


Bio 720 - Assignment 03

Lucy Zhang

September 27, 2018

EMAIL ▾	NAME ▾	COURSES COMPLETED ▾	CHAPTERS COMPLETED ▾	XP POINTS ▾
 zhangsj3@mcmaster.ca	Lucy Zhang	1	5	3380

1.

2. `rmdir` doesn't remove non-empty directories as a safety feature. `rm dirFile/*` does not remove any hidden files i.e. files starting with a period, and `ls` does not display hidden files by default. There are hidden files in `dirFile` hence `rmdir` cannot remove the directory even after running `rm dirFile/*`

3. (a) `find ./ -type f -ctime -30`

(b) `find ./ -type f -cmin -43200`

4. `sort -k 1,1 -k 2n file`

5. Remove numbers and spaces

```
sed 's/[ 0-9]*//g' ~brian/Bacillus_genomes/Bacillus_anthraxis_Ames_NC_003997.gbk > output
```

Or

```
tr -d ' ' < ~brian/Bacillus_genomes/Bacillus_anthraxis_Ames_NC_003997.gbk | tr -d 0-9 > output
```

```
grep -c tatta output
```

12904

`grep -c` returns the number of lines that matches can be found, this number is underestimated because the `-c` flag doesn't differentiate between lines where there are multiple matches, thus counting multiple matches on one line as one hit.

```
grep -o tatta output
```

`grep -o` returns the parts of the lines that have hits on them.

```
grep -oc tatta output
```

12904

`grep -oc` returns the same number as `grep -c`, the `-c` option suppresses the output of `grep -o`.

`grep -o output | wc -l` can be used to count the output of `grep -o`.
14054

6. (a) `grep -o 't[at][ta][ac][ac]t' output | wc -l`
47142

(b) `grep -oE 'ttgaca.{15,19}tata' output | wc -l`
25

(c) `grep -oE 'ttgaca.{15,19}tataat' output | wc -l`
5

7. `head -n 1 720example.fastq | sed 's/@/>/g' > output.fasta && grep -ve '@-0-9?<>\. ;:=+,]' 720example.fastq >> output.fasta`

8. (a) `sleep` puts the thread to sleep for the specified amount of time, typing `Ctrl+z` suspends the program, which stops the sleep. `bg` restarts the suspended job but runs it in the background. `jobs` shows the jobs owned by the user and `ps` shows the status of the jobs.

(b) `&` at the end of a command starts the job in the background. Every job has a process ID assigned to it, `kill PID` will terminate the job with the specified process ID.

(c) `sleep` didn't terminate when I logged off and re-logged into INFO, same with `nohup sleep`. They both show as interruptible sleep state in `ps` and don't show up in `jobs`.

9. (a) 7 filesystems

(b) `infofile1`

`df -h ~`

Filesystem	Size	Used	Avail	Use%	Mounted on
infofile1:/share/home	46T	35T	12T	76%	/home

(c) `df ~/*/*/*/* | grep -ve 'home' → no hits`
No

10. `sort input | tr ',,' '\t' > output`