**Command Line – Intro to Bash**

Flavours of command line

UNIX and Windows Differences



CMD (Windows Command Prompt)

* Command line for Microsoft Windows operating system, with command-based features
* Inputs/Outputs treated like characters
* Text-based command-line interface
* Default program in all Windows OS

Powershell

* Task-based command-line interface, based on .Net Framework and designed for system admins
* Treats input and output as objects (similar to Python/Java)
* More interactive, graphical command-line interface than CMD
* Built-in to Windows 7 and above

Bash

* Command-line and scripting language for Unix/Linux-based OS
* Inputs/Outputs treated like characters
* Text-based command-line interface
* Default for Linux/Unix systems

Anaconda Prompt

* Extends the standard command line-interface of your OS to use anaconda and conda commands (See the Anaconda docs for more detail)

File Paths

* Absolute paths are the full address of a location in the file system.
* Relative paths are a partial address in the file system. Relative paths do not tell you how to get to a location from the root directory, but rather give directions from where you currently are.

Conventions

* In UNIX-like styles use forward-slashes / between directory names. The root directory is simply given as a single slash /. Eg. /root/Projects/DataGathering/data.csv
* In Windows systems a back-slash \ is used to separate directory names that are travelled through. The root directory is the drive that the file system is in. This means that all absolute paths will start with the drive. Eg. \root\Projects\DataGathering\data.csv

**Common Commands**

|  |  |
| --- | --- |
| man <command> | Returns a manual for that command. Often can apply a -h or -help flag as an alternative |
| Ctrl+c | Breaks the program and takes you onto a new line |
| clear | Clears the terminal |
| **Navigating Directories** | |
| pwd | Print working directory |
| ls | List all contents of a directory |
| ls -a | List all contents of a directory including hidden ones |
| ls -l | Gives the “long” version of the files, including permissions and sizes. |
| ls -s | Gives the size of each item |
| ls -S | Sorts the items by size |
| cd | Change directory |
| cd /root/Projects/DataGathering/ | Changes directory to the absolute path location given |
| cd .. | Change directory to the directory above |
| cd ../Documents | Move up one folder and move to a sister folder at the same level |
| cd ../../ | Change directory to two directories above |
| ls -R | Shows all sub-folders |
| find | Shows sub-folders |
| cmd //c tree  tree.com //a  tree //a //f | Options for showing tree structures of your files |
| ./ | Current working directory |
| **Manipulating Directories** | |
| mkdir Meetings | Make a directory called Meetings |
| mkdir -p Meetings/OtherStuff | Makes a folder with a sub folder included as well |
| touch material\_review.txt | Creates a new file in our current directory using the given name (need to wrap in speech marks if including spaces in file names” |
| mv supplementaryData.sql ./Projects/supplementaryData.sql | Moves the file (must be located in the BASH location you are in) to the given destination |
| cp new\_analysis.py ./Projects/Analysis/new\_analysis\_copy.py | Creates a copy of your file and saves it in the location specified |
| rm slides.pptx | Removes a file |
| rm -r ./Documents/ | Removes the folder and all of it’s contents |
| **Interacting with Other Programs**   * Can call Python/R or other programming languages from command terminal * NB. You cannot run Python from Git Bash, and although you can run Python in Windows Command Prompt, it is easier to use Anaconda Prompt. | |
| python ./Projects/Analysis/new\_analysis\_copy.py | This will call python and execute the file at the designated location |
| find > ./Projects/directory\_structure.txt | This would carry out an action (eg. find) and save the output to a given file |
| cat > example\_cat.txt | Creates a new file and gives us a new line to enter what we wish to be put into the file. This is entered within speech marks. We then press Ctrl+D to end the editing of the file |
| cat example\_cat.txt | Will show us the contents of the file |