

STUDY GUIDE

COMMON DATA SCIENCE TOOLS

Key Terms and Definitions

- » **GUI (Graphical User Interface):** Any system that allows you to interact with information by clicking, dragging, or otherwise arranging and selecting objects, usually with a combination of the mouse and keyboard. They're (ideally) visually appealing and intuitive to understand.
- » **CLI (Command Line Interface):** A text-based interface used to interact with computers and give them commands.
- » **Shell:** A type of command line program that allows you to interact with the command line in a graphically based operating system.
- » **Absolute Path:** The specific location of a file or folder from the root directory, typically shown as `/`.
- » **The Root Directory:** The starting point from which all other folders are defined. It is not normally the same as your home directory, which is usually found at `/Users/[Your Username]`.
- » **Relative Path:** A reference to a file or folder relative to your current position or the present working directory (`pwd`).
- » **Useful CLI Commands:**
 - `pwd` (stands for "print working directory"): Shows you the absolute path of your current directory.
 - `cd`: The command to "change directory."
 - `~` (tilde): A reference to the home directory.
 - `Ctrl-C`: Stops a script that is currently running.
 - `ls`: Lists the files and directories in the current folder.
 - `touch filename`: Used to create a new file.
 - `rm filename`: Used to remove a file.
 - `mkdir foldername`: Used to create a new directory.
 - `rm -r foldername`: Used to remove a directory. (The `-r` tells the computer to remove the folder *and* any files/folders within it.)
 - `*` (asterisk): Indicates a wildcard character.
- » **Text Editor:** A program that provides an interface for viewing and modifying text files. Some examples include:
 - **Sublime:** A popular text editor with many plugins available, but it's not free.
 - **Atom:** A newer text editor that's designed to be "hackable" (completely customizable, with many

developers contributing plugins). It can be inefficient when working with large files.

- **Notepad++:** An open-source text editor that is designed to be simplistic and mirror the familiar Notepad program. It's efficient but not very intuitive.
- **VIM:** One of the older text editors. It's customizable and efficient, can be used without a mouse, and is standard on Unix computers. It is open source and free but can be difficult to learn.

- » **Text File:** Files containing text that's readable by humans and is encoded via ASCII or Unicode characters. There are different kinds of text editors, including terminal/command line-based (Vim, Emacs, GNU nano) and Window-based (Sublime, Atom, Notepad++).
- » **Git and GitHub:** Version control software (a way to organize and share files that preserves the history of their changes and keeps them safer) used by individual programmers to track the progress of their projects and by teams to collaborate in an organized way.
- » **Jupyter Notebooks:** An open-source tool within the Anaconda suite that lets you to create code blocks interspersed with markdown in organized "notebooks," allowing for easy annotation and clear, organized scripts. Jupyter offers an alternative to a text editor and is what is known as an integrated development environment (IDE), in which script can easily be written and executed.

Guiding Questions

1. Why might you want to use the command line to interact with a computer instead of a GUI?
2. What would be the difference between coding in a text editor and an IDE (e.g., a Jupyter Notebooks)?
3. How are a text file and a piece of code similar? How are they different?

Additional Resources

- » [BASH Help](#)
 - A useful guide for understanding the BASH CLI.
- » [LiveEdu on the Best Text Editors for Programming](#)
- » Websites for Tools Referenced:
 - [Sublime](#)
 - [VIM](#)
 - [Atom](#)
 - [Notepad ++](#)
 - [Git and GitHub](#)
 - [Jupyter Notebooks](#)