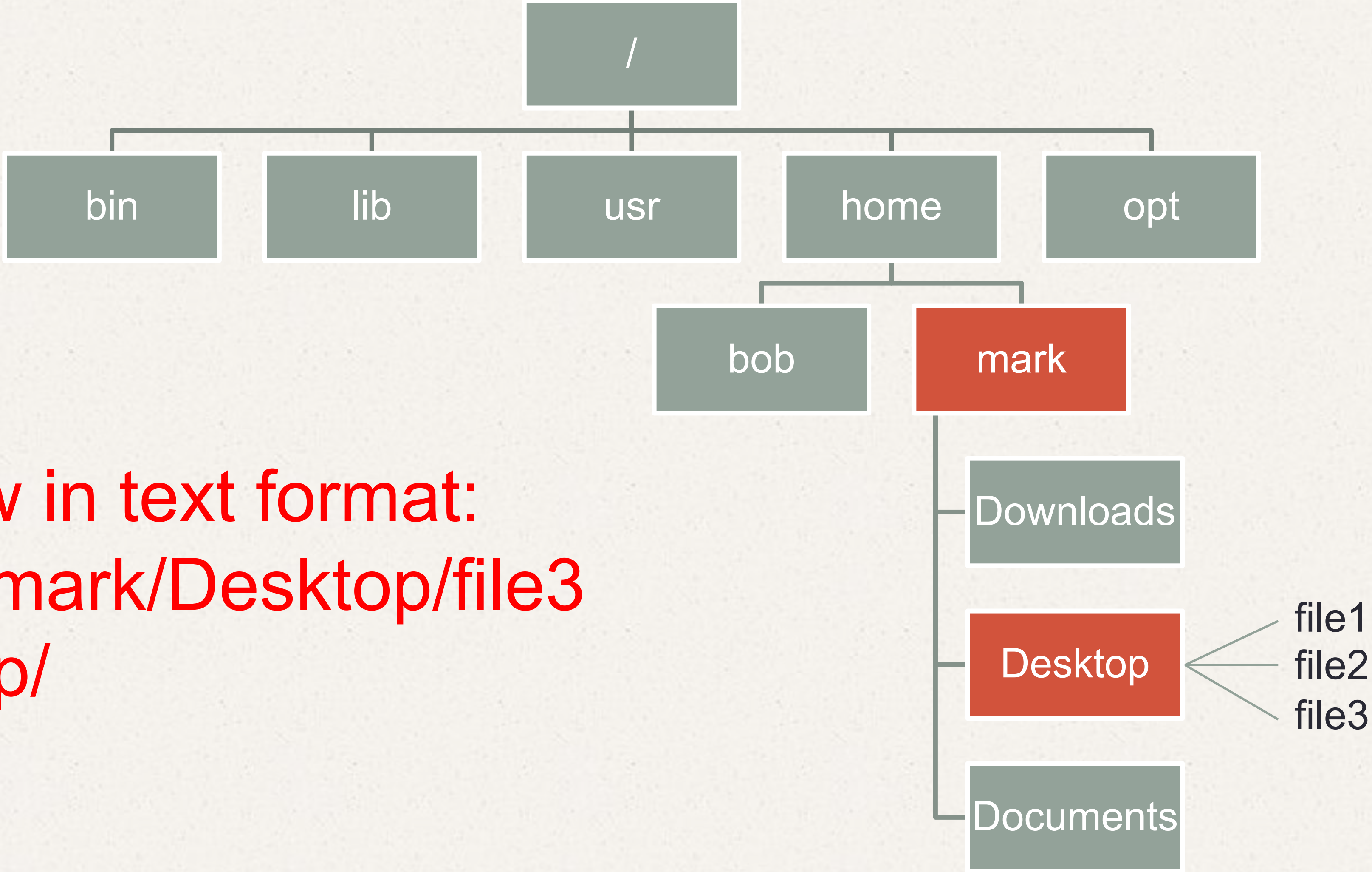
The file system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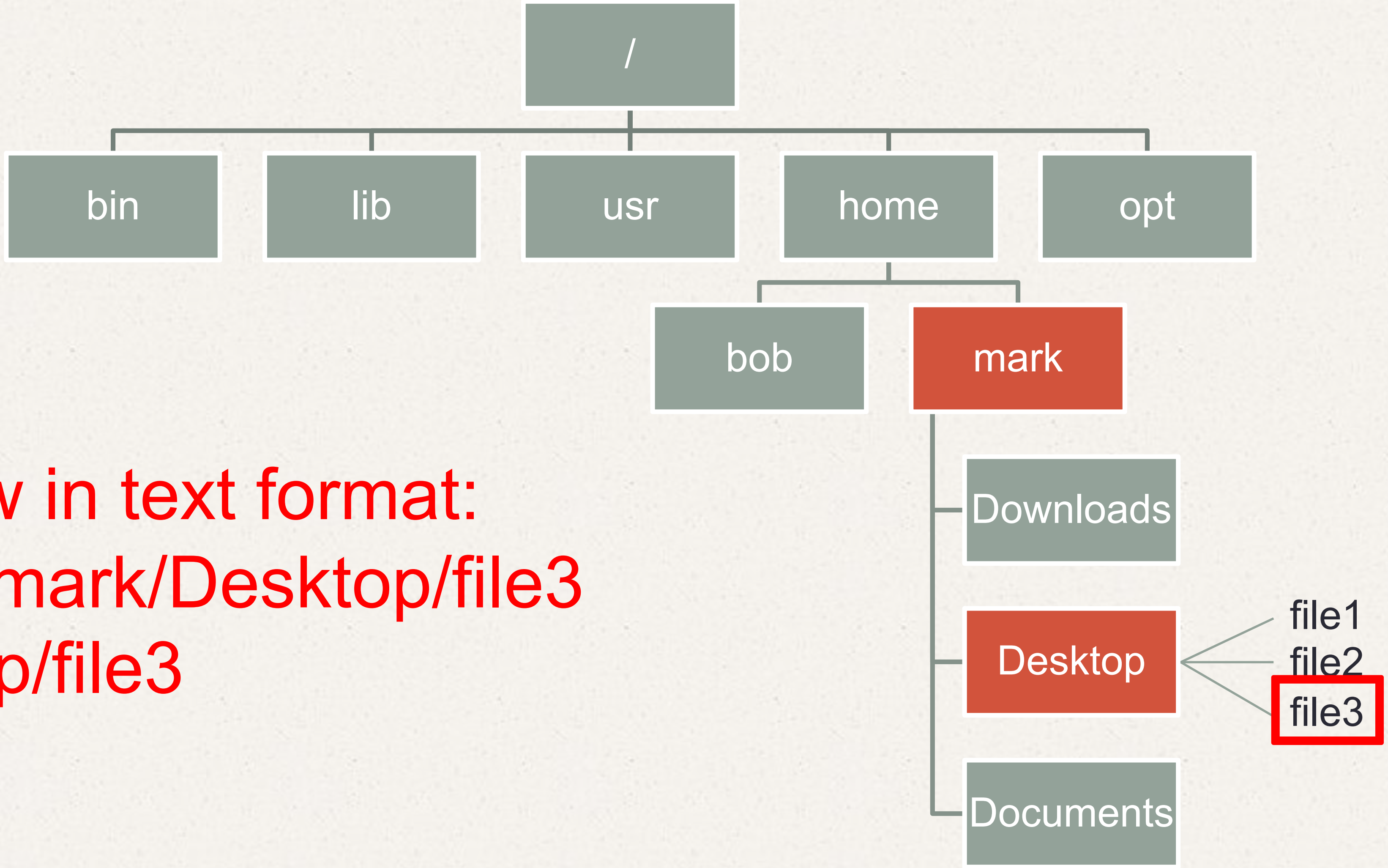
Desktop/

The file system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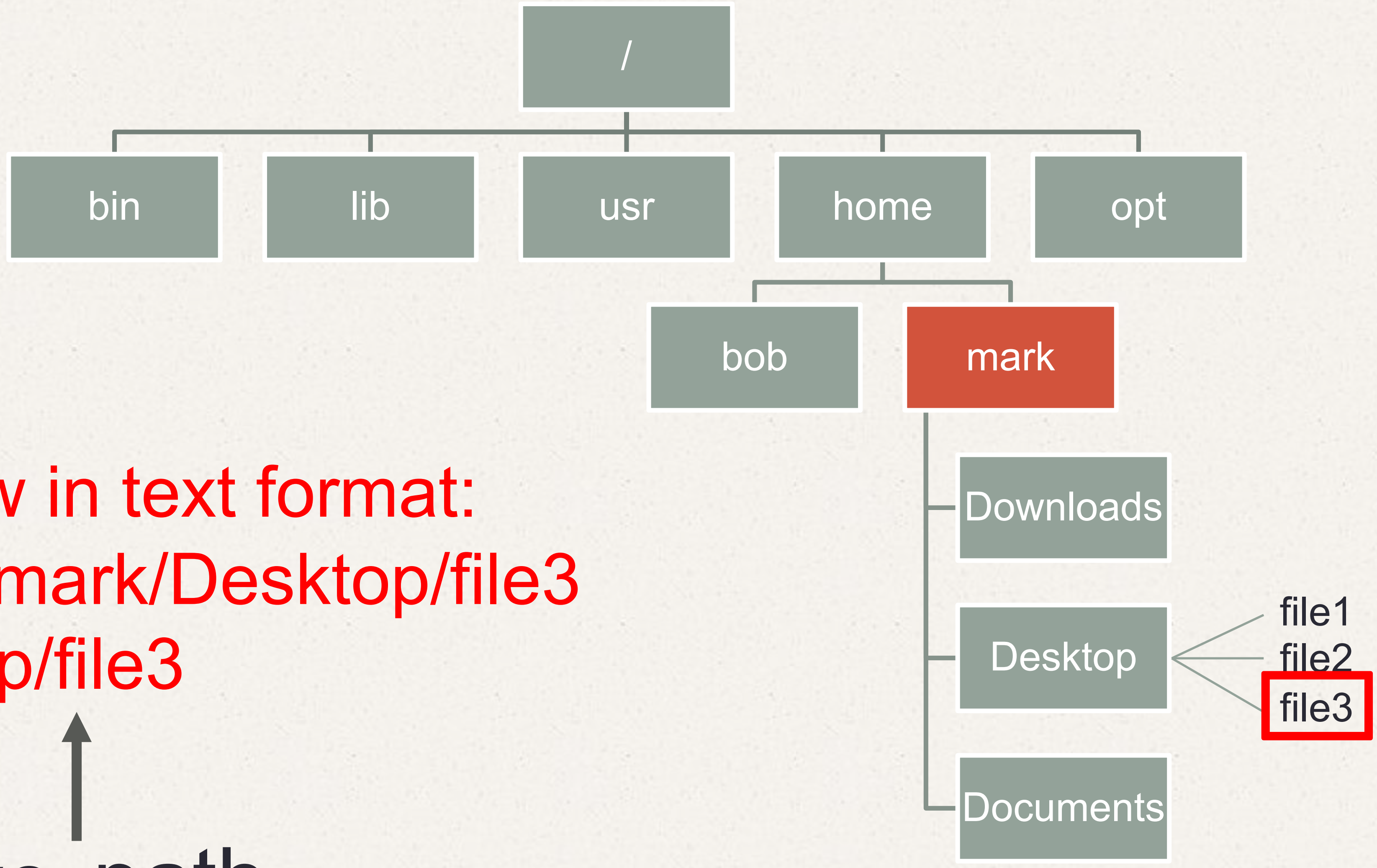
Desktop/file3

The file system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Now in text format:

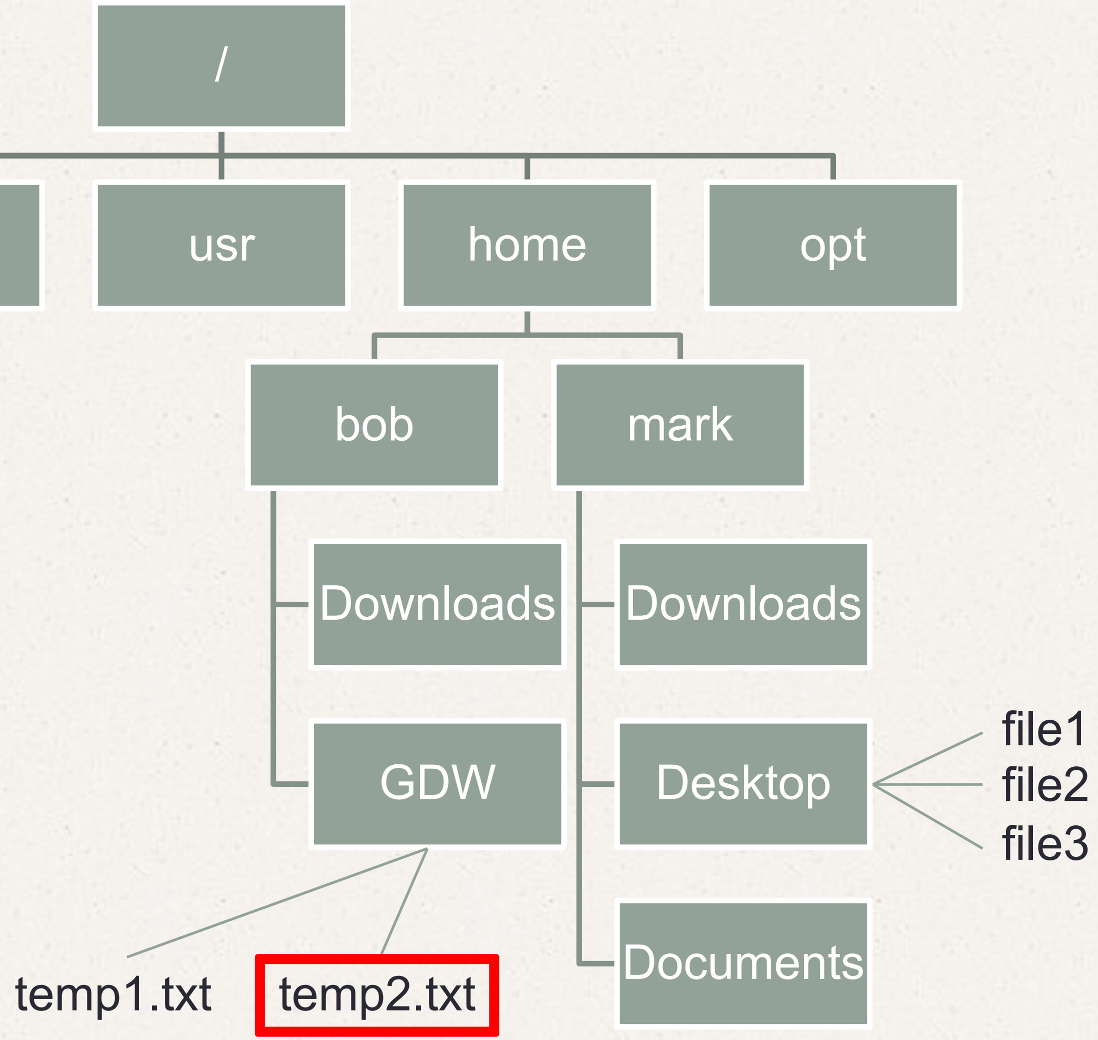
/home/mark/Desktop/file3

Desktop/file3

relative path

Quiz Time!

Absolute path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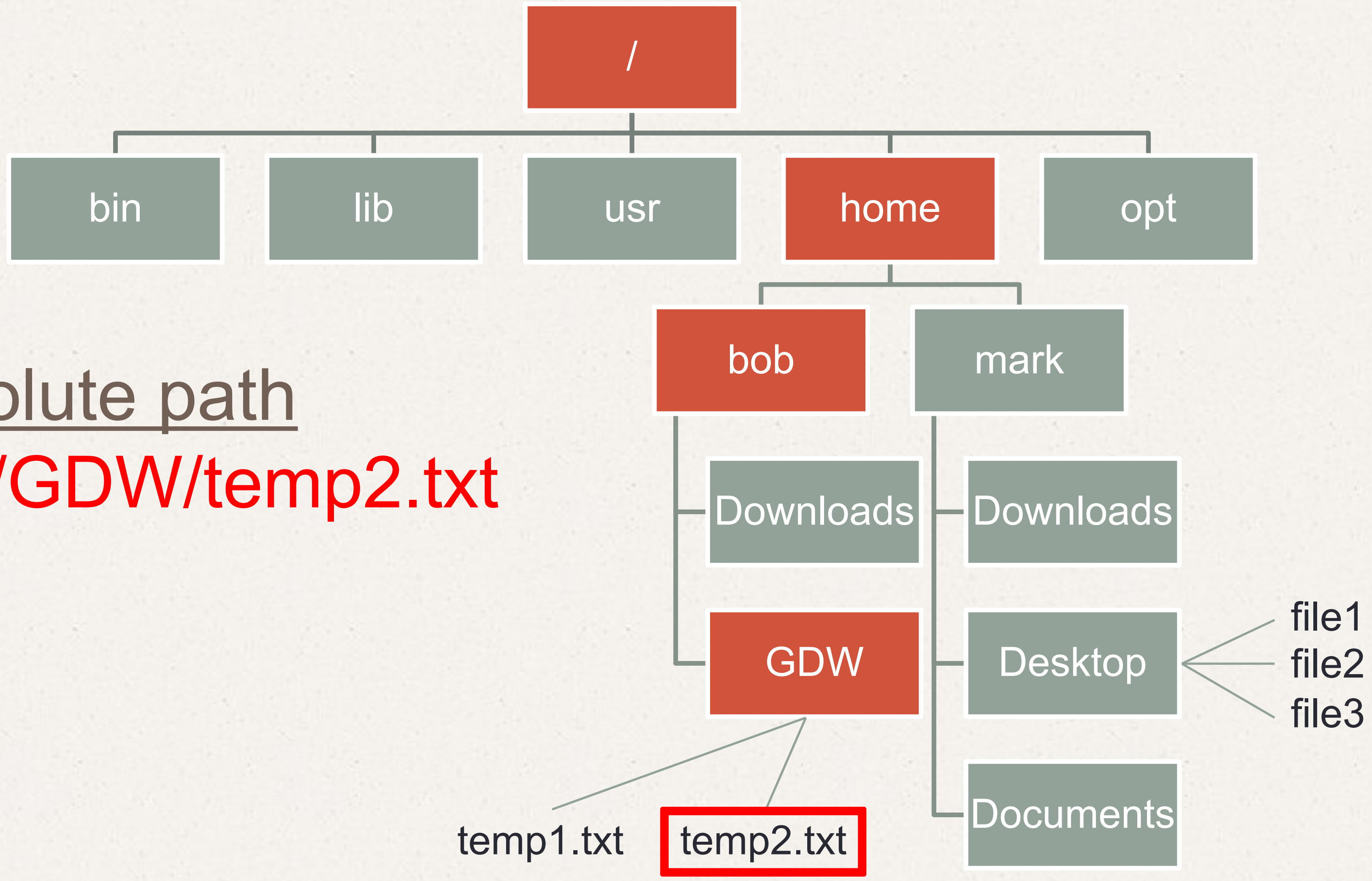
temp1.txt
temp2.txt

Quiz Time!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temp1.txt
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Downloads
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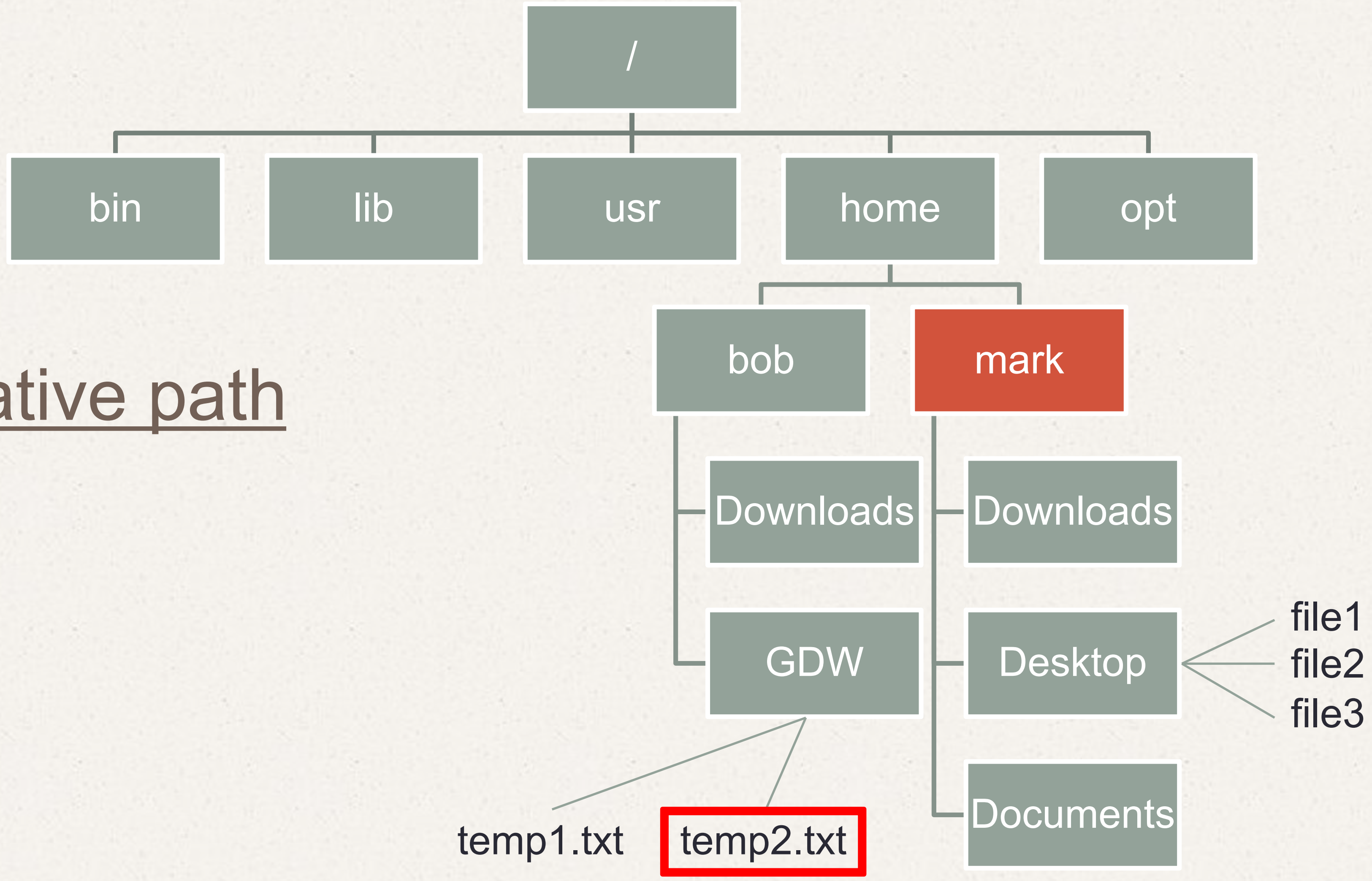
file3
Documents

Absolute path

/home/bob/GDW/temp2.txt

Quiz Time!

Relative path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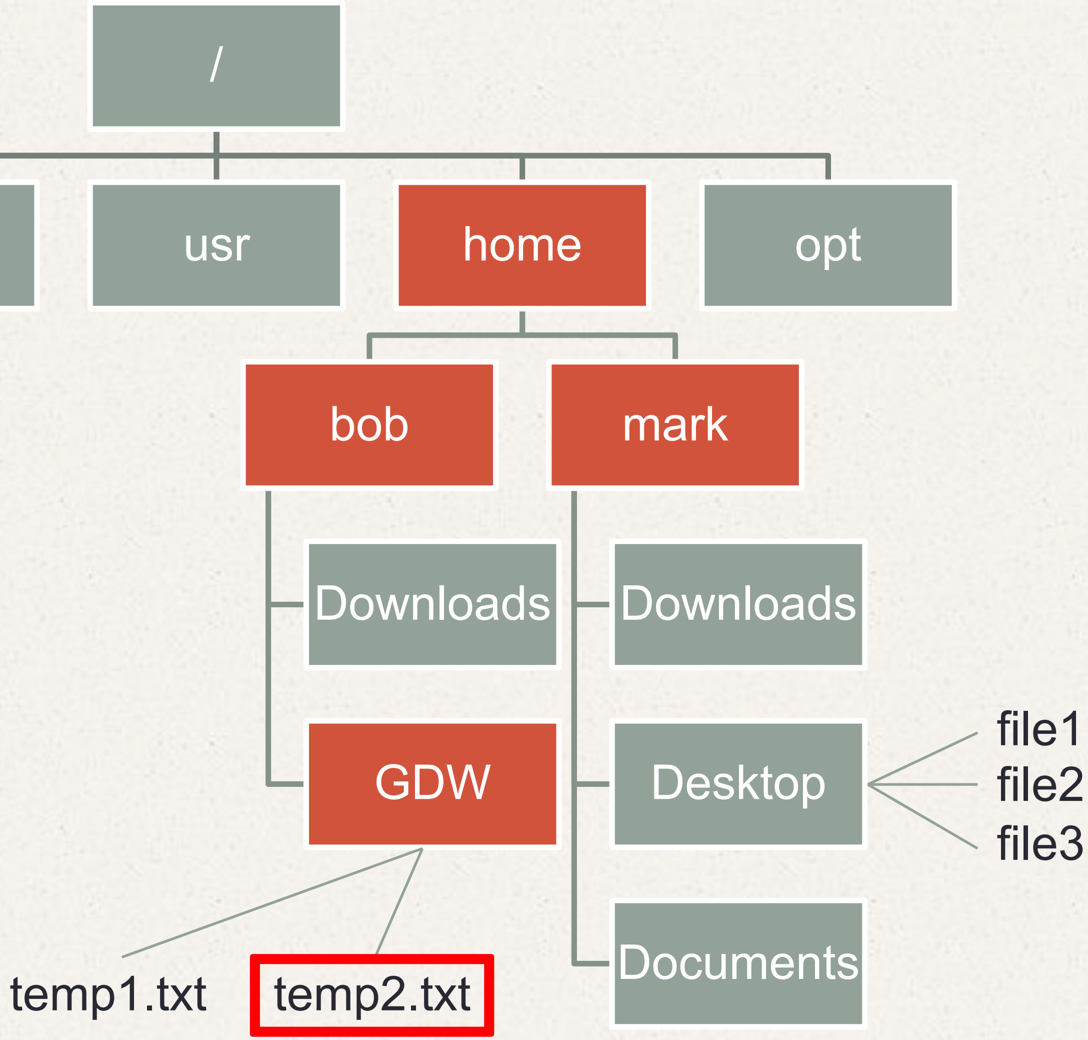
temp1.txt
temp2.txt

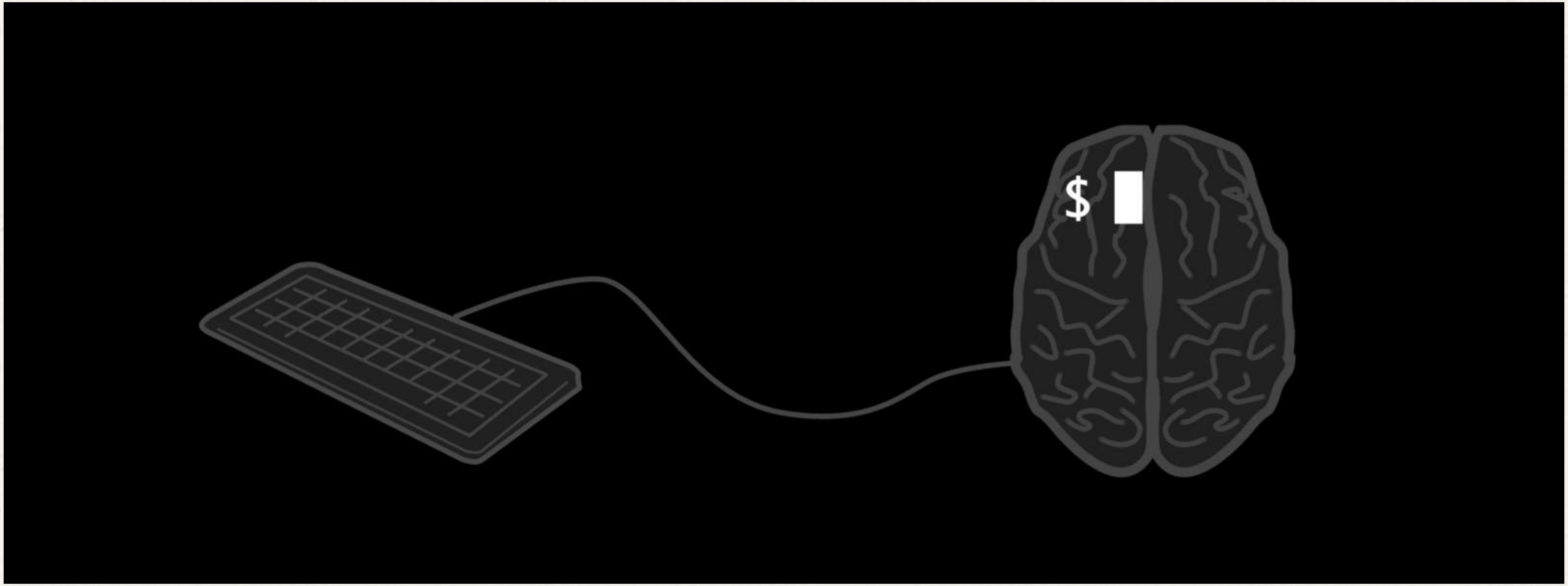
Quiz Time!


/
bin
lib
usr
home
opt
bob
mark
Downloads
Downloads
GDW
Desktop
file1
file2
file3
Documents
temp1.txt
temp2.txt

Relative path

../bob/GDW/temp2.txt

GitHub site:
https://github.com/gdw-workshop/2019_GDW_Workshop

TO YOUR TERMINALS!!!