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CRN 88089
Lab 4 Part 1 Commands Report

CSC3320 System Level Programming
Lab Assignment 4 - Part 1 (In- Lab)
Instructor: Bello Babatunde

Purpose: Practices on the grep family commands to process texts in files.

Note: Please follow the instructions below, and write a report by answering the questions and upload the report (named as Lab4_P1_FirstNameLastName.pdf or Lab4_P1_FirstNameLastName.doc) to Google Classroom.

Please add the lab assignment NUMBER and your NAME at the top of your file sheet.

Open your terminal and connect to snowball server. Change your directory to your home directory (cd ~), and then create a new directory named as "Lab4" (mkdir Lab4). After that, go to directory Lab4 (cd Lab4) and please download the file "CSC_Course.txt" by the following command (internet access required):

cp /home/bbello1/Public/CSC_Course.txt CSC_Course.txt Be sure it succeeds using "ls" to see the file name "CSC_Course.txt" listed.

Try the following commands step by step and finish the required tasks from step 4) to step 16).

Note: marks a single space.

1) $more CSC_Course.txt

Check the content of "CSC_Course.txt" using more.

Note: When viewing the file, you may need to use command f (forward one screen), b (backward one screen) and q(quit).

2) $grep 'CSC 3320' CSC_Course.txt

Note: there is a single space between "CSC" and "3320"

Output the lines containing the string "CSC 3320"(search the course the number of which is "CSC 3320")

3) $grep -i 'CSC 3320' CSC_Course.txt

Output the lines containing the string "CSC 3320" via ignoring case (search the information related to CSC3320)

4) $ grep 'CSC 3' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC 3' temp_course.txt
        CSC 3450 - C programming
        CSC 320 C Progamming
•       CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with the string “CSC 3”

5) $ grep 'CSC 3|CSC 1' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC 3|CSC 1' temp_course.txt
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines containing the string “CSC 3” or “CSC 1” but it didn’t output because the input is for basic regular expressions

6) $ grep -E 'CSC 3|CSC 1' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

Use extend regular expression

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep -E 'CSC 3|CSC 1' temp_course.txt
•       CSC 1301 - Principles of Computer Science I 4 Credit Hours
•       CSC 1302 - Principles of Computer Science II 4 Credit Hours
        CSC 3450 - C programming
        CSC 320 C Progamming
        CSC 100 Computer Introduction
•       CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with the string “CSC 3” or “CSC 1”

7) $ egrep 'CSC 3|CSC 1' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC 3|CSC 1' temp_course.txt
•       CSC 1301 - Principles of Computer Science I 4 Credit Hours
•       CSC 1302 - Principles of Computer Science II 4 Credit Hours
        CSC 3450 - C programming
        CSC 320 C Progamming
        CSC 100 Computer Introduction
•       CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with the string "CSC 3" or "CSC 1"

- *egrep* is the same command as *egrep -E*

8) $ fgrep '3.000 Credit hours' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ fgrep '3.000 Credit hours' temp_course.txt
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the string "3.000 Credit hours"

- *fgrep* is the same command as *grep -f*

9) $ fgrep -x '3.000 Credit hours' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

Only match the whole line

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ fgrep -x '3.000 Credit hours' temp_course.txt
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines matching the entire string "3.000 Credit hours"

10) $ grep 'CSC.*Programming' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball ~]$ grep 'CSC.*Programming' temp_course.txt
For CSC 2302 - Python Programming
        CSC 4930 - C++ Programming Series
        CSC 223 Database Programming Introdcution
•       CSC 2301 - Introduction to Python Programming 3 Credit Hours
•       CSC 2302 - Python Programming for Data Science 3 Credit Hours
•       CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball ~]$
```

This shows the output of the lines starting with the string "CSC" and ending with "PROGRAMMING" with anything in between

11) $ grep '^CSC.*Programming$' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep '^CSC.*Programming$' temp_course.txt
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines starting with the string “CSC” and ending with “PROGRAMMING” with anything in between

Currently, I’m having trouble with this question because I’m not getting the desired output. Above is the output I’m getting instead...

12) $ grep --color 'CSC[^3]*3{2}' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

No result, {} is not a special character

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep --color 'CSC[^3]*3{2}' temp_course.txt
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with highlighted matching words. It outputs the lines with the substring starting with “CSC” except “3” after the previous string and ending with “3” two times

13) $ egrep --color -w 'CSC[^3]*3{2}[^3]*' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

-w Select only those lines containing matches that form whole words.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ egrep --color -w 'CSC[^3]*3{2}[^3]*' temp_course.txt
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with highlighted matching words and it outputs the lines with the exact string starting with “CSC” and except “3” after the previous string and ending with the line with “3” two times then except “3”

14) $ grep 'CSC.*C++' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

+ is not a special character in basic regular expression

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' temp_course.txt
        CSC 4930 - C++ Programming Series
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with the string starting with “CSC” and ending with “C++”. You can get an output if you change *grep* to *egrep*

15) $ egrep 'CSC.*C\+\+' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

Convert +

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C\+\+' temp_course.txt
        CSC 4930 - C++ Programming Series
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

This shows the output of the lines with the string starting with “CSC” and ending with “C++”. You can get an output if you change *grep* to *egrep*.

16) $ egrep 'CSC.*C++' CSC_Course.txt

Please only describe what this command does.

This shows the output of the lines containing the string starting with “CSC” and ending with “C++”.

```
[vdo10@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C++' temp_course.txt
•       CSC 1301 - Principles of Computer Science I 4 Credit Hours
•       CSC 1302 - Principles of Computer Science II 4 Credit Hours
•       CSC 2510 - Theoretical Foundations of Computer Science 3 Credit Hours
        CSC 3450 - C programming
        CSC 4930 - C++ Programming Series
        CSC 320 C Progamming
        CSC 100 Computer Introduction
•       CSC 2301 - Introduction to Python Programming 3 Credit Hours
•       CSC 2302 - Python Programming for Data Science 3 Credit Hours
•       CSC 3202 - Java Programming Issues in Computing 3 Credit Hours
CSC 2720 - Data Structures 3 Credit Hours
CSC 3210 - Computer Organization and Programming 4 Credit Hours *
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
CSC 3330 - Programming Language Concepts 4 Credit Hours
CSC 3200 - Design and Analysis of Algorithms 4 Credit Hours
[vdo10@gsuad.gsu.edu@snowball Lab4]$
```

Optional Part:

1) $ sed -E -n 's/(CSC 3[0-9]{3})(.*)/\1/p' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

2)$ awk –F'-' '/(CSC 3[0-9]{3})(.*)/{print $1}' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

3) $ sed -E -n 's/(CSC [0-9]{4})(-)(.*)/\3/p' CSC_Course.txt

Attach a screenshot of the output and describe what this command does.

4) $ sed -E -n 's/(CSC [0-9]{4})(-)(.*)/\3/p' CSC_Course.txt| sort

Attach a screenshot of the output and describe what this command does.