

Command line practice

1. What is the absolute path of your home directory?

```
(base) sarthdiskalkar@Sarths-MBP ~ % pwd
/Users/sarthdiskalkar
```

2. Are there any other user accounts on your computer? What are they?

```
(base) sarthdiskalkar@Sarths-MBP ~ % cd /
(base) sarthdiskalkar@Sarths-MBP / % ls
Applications System Volumes cores etc opt sbin usr
Library Users bin dev home private tmp var
(base) sarthdiskalkar@Sarths-MBP / % cd Users
(base) sarthdiskalkar@Sarths-MBP /Users % ls
Shared biol6505-programmingforbiologistshealthsciences sarthdiskalkar
```

3. Do you have Microsoft Office installed? Google Chrome? Identify the absolute path of where these applications are stored. What other programs are stored in this directory?

```
(base) sarthdiskalkar@Sarths-MBP ~ % cd /
(base) sarthdiskalkar@Sarths-MBP / % ls
Applications System Volumes cores etc opt sbin usr
Library Users bin dev home private tmp var
(base) sarthdiskalkar@Sarths-MBP / % cd Applications | ls
Applications System Volumes cores etc opt sbin usr
Library Users bin dev home private tmp var
(base) sarthdiskalkar@Sarths-MBP / % cd Applications
(base) sarthdiskalkar@Sarths-MBP /Applications % ls
'Adobe Acrobat Reader.app' Numbers.app
Anaconda-Navigator.app OmicsBox.app
Anki.app OneDrive.app
Discord.app Pages.app
Docker.app PyCharm.app
GarageBand.app 'Python 3.11'
GlobalProtect.app R.app
'Google Chrome.app' RStudio.app
Keynote.app Safari.app
'League of Legends.app' Slack.app
'Microsoft Excel.app' Spotify.app
'Microsoft OneNote.app' Steam.app
'Microsoft Outlook.app' 'Sublime Text.app'
'Microsoft PowerPoint.app' Utilities
'Microsoft Teams (work or school).app' 'VMD 1.9.4a57-arm64-Rev12.app'
'Microsoft Teams classic.app' "VMD User's Guide.pdf"
'Microsoft Word.app' iMovie.app
```

```
'Mu Editor.app'                zoom.us.app
MySQLWorkbench.app
(base) sarthdiskalkar@Sarths-MBP /Applications % pwd
/Applications
```

4. Navigate to your home directory. Create a directory called 'PythonClass' using a relative path. Create a directory in your home directory called 'PythonClass2' using an absolute path. Verify both directories were created using the ls command. Now remove both directories using the rm command

```
(base) sarthdiskalkar@Sarths-MBP ~ % mkdir ~/PythonClass
(base) sarthdiskalkar@Sarths-MBP ~ % pwd
/Users/sarthdiskalkar
(base) sarthdiskalkar@Sarths-MBP ~ % mkdir /Users/sarthdiskalkar/PythonClass2
(base) sarthdiskalkar@Sarths-MBP ~ % ls PythonClass*
PythonClass:
```

PythonClass2:

```
(base) sarthdiskalkar@Sarths-MBP ~ % rm PythonClass* -r
```

5. Identify all of the directories in your root directory

```
(base) sarthdiskalkar@Sarths-MBP ~ % cd /
(base) sarthdiskalkar@Sarths-MBP / % ls
Applications System Volumes cores etc opt sbin usr
Library Users bin dev home private tmp var
```

Could also use the -a option here to get "all" of the directories

6. Identify directories that contain directories, text files, and symbolic links. Use ls -la to determine a way to distinguish between these three files.

```
(base) sarthdiskalkar@Sarths-MBP / % cd Applications
(base) sarthdiskalkar@Sarths-MBP /Applications % ls -la
total 2252
drwxrwxr-x 41 root          admin   1312 May  7 15:56 .
drwxr-xr-x 20 root          wheel   640 Dec 15 09:43 ..
-rw-r--r--  1 sarthdiskalkar admin   6148 May  7 13:25 .DS_Store
-rw-r--r--  1 root          wheel    0 Dec 15 09:43 .localized
drwxrwxr-x  3 root          wheel    96 May  7 12:03 'Adobe Acrobat
Reader.app'
lrwxr-xr-x  1 sarthdiskalkar admin    54 Jan 24 13:43 Anaconda-
Navigator.app -> /Users/sarthdiskalkar/anaconda3/Anaconda-Navigator.app
drwxr-xr-x  3 sarthdiskalkar admin    96 Jan  8 2023 Anki.app
drwxr-xr-x  3 biol6505-programmingforbiologistshealthsciences staff 96 Nov  6 2023
Discord.app
drwxr-xr-x  3 sarthdiskalkar admin    96 Feb 23 09:49 Docker.app
drwxr-xr-x  3 root          wheel   96 Aug 22 2022 GarageBand.app
```

drwxr-xr-x 3 root	wheel 96 Aug 25 2023 GlobalProtect.app
drwxrwxr-x 3 sarthdiskalkar	admin 96 May 2 19:18 'Google
Chrome.app'	
drwxr-xr-x 3 root	wheel 96 Aug 22 2022 Keynote.app
drwxrwxrwx 3 sarthdiskalkar	admin 96 Mar 1 2023 'League of
Legends.app'	
drwxrwxr-x 3 root	wheel 96 Apr 17 00:25 'Microsoft Excel.app'
drwxrwxr-x 3 root	wheel 96 Apr 17 00:25 'Microsoft OneNote.app'
drwxrwxr-x 3 root	wheel 96 Dec 25 22:39 'Microsoft Outlook.app'
drwxrwxr-x 3 root	wheel 96 Apr 17 00:26 'Microsoft
PowerPoint.app'	
drwxr-xr-x 3 root	wheel 96 May 2 15:27 'Microsoft Teams (work
or school).app'	
drwxr-xr-x 3 root	wheel 96 Apr 8 23:52 'Microsoft Teams
classic.app'	
drwxrwxr-x 3 root	wheel 96 Apr 17 00:28 'Microsoft Word.app'
drwxr-xr-x 3 sarthdiskalkar	admin 96 Nov 14 2022 'Mu Editor.app'
drwxr-xr-x 3 sarthdiskalkar	admin 96 Jul 13 2023
MySQLWorkbench.app	
drwxr-xr-x 3 root	wheel 96 Aug 22 2022 Numbers.app
drwxr-xr-x 3 sarthdiskalkar	admin 96 Feb 22 10:17 OmicsBox.app
drwxr-xr-x 3 root	wheel 96 May 7 15:56 OneDrive.app
drwxr-xr-x 3 root	wheel 96 Aug 22 2022 Pages.app
drwxr-xr-x 3 sarthdiskalkar	admin 96 May 16 2023 PyCharm.app
drwxr-xr-x 10 root	wheel 320 May 2 2023 'Python 3.11'
drwxr-xr-x 3 root	wheel 96 Oct 23 2023 R.app
drwxr-xr-x 3 sarthdiskalkar	admin 96 Oct 16 2023 RStudio.app
lrwxr-xr-x 1 root	wheel 54 Dec 15 09:43 Safari.app ->
../System/Cryptexes/App/System/Applications/Safari.app	
drwxr-xr-x 3 sarthdiskalkar	staff 96 Jan 9 19:44 Slack.app
drwxr-xr-x 3 sarthdiskalkar	staff 96 Feb 23 12:46 Spotify.app
drwxr-xr-x 3 sarthdiskalkar	admin 96 Mar 22 2022 Steam.app
drwxr-xr-x 3 sarthdiskalkar	admin 96 Dec 4 16:12 'Sublime Text.app'
drwxr-xr-x 3 root	wheel 96 Dec 15 09:43 Utilities
drwxr-xr-x 3 sarthdiskalkar	admin 96 Oct 13 2020 'VMD 1.9.4a57-
arm64-Rev12.app'	
-rw-r--r-- 1 sarthdiskalkar	staff 2295838 Dec 14 2020 "VMD User's
Guide.pdf"	
drwxr-xr-x 3 root	wheel 96 Aug 22 2022 iMovie.app
drwxr-xr-x 3 root	wheel 96 Jul 4 2023 zoom.us.app
(base) sarthdiskalkar@Sarths-MBP /Applications %	

In my root directory, it is clear that the ones with the -> are symbolic links that point towards an executable or file/directory. Also in the very beggning there is either a - for file, l for symbolic link, or a d for directory.

7. While not covered in Lecture, grep is an extremely useful command for searching for text strings. On Canvas, I have included an example file that you can search through called Demographics.csv. This file lists demographic information by county. This information could be useful to predict how many people are expected to be hospitalized if Covid-19 spreads through a county. We know that Covid-19 has a strong age-dependence in

determining the likelihood that someone is hospitalized or dies from it if they are infected.

a. Read the manual page in order to learn how to use grep. Use grep in order to search for the demographics specific to Fulton County, where we are located now. Make sure you only print out information for Fulton County from Georgia.

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % grep 'Fulton County, Georgia' -c Demographics.csv
```

```
101
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % grep 'Fulton County, Georgia' Demographics.csv
```

```
100091,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,0,12373
```

```
100092,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,1,12373
```

```
100093,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,2,12373
```

```
100094,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,3,12373
```

```
100095,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,4,12408
```

```
100096,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,5,12443
```

```
100097,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,6,12479
```

```
100098,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,7,12514
```

```
100099,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,8,12591
```

```
100100,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,9,12710
```

```
100101,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,10,12829
```

```
100102,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,11,12948
```

```
100103,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,12,13067
```

```
100104,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,13,13232
```

```
100105,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,14,13444
```

```
100106,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,15,13656
```

```
100107,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,16,13868
```

```
100108,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,17,14080
```

```
100109,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,18,14265
```

```
100110,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,19,14422
```

100111,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,20,14579
100112,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,21,14737
100113,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,22,14894
100114,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,23,15361
100115,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,24,16139
100116,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,25,16916
100117,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,26,17694
100118,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,27,18471
100119,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,28,18662
100120,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,29,18266
100121,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,30,17870
100122,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,31,17475
100123,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,32,17079
100124,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,33,16758
100125,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,34,16513
100126,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,35,16268
100127,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,36,16023
100128,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,37,15777
100129,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,38,15510
100130,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,39,15220
100131,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,40,14929
100132,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,41,14639
100133,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,42,14349
100134,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,43,14305
100135,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,44,14506

100136,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,45,14708
100137,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,46,14909
100138,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,47,15110
100139,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,48,15061
100140,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,49,14762
100141,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,50,14463
100142,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,51,14164
100143,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,52,13865
100144,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,53,13642
100145,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,54,13495
100146,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,55,13348
100147,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,56,13201
100148,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,57,13055
100149,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,58,12762
100150,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,59,12324
100151,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,60,11886
100152,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,61,11448
100153,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,62,11010
100154,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,63,10573
100155,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,64,10137
100156,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,65,9701
100157,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,66,9265
100158,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,67,8829
100159,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,68,8391
100160,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,69,7952

100161,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,70,7512
100162,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,71,7072
100163,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,72,6632
100164,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,73,6183
100165,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,74,5725
100166,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,75,5267
100167,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,76,4809
100168,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,77,4351
100169,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,78,3964
100170,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,79,3647
100171,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,80,3331
100172,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,81,3014
100173,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,82,2697
100174,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,83,2465
100175,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,84,2317
100176,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,85,2169
100177,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,86,2021
100178,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,87,1873
100179,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,88,1725
100180,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,89,1577
100181,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,90,1429
100182,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,91,1286
100183,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,92,1143
100184,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,93,1000
100185,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of America,North America,94,857

```

100186,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,95,714
100187,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,96,571
100188,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,97,428
100189,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,98,285
100190,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,99,142
100191,"Fulton County, Georgia",13121,County,13,Georgia,South,United States of
America,North America,100,0

```

b. The default behavior of `grep` is to print out information to standard out (which shows on the screen). If you want to redirect this output to a file, it is very easy to using “>” after the command and then supplying the name of the file that you want to print to. Create a file that just contains the information for Fulton County and a file that just contains the information for the county you were born in.

This one redirects the output which was the count number to `ForsythCountyInfo.txt`
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % `grep -c 'Forsyth County, Georgia' Demographics.csv > ForsythCountyInfo.txt`

This one appends the new output to the end basically adding on to the end of the same file.
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % `grep 'Forsyth County, Georgia' Demographics.csv >> ForsythCountyInfo.txt`

c. `wc` is a command that you can use to count the number of characters, words, or lines in a file. Use this command to count how many of each are in the `Demographics.csv` file along with the two custom files you created. Identify flags that you can send to `wc` to restrict the output to just characters, words, or lines.

```

(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc ForsythCountyInfo.txt
 102  713 11000 ForsythCountyInfo.txt
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc FultonCountyInfo.txt
 101  707 11056 FultonCountyInfo.txt
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc FultonCountyInfo.txt
ForsythCountyInfo.txt
 101  707 11056 FultonCountyInfo.txt
 102  713 11000 ForsythCountyInfo.txt
 203 1420 22056 total
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc Demographics.csv
322292 2362391 36111459 Demographics.csv
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc FultonCountyInfo.txt
ForsythCountyInfo.txt Demographics.csv
 101  707 11056 FultonCountyInfo.txt
 102  713 11000 ForsythCountyInfo.txt
322292 2362391 36111459 Demographics.csv
322495 2363811 36133515 total

```


Now I will explore the use of various options on the ForsythCounty file:

-m -> for printing number of characters in file

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc -m ForsythCountyInfo.txt
11000 ForsythCountyInfo.txt
```

-w -> count of words in file

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc -w ForsythCountyInfo.txt
713 ForsythCountyInfo.txt
```

-l -> prints number of lines in file

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc -l ForsythCountyInfo.txt
102 ForsythCountyInfo.txt
```

-c -> count of bytes in file

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc -c ForsythCountyInfo.txt
11000 ForsythCountyInfo.txt
```

-L -> used to print out the length of longest (number of characters) line in a file.

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % wc -L ForsythCountyInfo.txt
108 ForsythCountyInfo.txt
```

d. Identify a flag using grep to identify all of the ages/counties that do not have a person alive (i.e. the last column = 0). Create a new file where these 0 lines are filtered out of the file.

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % grep ',0$' Demographics.csv >
NoPersonAlive
```

\$ indicates end of the line.

8. Piping: piping is a method to combine two programs. You can take the output of one program and send it into the input of a second program. For example, if you want to combine grep and wc you can do it like so:

```
$ grep ",South Carolina," Demographics.csv | grep "America,0,"
```

This command first searches the Demographics.csv file for all the data from counties in South

Carolina. It then send the output of the first command to grep to further filter it for the number

of individuals in each county that are between 0-1 year old. The "|" character is what tells zsh to

do this. This way we have a single line for each county.

a. Use a pipe to create three commands. 1) How many symbolic links are in a given directory? 2. How many subdirectories are in a given directory? 3. How many files are in a given directory? Use the answers from 6 to help

1. ls -la | grep '^l' | wc -l

2. ls -la | grep '^d' | wc -l

3. ls -la | grep '^-' | wc -l

b. Identify a command that lists the number of counties that are in the state of South Carolina (This can be done using 2 separate pipes). There should be 46 counties. Does your number agree? If not what extra data is included or what counties are missing?

DONE

c. Based upon your answer in 8b, identify the demographics information for the state of Georgia.

DONE

9. pico is a command that you can use as a text editor. It takes the name of the file you want

to use as an argument. If the file exists, it opens the file up for editing. If it doesn't exist, it creates a brand new file.

Some useful commands to interact with pico can be found here:

http://www.diochnos.com/tips/terminal/pico_tutorial.pdf

a. Create a file called temp.txt using pico that contains the line: "This is my first text file". Save the file and exit the editor. Use more to verify the file saved correctly.

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % cat temp.txt
This is my first text file.
```

b. Open the Demographics.csv file in the pico editor. Play around with some of the pico commands to see how they work.

done

10. Use echo to print out the values of some of your environmental variables listed here: <https://geek-university.com/linux/common-environment-variables/>

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $PWD
/Users/sarthdiskalkar/Desktop/Fall2023Bioinformatics/BIOL 6505/Lectures/Lecture1-CommandLine
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $USER
sarthdiskalkar
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $TERM
xterm-256color
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $DISPLAY
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $MANPATH
/usr/local/share/man:/opt/homebrew/share/man:::
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $SHELL
/bin/zsh
```

```
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % $echo $HOME
```

```
zsh: permission denied: /Users/sarthdiskalkar
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % $echo HOME
zsh: command not found: HOME
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % $echo $HOME
zsh: permission denied: /Users/sarthdiskalkar
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $HOME
/Users/sarthdiskalkar
(base) sarthdiskalkar@Sarths-MBP Lecture1-CommandLine % echo $LANG
en_US.UTF-8
```