

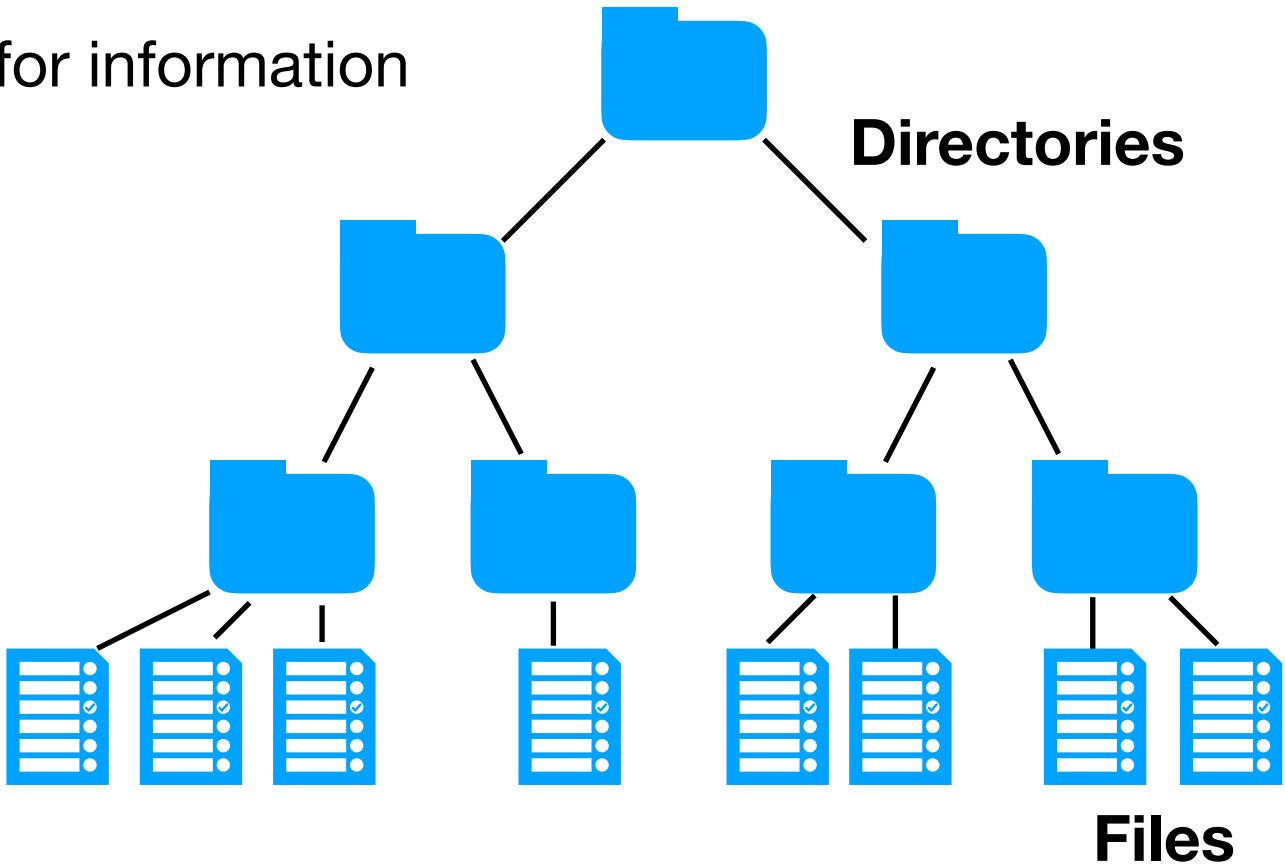
# **Lecture 2 – Linux, Bash, and Console editors**

## **Learning Objectives:**

- 2. Become familiar with the use of Bash, shell programming, and console editors.**
  - 2.1. Understand basic structure and filesystems of Linux.**
  - 2.2. Understand the use of basic functions in Bash shell.**
  - 2.3. Become proficient in the use of a console editor.**

# Linux Filesystems

- *Purpose:* Provides a non-volatile storage for information
- *Parts:*
  - Namespace
  - Metadata structure
  - Application Program Interface (API)
  - Security
- *Linux:* kernel interacts with virtual file-system, which organizes filesystem-specific drivers (which talk to hardware)



## Permissions

## File names

-rw-r--r--@	1	waldrop	staff	11799	Dec	13	2016	Bosque-IBAMR-Install-clang.rtf
tf								
-rw-r--r--@	1	waldrop	staff	9199	Dec	13	2016	Bosque-IBAMR-Install_Notes.txt
xt								
-rw-r--r--@	1	waldrop	staff	12445	Dec	21	2016	IBAMR-Bridges.rtf
-rw-r--r--@	1	waldrop	staff	10876	Jun	19	2017	IBAMR-Bridges2_gcc.rtf
-rw-r--r--@	1	waldrop	staff	16603	Apr	10	16:50	IBAMR-Bridges2_intel.rtf
-rw-r--r--@	1	waldrop	staff	14782	Apr	12	17:45	IBAMR-Bridges3.rtf
-rw-r--r--@	1	waldrop	staff	10630	Sep	15	2018	IBAMR2016_Dogwood.rtf
-rw-r--r--@	1	waldrop	staff	143916	Oct	3	2016	IBAMR_Install_August_2016.pdf
f								
drwxr-xr-x@	9	waldrop	staff	288	Aug	20	2019	IBAMR_install_v2016
-rw-r--r--@	1	waldrop	staff	14207	Jun	15	2017	Shannons_IBAMR_Install_Notes_Mac.rtf

# Bash



- *Shell*: allows user interface an operating system (command line or graphical user interface)
- Bash: “Borne-Again SHell” Unix command-line interpreter using alphanumeric characters to interact with kernel (operating system).
- Bash is the default shell for macOS before Catalina, all Linux and other Unix systems.

# Challenge Exercises:

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# Console Editors

- *Purpose:* Provides a way to edit files using the command line.

emacs

<https://www.gnu.org/software/emacs/>



nano

[www.nano-editor.org/](http://www.nano-editor.org/)



vim

<https://vim.rtorr.com/>



atom

<https://atom.io/packages/atom-console>



# Challenge Exercises:

1. What are the flag options for `ls`? How can you find this information? What about without internet access?
2. List all files in your home directory and write them into a new text file. Do this in one line of code. In a second line, append this text file with a list of files from your Downloads folder.
3. Open a new text file in one of the console editors. Write a short poem. Close the editor and print the poem out into your shell.