Linux and Networking Basics - Part 2

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Server Info:

```
Name: omics10 (omics10.hlm.ad.moffitt.usf.edu)
IP Address: 10.6.96.86
```

User accounts:

```
username: userX, where X is 1,2,3,...,50
password: the same as username

Example:
username: user1
password: user1
```

Connecting to the server

1. Download putty.exe from [here (https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html)](https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html) (use the "Alternative Link") or any SSH client and type "omics10" in the "Host Name" field.
2. On OSX, open Terminal and type *ssh userX@omics10*
3. Enter your username when asked "Login"
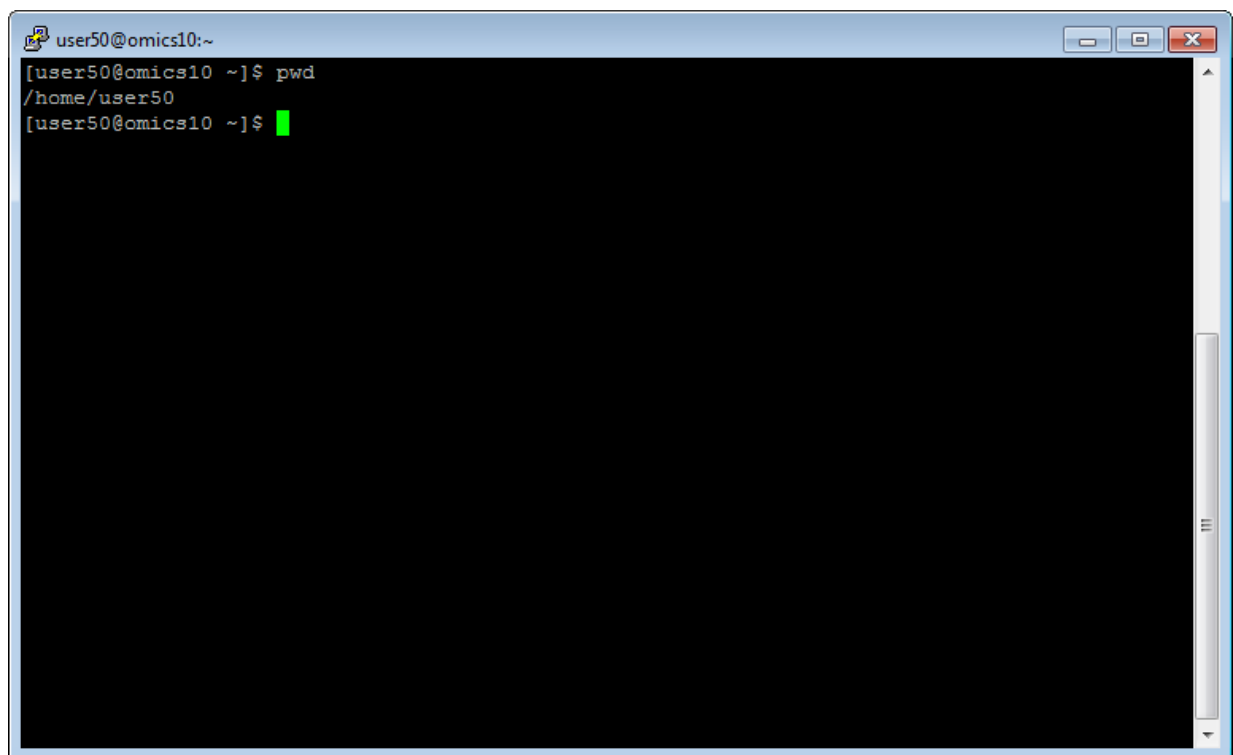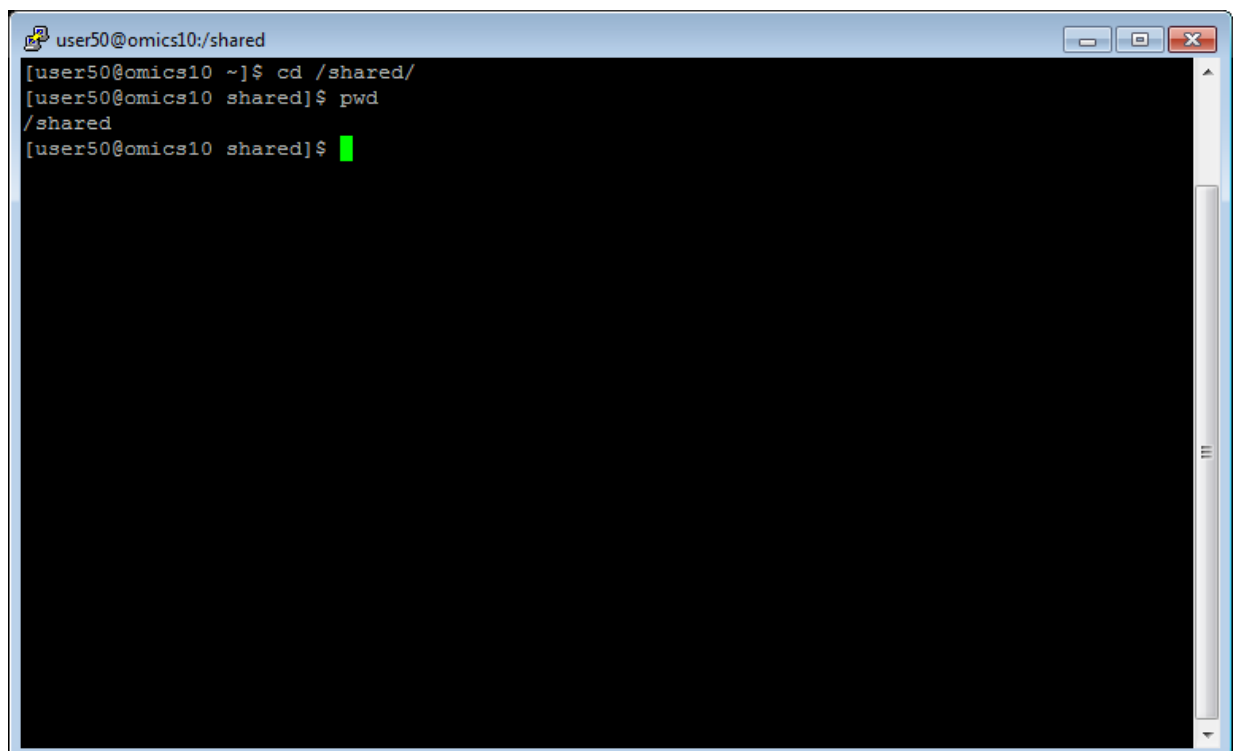4. Enter your password
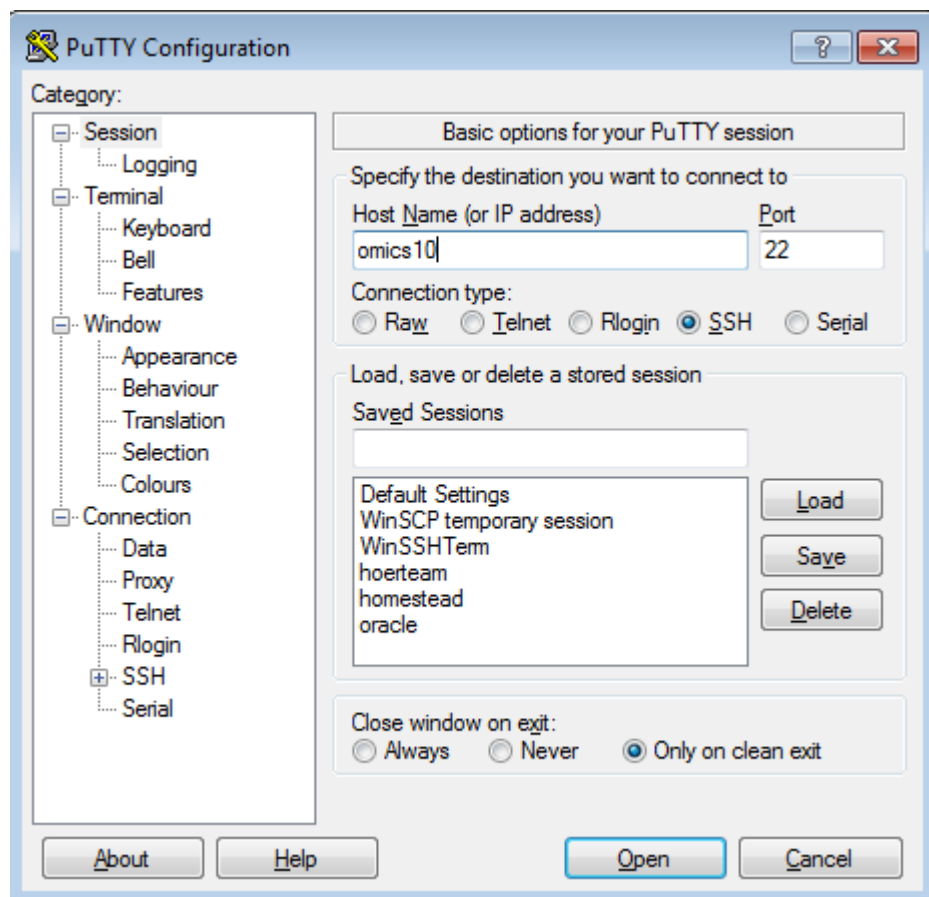
Commands

Calendar

Print Working Directory
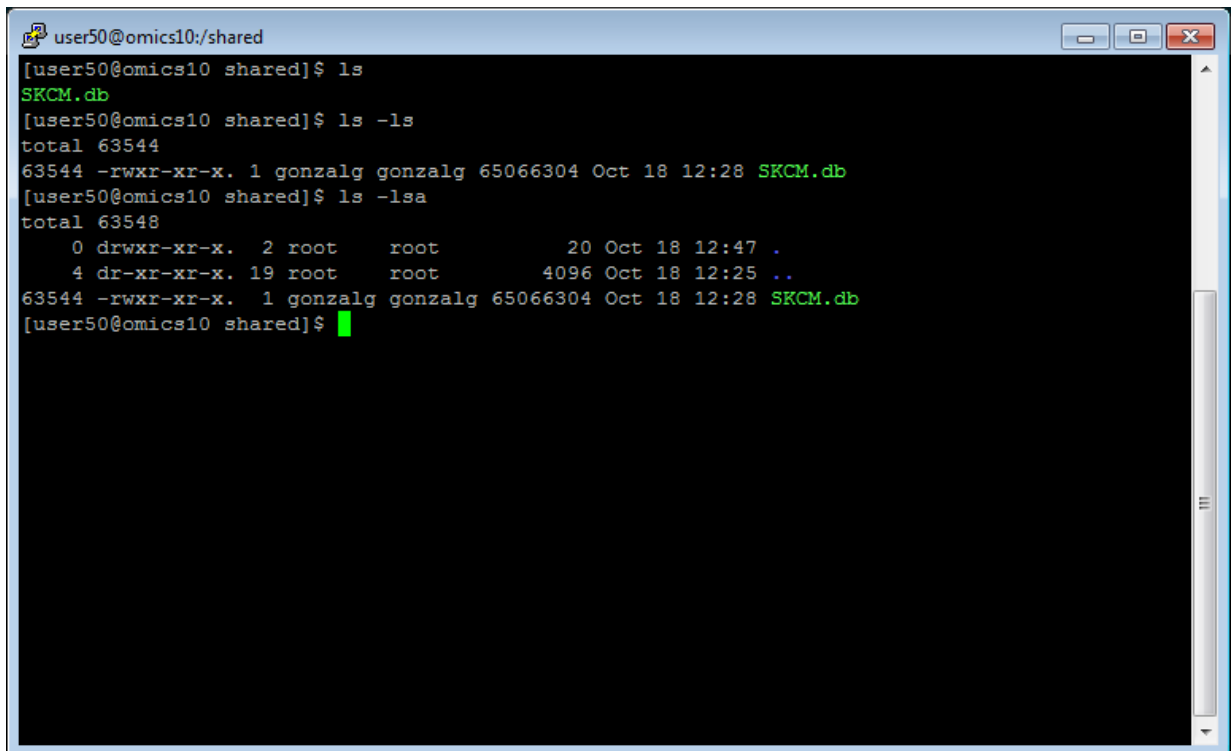
```
[user50@omics10 ~]$ pwd
/home/user50
[user50@omics10 ~]$
```
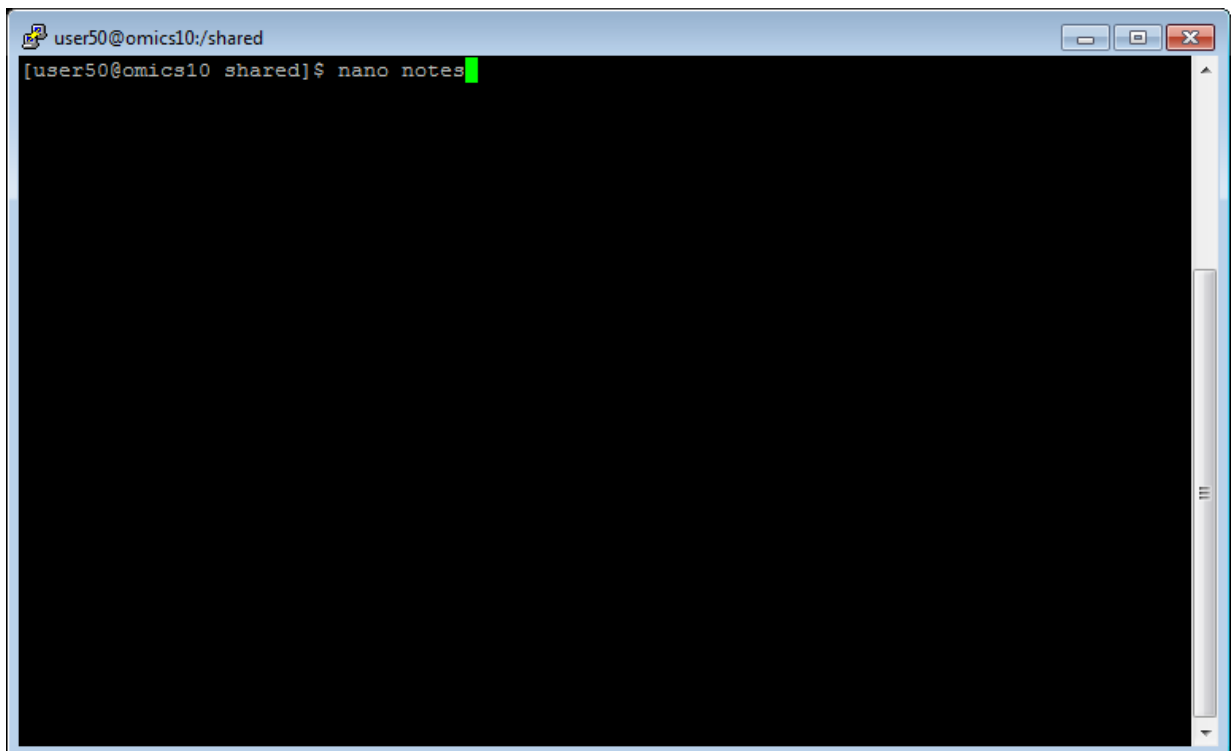
Change directory and then Print Working Directory

```
[user50@omics10 ~]$ cd /shared/
[user50@omics10 shared]$ pwd
/shared
[user50@omics10 shared]$
```
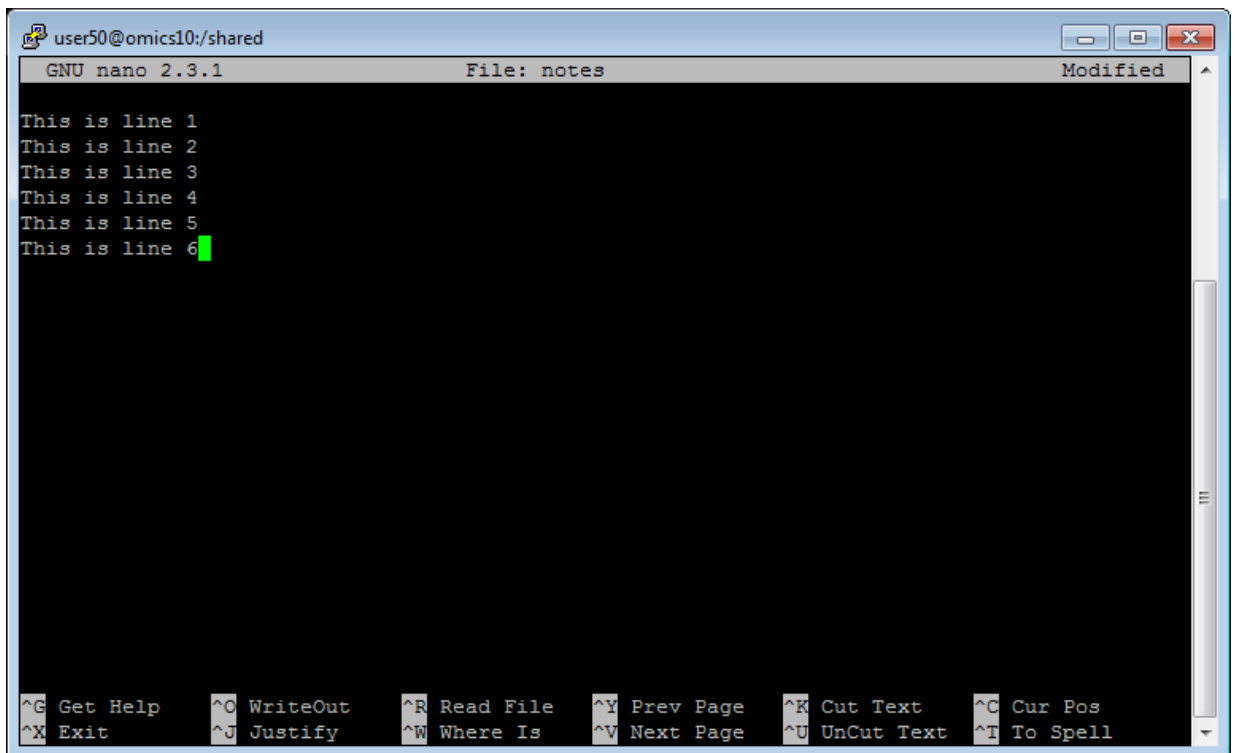
List Files and directories in current location

Create a file

Go to the Home Directory

```
user50@omics10:~
[user50@omics10 shared]$ cd
[user50@omics10 ~]$ pwd
/home/user50
[user50@omics10 ~]$ █
```

Create the file (again) and list files
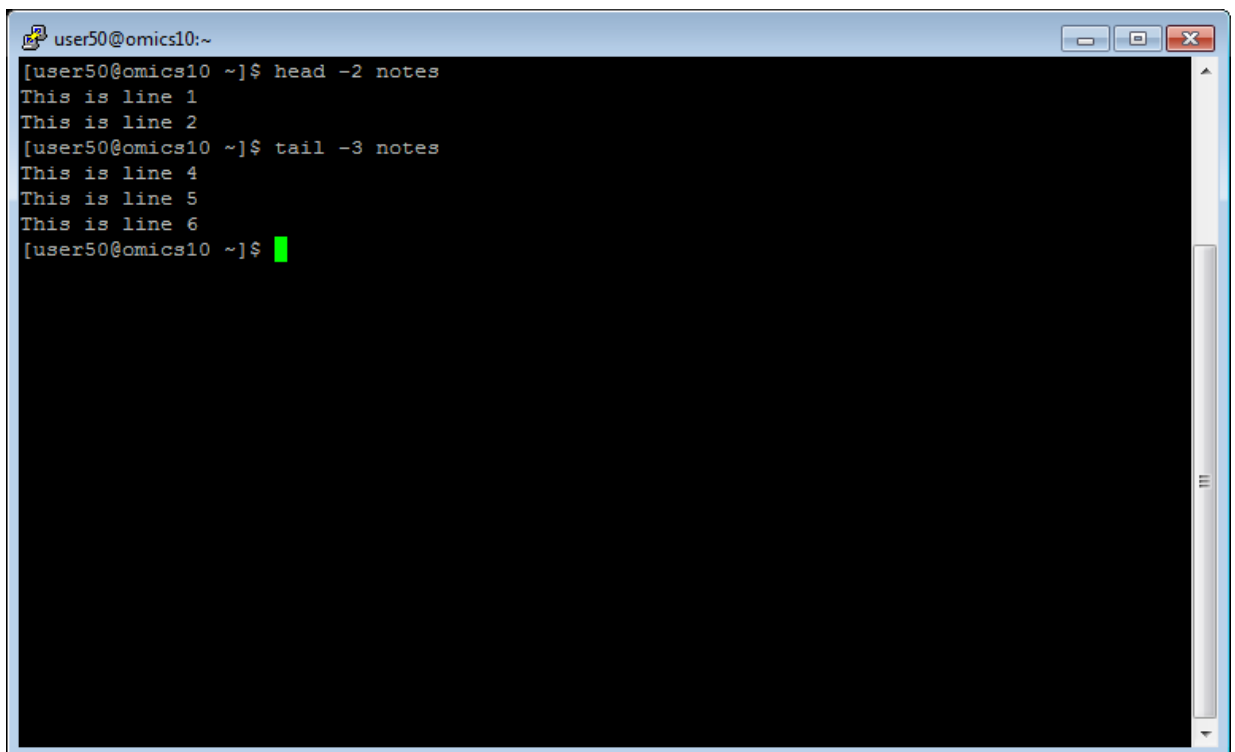
```
user50@omics10:~
[user50@omics10 ~]$ nano notes
[user50@omics10 ~]$ ls -ls
total 4
4 -rw-rw-r--. 1 user50 user50 91 Oct 18 12:52 notes
[user50@omics10 ~]$ █
```

Display contents of a file

Displaying some lines of a file:

Create a directory

```
user50@omics10:~
[user50@omics10 ~]$ mkdir data
[user50@omics10 ~]$ ls -ls
total 4
0 drwxrwxr-x. 2 user50 user50  6 Oct 18 12:59 data
4 -rw-rw-r--. 1 user50 user50 90 Oct 18 12:54 notes
[user50@omics10 ~]$
```

Copy a file:

```
user50@omics10:~
[user50@omics10 ~]$ cp /shared/SKCM.db .
[user50@omics10 ~]$ ls -ls
total 63548
    0 drwxrwxr-x. 2 user50 user50        6 Oct 18 13:01 data
    4 -rw-rw-r--. 1 user50 user50       90 Oct 18 12:54 notes
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:01 SKCM.db
[user50@omics10 ~]$ cp /shared/SKCM.db data/
[user50@omics10 ~]$ ls -ls data/
total 63544
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:02 SKCM.db
[user50@omics10 ~]$ cp /shared/SKCM.db data/SKCM2.db
[user50@omics10 ~]$ ls -ls data/
total 127088
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:02 SKCM2.db
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:02 SKCM.db
[user50@omics10 ~]$
```
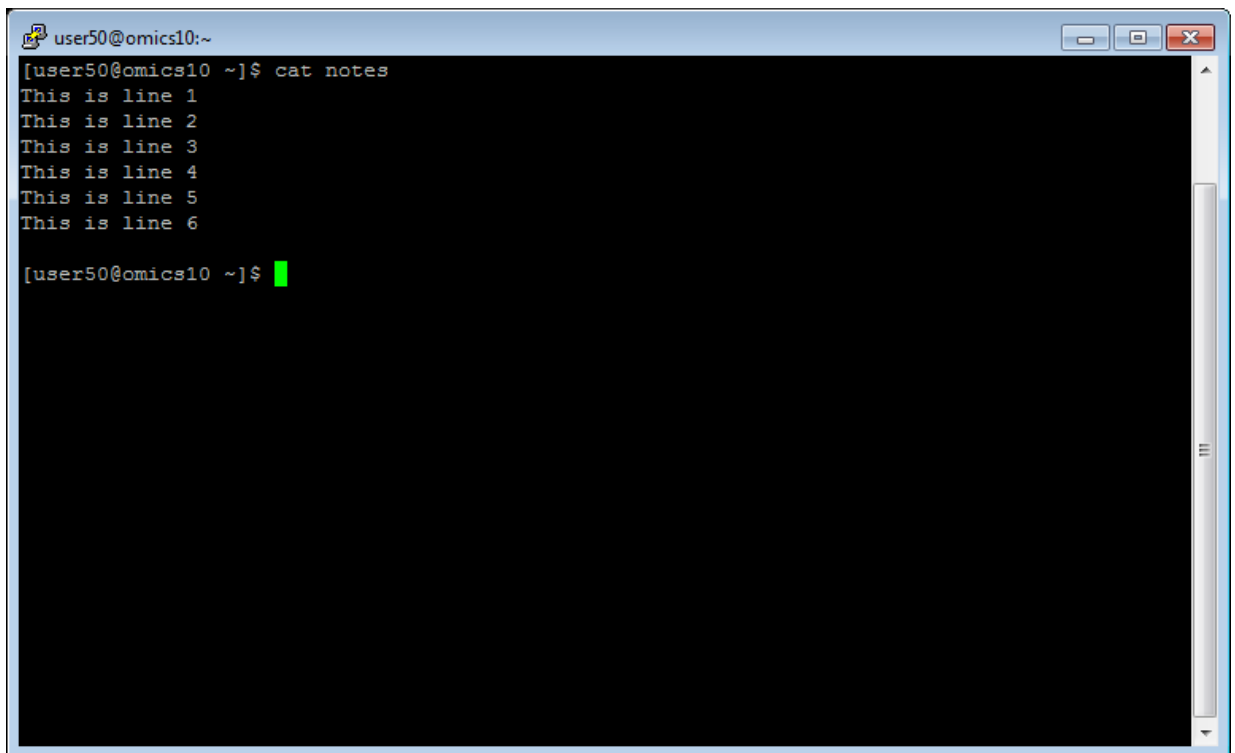
Delete a file:

```
[user50@omics10 ~]$ pwd
/home/user50
[user50@omics10 ~]$ cd data
[user50@omics10 data]$ pwd
/home/user50/data
[user50@omics10 data]$ ls -ls
total 127088
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:04 SKCM2.db
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:02 SKCM.db
[user50@omics10 data]$ rm SKCM2.db
[user50@omics10 data]$ ls -ls
total 63544
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:02 SKCM.db
[user50@omics10 data]$ cd ..
[user50@omics10 ~]$ pwd
/home/user50
[user50@omics10 ~]$ █
```

Delete a Directory
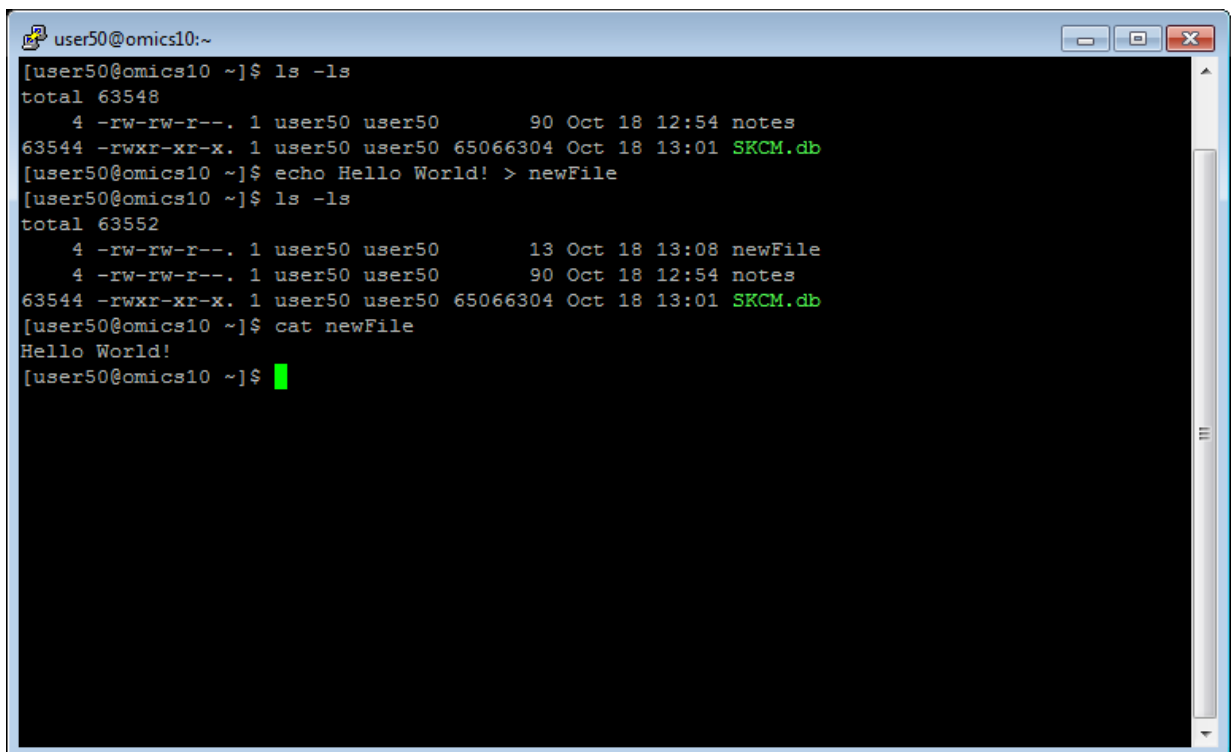
```
[user50@omics10 ~]$ ls -ls
total 63548
    0 drwxrwxr-x. 2 user50 user50       20 Oct 18 13:05 data
    4 -rw-rw-r--. 1 user50 user50       90 Oct 18 12:54 notes
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:01 SKCM.db
[user50@omics10 ~]$ rm data
rm: cannot remove 'data': Is a directory
[user50@omics10 ~]$ rm -fr data/
[user50@omics10 ~]$ ls -ls
total 63548
    4 -rw-rw-r--. 1 user50 user50       90 Oct 18 12:54 notes
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:01 SKCM.db
[user50@omics10 ~]$ █
```
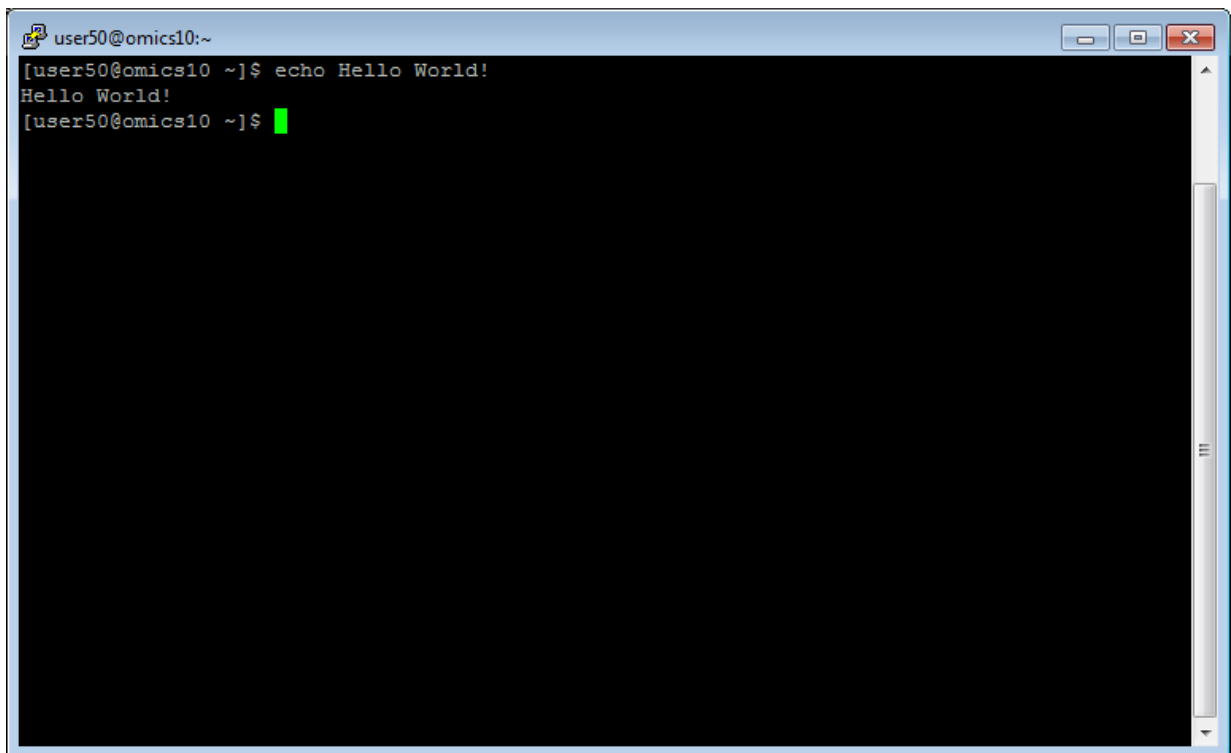
echo command

```
[user50@omics10 ~]$ echo Hello World!
Hello World!
[user50@omics10 ~]$ █
```

Redirect standard output

```
[user50@omics10 ~]$ ls -ls
total 63548
    4 -rw-rw-r--. 1 user50 user50       90 Oct 18 12:54 notes
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:01 SKCM.db
[user50@omics10 ~]$ echo Hello World! > newFile
[user50@omics10 ~]$ ls -ls
total 63552
    4 -rw-rw-r--. 1 user50 user50       13 Oct 18 13:08 newFile
    4 -rw-rw-r--. 1 user50 user50       90 Oct 18 12:54 notes
63544 -rwxr-xr-x. 1 user50 user50 65066304 Oct 18 13:01 SKCM.db
[user50@omics10 ~]$ cat newFile
Hello World!
[user50@omics10 ~]$ █
```
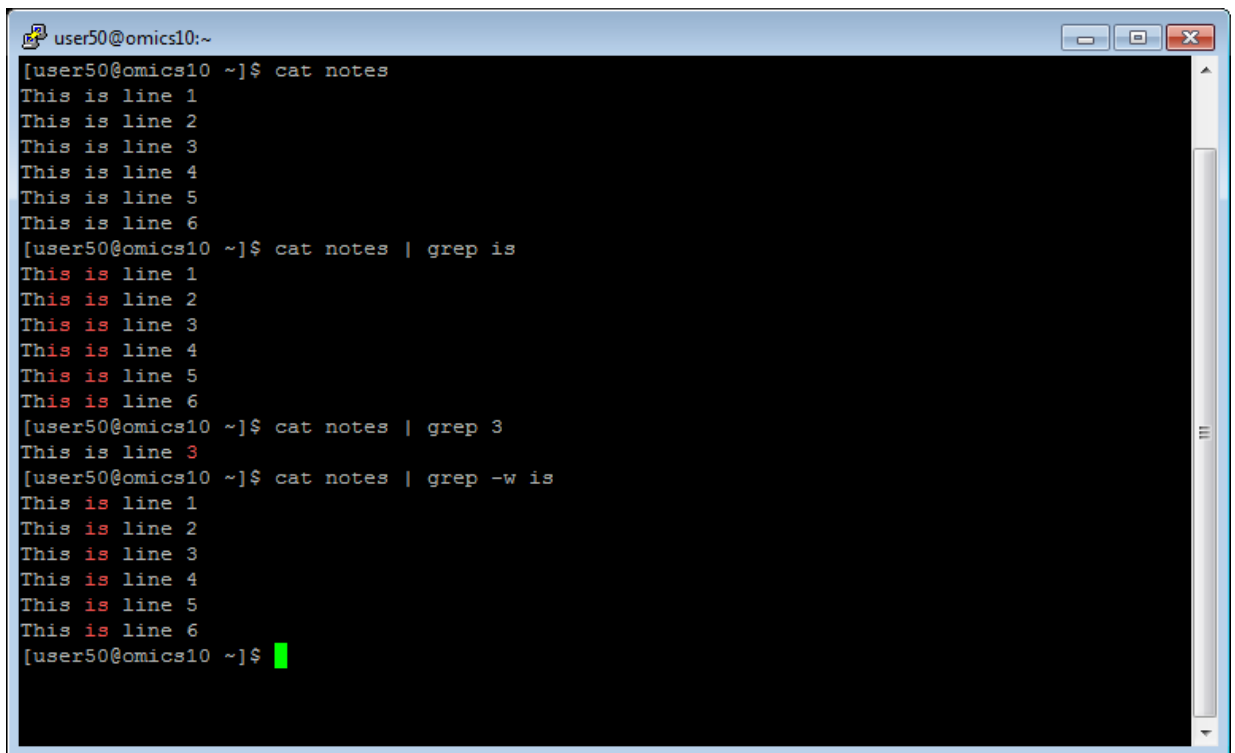
Count words:

```
[user50@omics10 ~]$ wc newFile
 1  2 13 newFile
[user50@omics10 ~]$ wc -l newFile
1 newFile
[user50@omics10 ~]$ wc -w newFile
2 newFile
[user50@omics10 ~]$ wc -c newFile
13 newFile
[user50@omics10 ~]$ wc SKCM.db
  401525 10038125 65066304 SKCM.db
[user50@omics10 ~]$ wc -l SKCM.db
401525 SKCM.db
[user50@omics10 ~]$ wc -w SKCM.db
10038125 SKCM.db
[user50@omics10 ~]$ wc -c SKCM.db
65066304 SKCM.db
[user50@omics10 ~]$
```

Redirection (pipe):

```
[user50@omics10 ~]$ cat newFile | wc
      1        2       13
[user50@omics10 ~]$ cat newFile | wc -l
1
[user50@omics10 ~]$ cat newFile | wc -w
2
[user50@omics10 ~]$ cat newFile | wc -c
13
[user50@omics10 ~]$ cat SKCM.db | wc
 401525 10038125 65066304
[user50@omics10 ~]$ cat SKCM.db | wc -l
401525
[user50@omics10 ~]$ cat SKCM.db | wc -w
10038125
[user50@omics10 ~]$ cat SKCM.db | wc -c
65066304
[user50@omics10 ~]$
```

grep command

```
[user50@omics10 ~]$ cat notes
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
This is line 6
[user50@omics10 ~]$ cat notes | grep is
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
This is line 6
[user50@omics10 ~]$ cat notes | grep 3
This is line 3
[user50@omics10 ~]$ cat notes | grep -w is
This is line 1
This is line 2
This is line 3
This is line 4
This is line 5
This is line 6
[user50@omics10 ~]$
```

Exercises

1. How many entries there are for sample TP53 in the SKCM.db file?
2. Create a new file with only data for the TP53 sample from the SKCM.db file