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Professor Ashok

CSC 3320

September 2021

Lab 4 In-Lab Assignment

4) `$ grep ‘CSC 3’ CSC_Course.txt`

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep 'CSC 3320' CSC_Course.txt
CSC 3320 - System-Level Programming 3 Credit Hours
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep -i 'CSC 3320' CSC_Course.txt
CSC 3320 - System-Level Programming 3 Credit Hours
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep 'CSC 3' CSC_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
```

This command searches for lines that have the pattern ‘CSC 3’ in them and prints those lines

5) `$ grep ’CSC 3|CSC 1’ CSC_Course.txt`

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep 'CSC 3|CSC 1' CSC_Course.txt
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that have the pattern ‘CSC 3|CSC 1’ in them and prints those lines, and the pattern is interpreted as a basic regular expression.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep -E 'CSC 3|CSC 1' CSC_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
```

This command searches for lines that have the pattern ‘CSC 3’ or ‘CSC 1’ in them and prints those lines, and the pattern is interpreted as an extended regular expression because of the -E flag.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ egrep 'CSC 3|CSC 1' CSC_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
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that have the pattern 'CSC 3' or 'CSC 1' in them and prints those lines, and the pattern is interpreted as an extended regular expression because egrep behaves like grep -E

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ fgrep '3.000 Credit hours' CSC_Course.txt
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that have the exact string '3.000 Credit hours' in them and prints those lines, and the pattern is interpreted as a fized string because it is fgrep.

Output when '3.000 Credit Hours' replaces '3.000 Credit hours'

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ fgrep '3.000 Credit Hours' CSC_Course.txt
•       BIOL 2108 - Principles of Biology II 3.000 Credit Hours
```

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ fgrep -x '3.000 Credit hours' CSC_Course.txt
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that are the exact string '3.000 Credit hours' because of the -x flag and prints those lines, and the pattern is interpreted as a fized string because it is fgrep.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep 'CSC.*Programming' CSC_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
```

This command searches for lines that have the pattern 'CSC.*Programming' in them i.e. those strings that begin with 'CSC', have any charcters in between, and end with 'Programming' and prints those lines

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep '^CSC.*Programming$' CSC_Course.txt
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that have the pattern '^CSC.*Programming$' in them i.e. those lines that begin with 'CSC', have any charcters in between, and end with 'Programming' and prints those lines

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep --color 'CSC[^3]*3{2}' CSC_Course.txt
[dreddy2@gsuad.gsu.edu@snowball ~]$
```

This command searches for lines that have the basic regular expression pattern 'CSC[^3]*3{2}' in them i.e. those lines that have the string 'CSC[^3]*3{2}' in them.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ egrep --color -w 'CSC[^3]*3{2}[^3]*' CSC_Cour
CSC 3320 - System-Level Programming 3 Credit Hours
CSC 3325 - Operating Systems 4 Credit Hours
```

This command searches for lines that have the extended regular expression pattern 'CSC[^3]*3{2}' in them i.e. those lines that have the string that begins with 'CSC' and has some chacters which are not '3' followed by '3' two times.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ grep 'CSC.*C++' CSC_Course.txt
        CSC 4930 - C++ Programming Series
```

This command searches for lines that have the basic regular expression pattern 'CSC.*C++' in them i.e. those lines that have the string 'CSC' then have any number of characters and ends with 'C++" in them.

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

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

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ egrep 'CSC.*C\+\+' CSC_Course.txt
        CSC 4930 - C++ Programming Series
```

This command searches for lines that have the extended regular expression pattern 'CSC.*C\+\+' in them i.e. those lines that have the string 'CSC' then have any number of characters and ends with 'C++' in them.

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

Please only describe what this command does.

This command searches for lines that have the extended regular expression pattern 'CSC.*C++' in them i.e. those lines that have the string 'CSC' then have any number of characters and ends with one or more 'C', in them. The '+' after the first plus is an error.

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.

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ sed -E -n 's/(CSC 3[0-9]{3})(.*)/\1/p' CSC_Course.txt
        CSC 3450
•       CSC 3202
CSC 3210
CSC 3320
CSC 3325
CSC 3330
CSC 3200
```

This sed command captures the pattern of CSC 3xxx where x is any number between 0 and 9 in one group, and the rest of the line in another group, and only prints the first group.

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.

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ awk -F"-" '/(CSC 3[0-9]{3})(.*)/{print $1}' CSC_Course.txt
        CSC 3450
•       CSC 3202
CSC 3210
CSC 3320
CSC 3325
CSC 3330
CSC 3200
```

This awk script seperates the given input into fields at the '-' symbol, captures the pattern of CSC 3xxx where x is any number between 0 and 9 in one group, and the rest of the line in another group, and only prints the first group.

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.

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ sed -E -n 's/(CSC [0-9]{4})( - )(.*)/\3/p' CSC_Course.txt
•       Principles of Computer Science I 4 Credit Hours
•       Principles of Computer Science II 4 Credit Hours
•       Theoretical Foundations of Computer Science 3 Credit Hours
For Python Programming
        C programming
        C++ Programming Series
•       Introduction to Python Programming 3 Credit Hours
•       Python Programming for Data Science 3 Credit Hours
•       Java Programming Issues in Computing 3 Credit Hours
Data Structures 3 Credit Hours
Computer Organization and Programming 4 Credit Hours *
System-Level Programming 3 Credit Hours
Operating Systems 4 Credit Hours
Programming Language Concepts 4 Credit Hours
Design and Analysis of Algorithms 4 Credit Hours
```

This sed command captures the pattern of CSC xxxx where x is any number between 0 and 9 in one group, ' - ' in the second and the rest of the line in the third group, and only prints the third group.

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.

```
[dreddy2@gsuad.gsu.edu@snowball ~]$ sed -E -n 's/(CSC [0-9]{4})( - )(.*)/\3/p' CSC_Course.txt| sort ]
Computer Organization and Programming 4 Credit Hours *
        C programming
        C++ Programming Series
Data Structures 3 Credit Hours
Design and Analysis of Algorithms 4 Credit Hours
For Python Programming
•       Introduction to Python Programming 3 Credit Hours
•       Java Programming Issues in Computing 3 Credit Hours
Operating Systems 4 Credit Hours
•       Principles of Computer Science I 4 Credit Hours
•       Principles of Computer Science II 4 Credit Hours
Programming Language Concepts 4 Credit Hours
•       Python Programming for Data Science 3 Credit Hours
System-Level Programming 3 Credit Hours
•       Theoretical Foundations of Computer Science 3 Credit Hours
```

This sed command captures the pattern of CSC xxxx where x is any number between 0 and 9 in one group, ' - ' in the second and the rest of the line in the third group, and only prints the third group. The output of sed is piped to the sort command which sorts it by symbol in ASCII order and prints the sorted output.