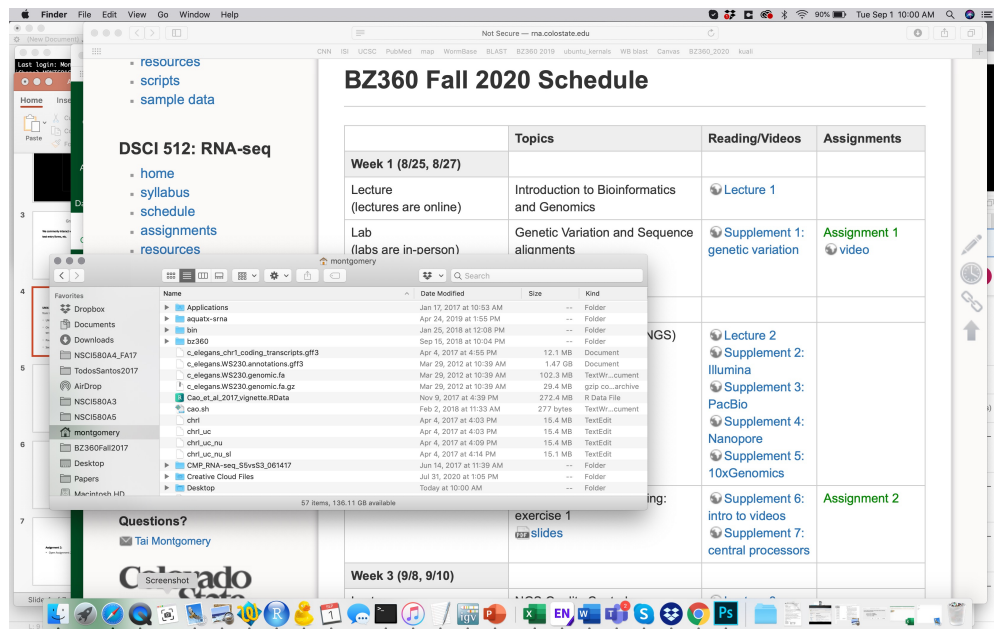


Working from the Command Line

<https://dbsloan.github.io/TS2022/>

Graphical User Interface (GUI)

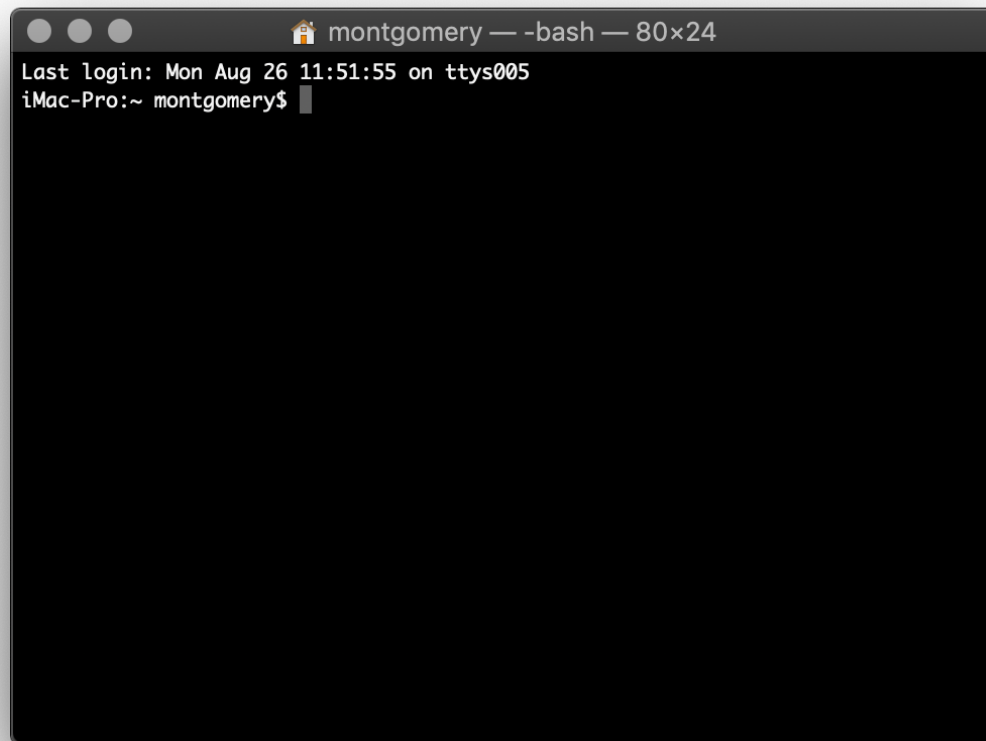
We commonly interact with computers through a GUI consisting of images, icons, text entry forms, etc.



But much of the software for analyzing genomics data doesn't have a GUI and instead accepts only text-based instructions.

These instructions are passed to the computer through Terminal software.

The terminal can also be used to provide more general instructions to the computer, but requires specific syntax.



A terminal window with a dark gray title bar containing three window control buttons and the text "montgomery — -bash — 80x24". The terminal area is black with white text. It displays the message "Last login: Mon Aug 26 11:51:55 on ttys005" followed by the prompt "iMac-Pro:~ montgomery\$" with a cursor.

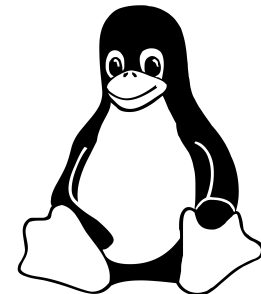
```
montgomery — -bash — 80x24
Last login: Mon Aug 26 11:51:55 on ttys005
iMac-Pro:~ montgomery$
```

UNIX and command line tools

Command-line interface: a text-based interface for passing instructions to the computer's operating system.

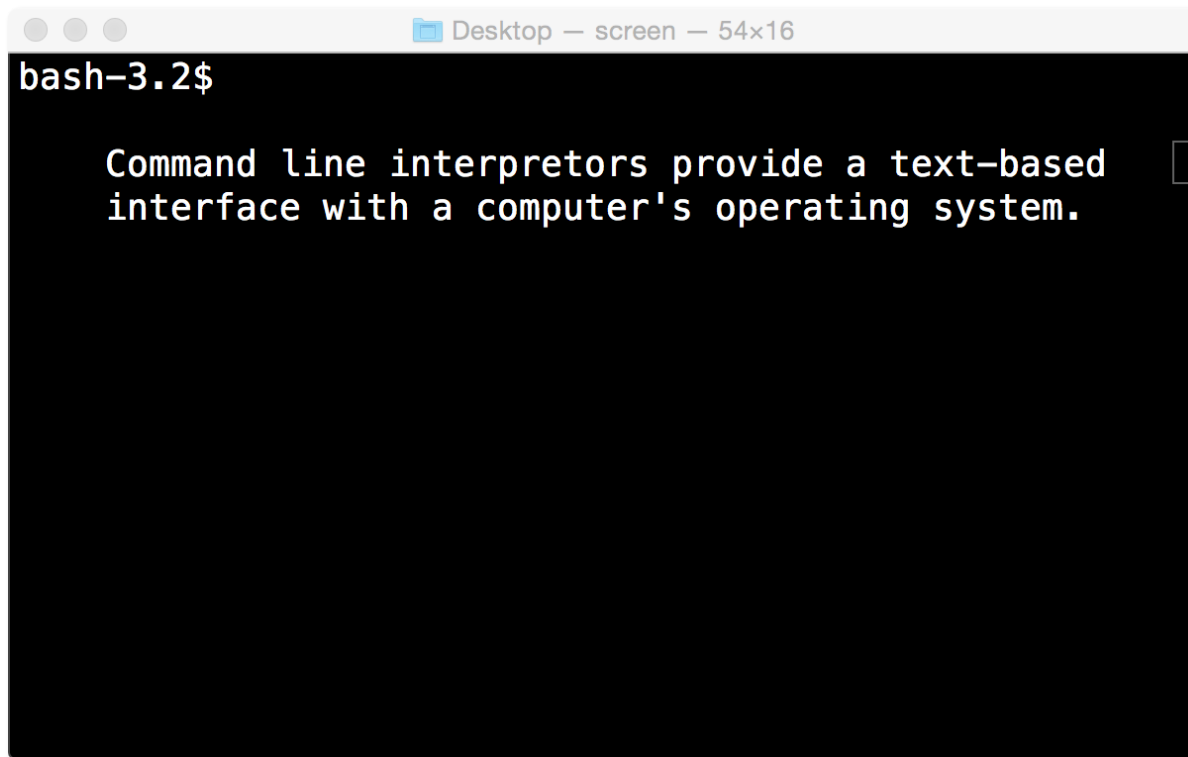
UNIX: an operating system built in C (Apple OS X and Linux are built on or derived from the UNIX operating system).

- UNIX commands/instructions can be run from a Linux or OS X terminal.
- Windows 10 can also run a Linux terminal but the shell must be downloaded (see Resources page).
- Powerful for text and file manipulation.



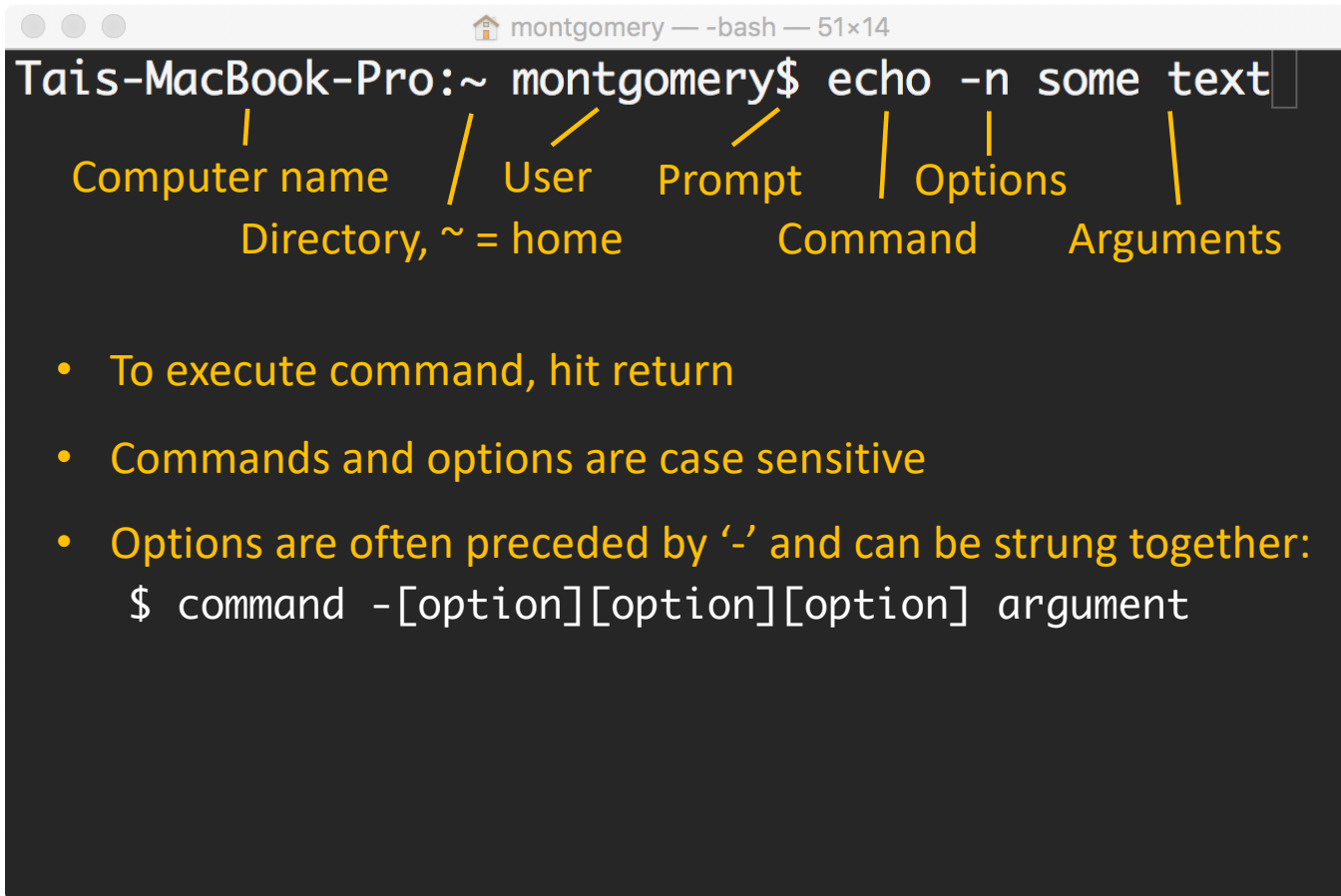
Command line interpreters

Bash and Z shell (Zsh) are commonly used Unix shells

A terminal window with a light gray title bar containing three window control buttons and the text "Desktop — screen — 54x16". The terminal has a black background with white text. The prompt "bash-3.2\$" is at the top left. Below it, the text "Command line interpreters provide a text-based interface with a computer's operating system." is displayed, followed by a small white cursor block.

```
bash-3.2$  
  
Command line interpreters provide a text-based  
interface with a computer's operating system.
```

Running commands



A terminal window titled "montgomery — -bash — 51x14" displays the command `Tais-MacBook-Pro:~ montgomery$ echo -n some text`. Yellow lines connect parts of the command to labels: "Tais-MacBook-Pro" to "Computer name", "~" to "Directory, ~ = home", "montgomery" to "User", "\$" to "Prompt", "echo" to "Command", "-n" to "Options", and "some text" to "Arguments".

- To execute command, hit return
- Commands and options are case sensitive
- Options are often preceded by '-' and can be strung together:
\$ command -[option][option][option] argument