# **Shells**

- A program that provides interface between us and operating system.
  - Operating system controls resources in computer
  - We interact with OS through shell
  - It is program like any other
  - Interpret command line & Run scripts
  - script interpreted text program
  - There are multiple shells to choose from zsh, bash etc.

## Keyboard shortcuts

- o control + a = beginning of line
- control + e = end of line
- cursor can be any where in line for command to execute (just press return)
- right option + left Arrow / right Arrow = jump words
- o control + d = delete one letter to right
- **control + c** = kill the program
- o control + I = clear history i.e . everything upwards from current line
- control + w = remove one word from left of cursor
- o control + u get rid of everything on particular line

## Variables

- varName=value
- \$var\_name used to refer to variable (\$ indicates, we are referring to a variable)
- we can also use quotes like "\$var\_name" will treat words as one string and not remove spaces (not an issue with mac zsh)
- set command we can see all variables
  - search for variable = /var\_name
- to use particular shell (bash | zsh) we can write the keyword and start using that shell.
- exit exit out of shell
- export varName we can export variable across shells (making variable as environment variable)
- unset varName unset env. variable
- \$PATH all the directories to our current position
  - folder are delimited by colon (:)
  - we can append or prepend on our \$PATH variable
  - appended directories will be searched after everything else in PATH variable
  - prepended directories will be searched before everything in PATH variable
- Child shell inherits variables from parent shell (shell created inside another shell)
- Commands not built in will exists as file in file-system
- echo \$SHELL / echo \$0 know which shell we are in or using
- pico filename we can open a file in pico text editor
- tail filename prints last few lines of file
- There are certain scripts that are called once we login into system, some aren't.
- ZDOTDOR Home Directory

- For making PATH environment variable change permanently we need to make changes in .zshrc
- We can write a command and unix system will try to execute that command
- There are builtin commands that are not in fileSystem.
  - · These are commands that are built into shell itself

#### Job Control

- o cntrl +z = get out of program without ending it
- jobs running jobs (stopped programs in between)
- o fg number- specific number of program we want to bring to fore ground and get it running aga
- o [1]+ plus sign indicates most recent program we exit out of without ending it
  - if we want to get back to most recent exited program, we can just use 'fg'
- cntrl + c will not work in exiting on editors in shell
- & start a program in background

#### Kill Processes

- o process id maintained by entire unix system
- o ps commands / processes running at that terminal
  - TTY (Tell a type) what terminal we are on
- kill -9 process\_id (9 sigkill)

# Redirection & Piping

- Standard output = screen (default)
- Redirect to files (monitor, files)
  - '>' redirect (default behaviour to override file contents) (only redirects STDOUT not STDERR)
    - '2>' redirects both STDOUT and STDERR
    - 2> /dev/null sending output to nowhere (for STDERR)
  - '>>' redirect (default behaviour to append to file)
  - '<' redirecting input
  - '<< ' multiline (helps in here document)</p>
- Piping output of one command into input of other command
  - '|'
  - we can use multiple pipe commands