# Software Carpentry

## Command cheatsheet

## Basic commands for Bash (Unix) shell and Git

### Bash: navigating the file system

**pwd** print working directory

**ls** list directory

* ls -l: list a lot of file information
* ls -lh: list a lot of human-readable file information

**cd** change directory

### Bash: interacting with files and directories

**mkdir** make directory

**cat** send file or files to output (in most cases, this shows the content of a file without having to open it)

**head** output first parts of a file or files (default is usually 10 lines)

**tail** output last parts of a file or files (default is usually 10 lines)

**mv** rename or move a file or files. Syntax for renaming a file: mv FILENAME NEWFILENAME **USE WITH CAUTION!!!**

**cp** copy a file or files. Syntax: cp FILENAME NEWFILENAME

**rm** remove a file or files. **USE WITH CAUTION!!!**

### Bash: getting information about file contents

**wc** counts the number of lines, words, and characters in files

* wc -l: counts only the number of lines
* wc -w: counts only the number of words
* wc -c: counts only the number of characters

**sort** sends an alphabetically sorted list of the contents of a file to output (usually to the screen). Does not change the file itself.

* sort -n: sorts the output numerically
* sort -r: reverses the order of the sort, e.g.: Z-A or 10-01

### Bash: pipes and filters

**\*** wildcard character that matches 0 or more characters

**?** wildcard character that matches exactly one character

**>** redirect output to a new location. Syntax with cat: cat FILENAME1 FILENAME2 > NEWFILENAME **USE WITH CAUTION!!!**

**>>** append output to an existing location. Syntax with cat: cat FILENAME1 FILENAME2 >> FILENAME3

**|** called a pipe. Takes the output of one command and sends it to another command. Syntax with wc, sort, and head: wc -l FILENAMES | sort -n | head -n 1

### Bash: syntax of a for loop

for filename in basilisk.dat unicorn.dat  
do  
head -n 3 $filename  
done

Context of this for loop: - "filename" is the variable named in the first line and called ("$filename") in the third line of the loop - The loop is operating on the two files named in the first line, basilisk.dat and unicorn.dat - The third line shows what is being done to the two files; in this case, showing the first three lines of each file.

### Basic Git commands

**git init**: creates a git repository

**git status** : view the status of your files in the working directory and staging area

**git add**: tells git to start tracking a file, or a series of files.

**git commit**: commits (saves) the staged snapshot to the project history.

**git log**: shows all the commits in the project history

**git diff**: shows changes made to files

**git remote add origin**: add a remote repository where changes will be stored, usually for collaboration

**git push**: sends local changes to a remote repository

**git pull**: brings changes made in a remote repository to the local repository

### Resources

Software Carpentry Bash (Unix) Shell Lesson: <http://swcarpentry.github.io/shell-novice/>

Software Carpentry Git Lesson: <http://swcarpentry.github.io/git-novice/>

### Source

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Link: <https://github.com/kulibraries/swc-workshop-helps/blob/master/command-handout.md>

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Modified from James Baker's original Library Carpentry Git handout: <https://github.com/LibraryCarpentry/week-three-library-carpentry-DEPRECATED/blob/master/handout.docx>