Lab 2: More Unix Commands

'echo'

1. What are the differences among the following commands? Explain with screenshots.
(6 pts , 1 point each)

a) echo cal – **echo sees cal as a literal message to output**

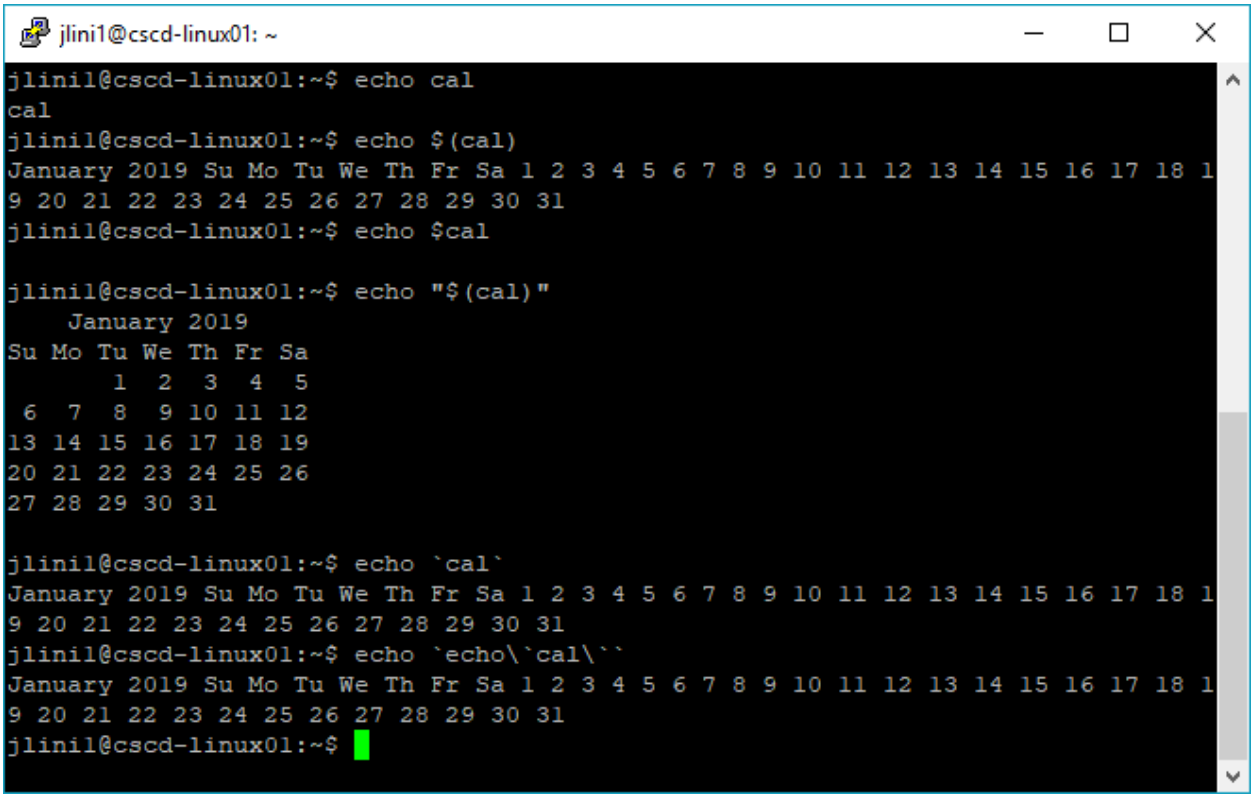
b) echo $(cal) – **the parenthesis makes it so it runs the cal command**

c) echo $cal – **without parenthesis, it's printing out a variable called cal, which is not initialized**

d) echo "$(cal)" – **the quotes makes echo output the newline statements it seems**

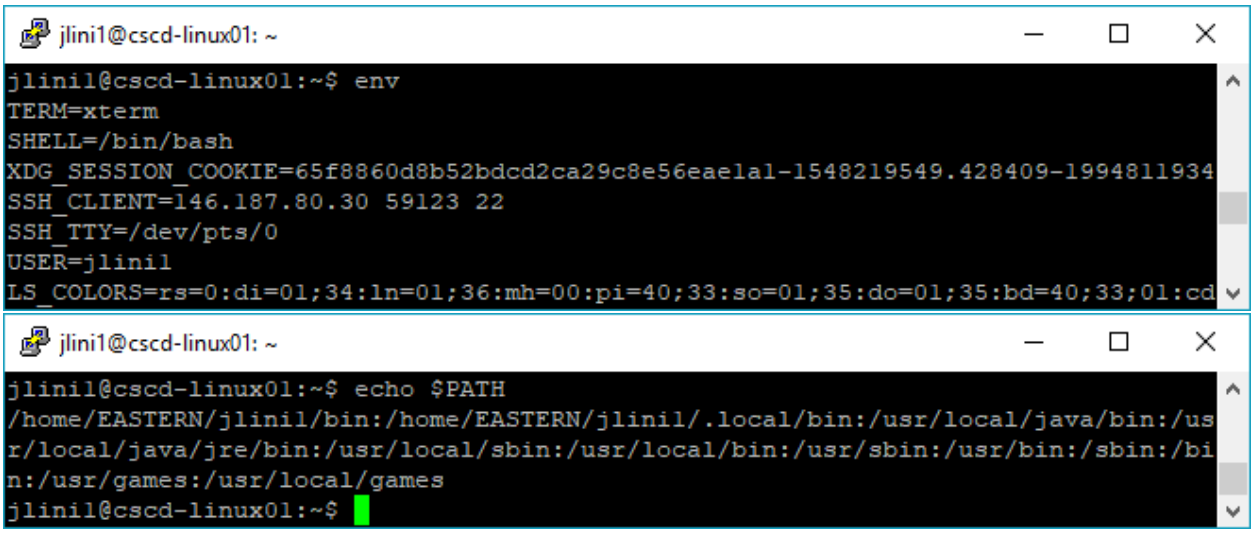
e) echo `cal` ←This is back quote – **the back quotes run the command**

f) echo `echo \`cal\`` ← This is back quote – **same as above but also echo's an empty echo command**



Environment variables

2. What command will show you all the environment variables? What command will display the environment variable named **PATH**? Show both with screenshot.
(2 points, 1 point each)



I/O

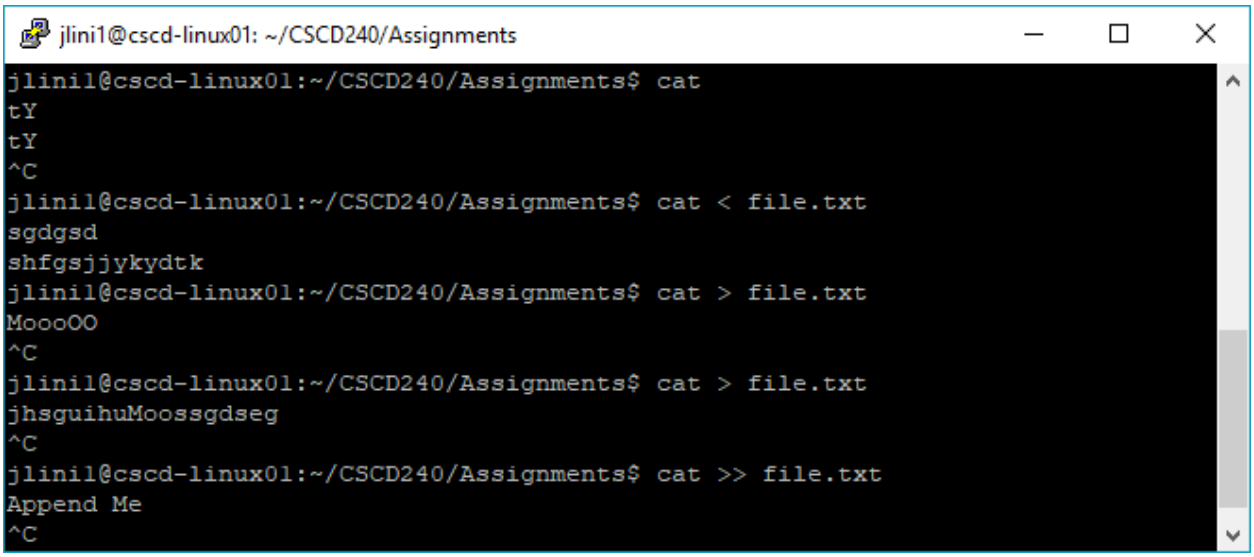
3. What are the differences among the following commands. Explain with examples and screenshot. (4 points, 1 point each)

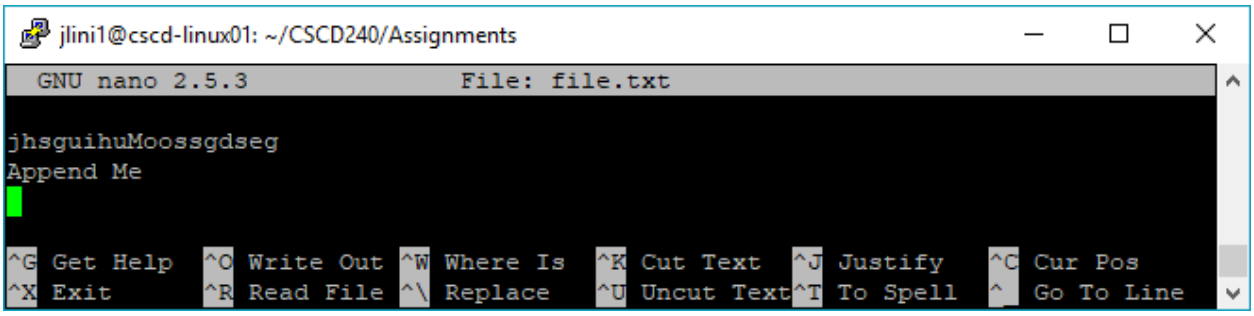
cat – **This will prompt for input and then repeat it after hitting 'Enter'**

cat < filename – **cat outputs the contents of the file "filename"**

cat > filename – **cat outputs what you type in, into "filename", overwriting it**

cat >> filename – **same as above, but appends instead of overwrites**





4. Write a command that counts the total number of lines the string "**bird**" exists in a file named "**The Rhyme of Ancient Mariner**" in your current directory. (1 point)
   grep -c 'bird' 'The Rhyme of Ancient Mariner'
5. Write a command that searches the string "**line**" in all .c and .txt files starting from your current directory and all sub directories. (1 point)
   grep --include=*.{c,txt} 'line' -R .

Metacharacters in Regular Expression

6. What will the following patterns match? Explain. (4 points, 1 point each)
   a) ^bags$ **lines with only "bags" will match**
   b) ^…$ **lines with only 3 characters**
   c) l.g **match any 3-letter word that starts with l and ends with g**
   d) ^\. **matches any line that starts with period**

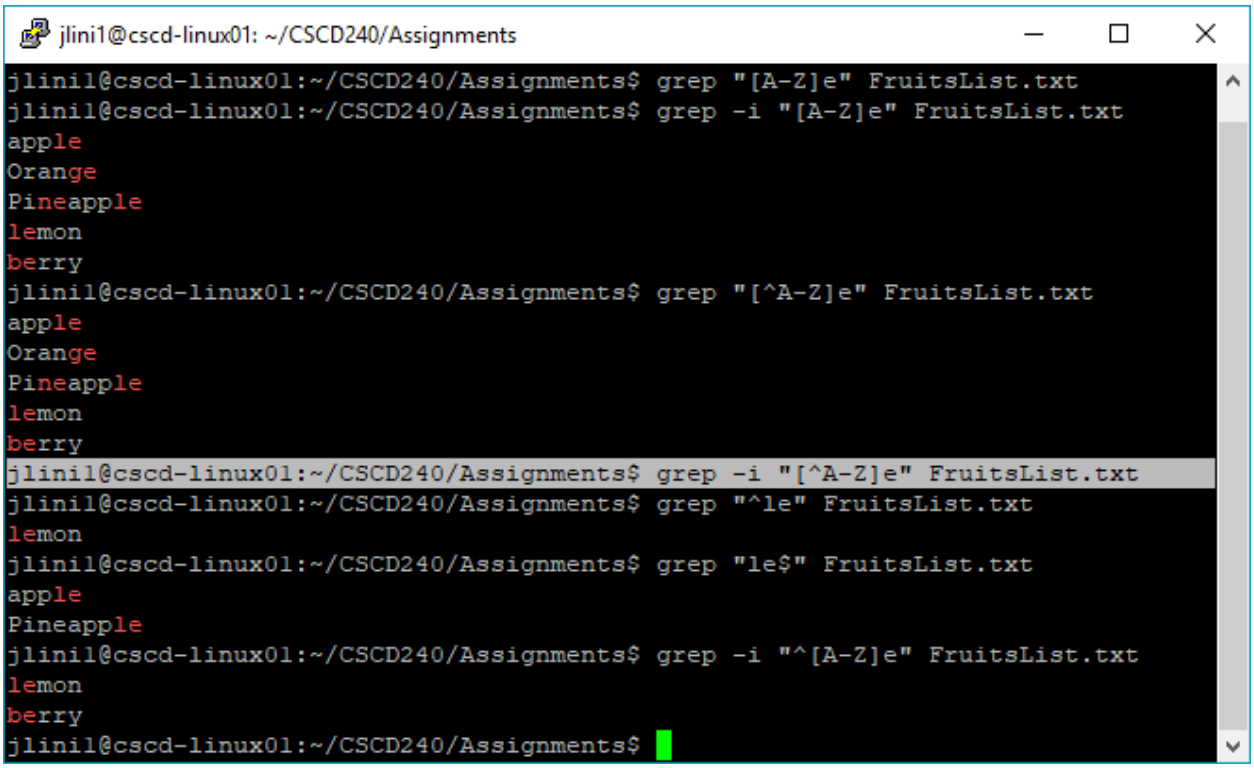
'grep', 'find', pipe

7. Consider the following file named "**FruitsList.txt**". Try the following commands and explain each output with screenshot. (6 points, 1 point each)

FruitsList.txt

apple
Orange
Pineapple
Banana
lemon
Kiwi
berry

   a) grep "[A-Z]e" FruitsList.txt
      matches lines that contain an e after a capital letter
   b) grep -i "[A-Z]e" FruitsList.txt
      matches any line containing a letter (case-insensitive) followed by e
   c) grep "[^A-Z]e" FruitsList.txt
      matches lines with an e, with not capital A-Z in front
   d) grep –i "^[A-Z]e" FruitsList.txt
      lines starting with any letter (case-insensitive) and an e
   e) grep "^le" FruitsList.txt
      lines starting with le
   f) grep "le$" FruitsList.txt
      lines ending with le



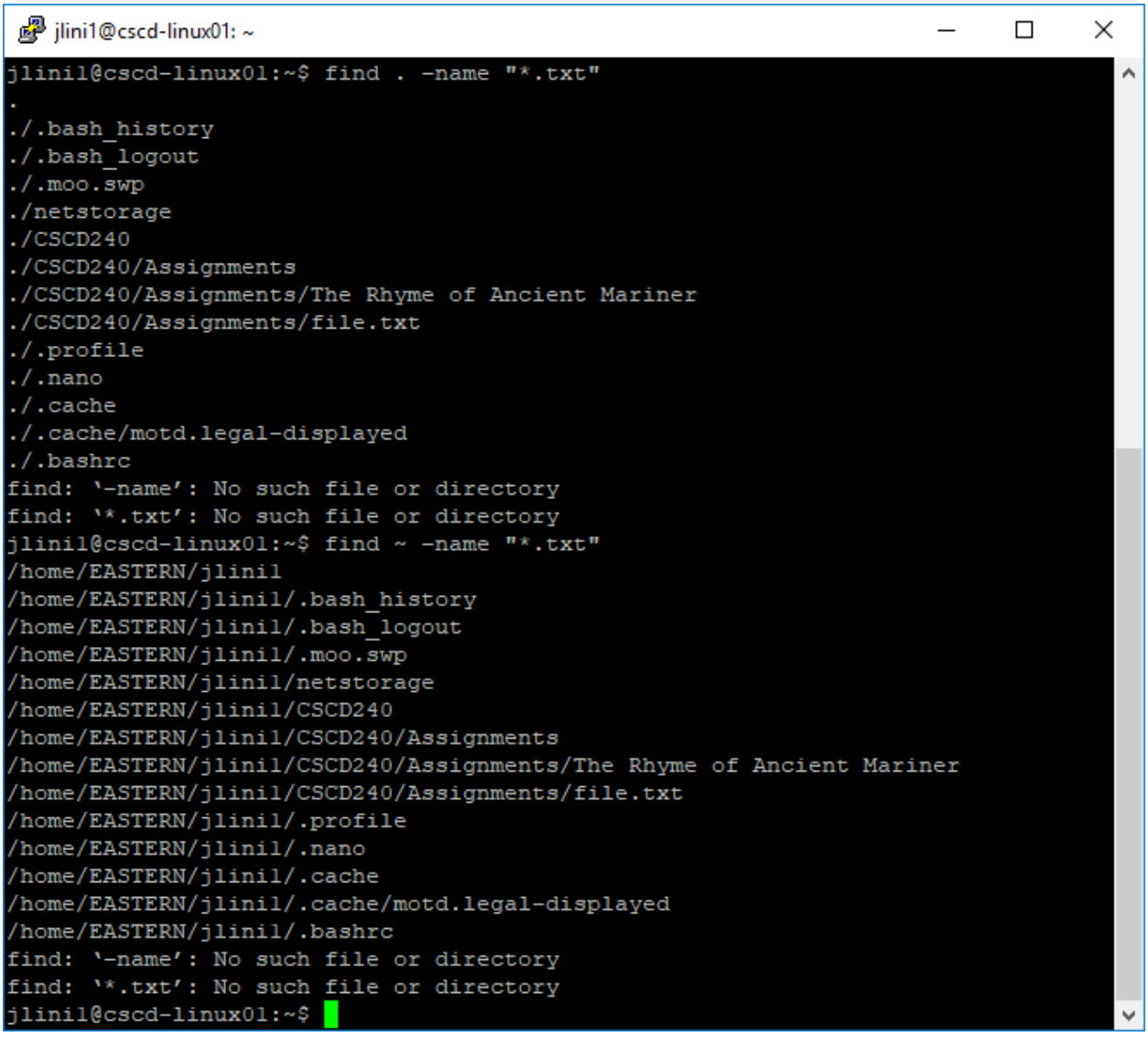
Ignore highlighted command; correction at bottom

8. Suppose you are in your home directory. What are the differences between the following commands? Explain with screenshot. 1 point

   find . –name "*.txt"

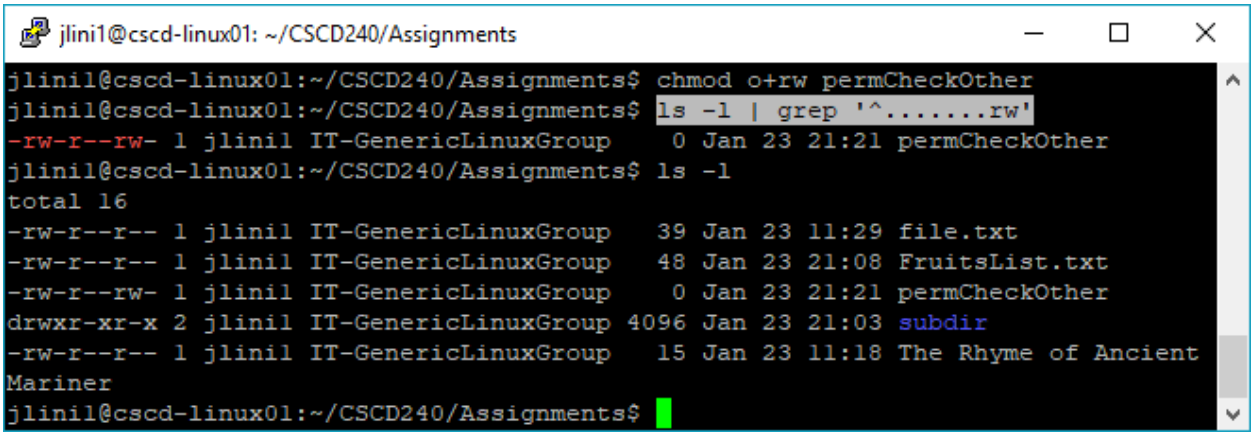
   find ~ -name "*.txt"

   command with '.' will search current directory, and the command with '~' will search the home directory. They will act the same because the current directory is the home directory

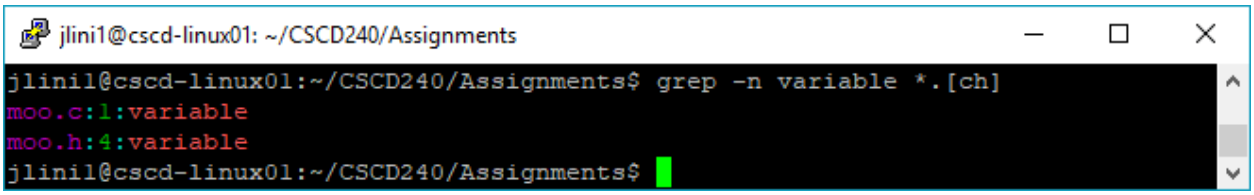


9. Write a command that finds all text files in your home directory and subdirectory and shows the long listing. 1 point
   find . -name "*.txt" -ls
10. What will the following commands do? Explain with screenshots. (2 points, 1 point each)

    a) ls –l | grep '^…….rw'
    lists all files/dirs/links with read and write permissions on other



b) grep –n variable *.[ch]
lists .c and .h files that contain the pattern 'variable' and lists the line number of where the pattern match was found



Processes and Jobs

11. What is process? How will you differentiate processes from jobs? 1 point
Processes are programs and their wrappers that run in the system, jobs are also programs and their wrappers (so also processes) but they are tied to the active shell
12. What are the difference between the following commands: Explain with screenshot.
ps and **ps –aux.** 1 point
ps prints the active processes and jobs for the user, ps -aux shows a list of all processes and jobs currently running on the system for all users

Submission:

- A PDF file - Name this file as follows: your last name, first letter of your first name, Lab2.pdf (i.e., YasminSLab2.pdf). This file will contain all your answers. Each question should be copied first and then answered.
- You should turn in through the EWU Canvas system.
- Submission deadline is **Wednesday, January 23**. **No late submission will be accepted**.