# Lecture 2 – Linux, Bash, and Console editors

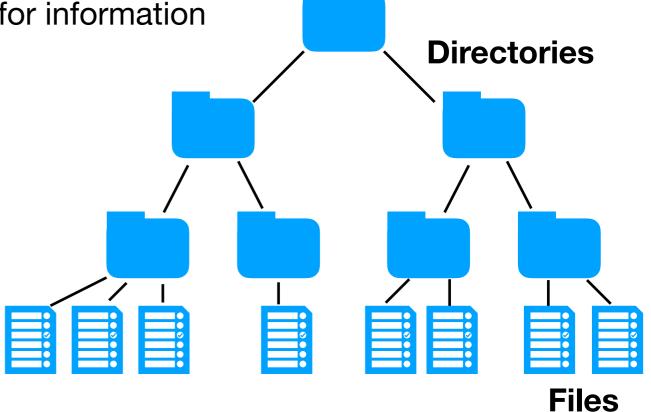
## **Learning Objectives:**

- 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 filesystem, which organizes filesystemspecific drivers (which talk to hardware)



#### **Permissions**

#### File names

waldrop	staff	11799	Dec	13	2016	${\tt Bosque-IBAMR-Install-clang.r}$
waldrop	staff	9199	Dec	13	2016	Bosque-IBAMR-Install_Notes.t
waldrop	staff	12445	Dec	21	2016	IBAMR-Bridges.rtf
waldrop	staff	10876	Jun	19	2017	IBAMR-Bridges2_gcc.rtf
waldrop	staff	16603	Apr	10	16:50	IBAMR-Bridges2_intel.rtf
waldrop	staff	14782	Apr	12	17:45	IBAMR-Bridges3.rtf
waldrop	staff	10630	Sep	15	2018	IBAMR2016_Dogwood.rtf
waldrop	staff	143916	0ct	3	2016	<pre>IBAMR_Install_August_2016.pd</pre>
waldrop	staff	288	Aug	20	2019	IBAMR_install_v2016
waldrop	staff	14207	Jun	15	2017	Shannons_IBAMR_Install_Notes
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### 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:**

1. What are the flag options for ls? How can you find this information? What about without internet access?

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### **Console Editors**

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

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



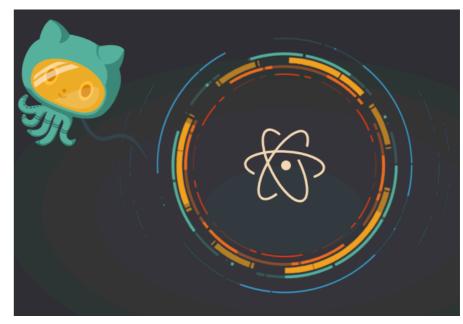
nano www.nano-editor.org/



vim https://vim.rtorr.com/



atom <a href="https://atom.io/packages/atom-console">https://atom.io/packages/atom-console</a>



## **Challenge Exercises:**

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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.