Lab Assignment 4 - Part 1 (In- Lab)
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Question 4: This command will search the file and return all the statements containing the words "CSC 3".

Question 5. Does not produce an output because it is an improper command, (/) should be used instead of (|)

Question6. Searchesfileandreturnsall wordscontaining 'CSC3' or 'CSC 1'.

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep -E 'CSC 3|CSC 1' CSC_Course.txt
CSC 1010          Computers and Applications
CSC 1301          Principles of Computer Science I
CSC 1302          Principles of Computer Science II
Prerequisites    CSC 1301 with a "C" or higher
Prerequisites    CSC 1301 or CSC 2301 with a C or higher, or permission of instructor
Prerequisites    (CSC 1301 or DSCI 1301) and (MATH 1113 or MATH 2211) with a C or higher.
Prerequisites    CSC 1302, MATH 2211, and CSC 2510 or MATH 2420 with grades of "C" or higher
Prerequisites    CSC 1301 and CSC 1302 with a C or higher or permission of the department
CSC 3210          Computer Organization and Programming
Prerequisites    CSC 1302, and CSC 2510 or MATH 2420 with A C or higher
CSC 3320          System-Level Programming
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 3210 with a C or higher
Prerequisites    CSC 3210 with grade of C or higher
Prerequisites    CSC 3320 and either MATH 3020 or MATH 3030 with a C or higher
Prerequisites    CSC 2720 and CSC 3320 with grades of "C" or higher.Students must meet the Computer Scien
ce Major Eligibility Requirement in order to enroll in this course
Prerequisites    CSC 2720 and CSC 3320 with grades of "C" or higher
Prerequisites    CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites    CSC 2720 Data Structure and CSC 3320 System-Level Programming with grades of C or better
Prerequisites    CSC 3210 Computer Organization and Programming, CSC 2720 Data Structure
Prerequisites    CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites    CSC 3210 and CSC 3320 with grades of C or higher
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 2720, CSC 3210, and CSC 3320 with a C or higher
Prerequisites    CSC 2720 and CSC 3210 with grades of "C" or higher
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 3320 with a C or higher
Prerequisites    CSC 3320 with grade of "C" or higher
Prerequisites    CSC 3320 with grade of C or higher
Prerequisites    CSC 3320 with a grade of C or higher
Prerequisites    CSC 3320 with a grade of C or higher
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 7. Returns all phrases that contain either the term "CSC 3" or "CSC 1".

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC 3|CSC 1' CSC_Course.txt
CSC 1010        Computers and Applications
CSC 1301        Principles of Computer Science I
CSC 1302        Principles of Computer Science II
Prerequisites   CSC 1301 with a "C" or higher
Prerequisites   CSC 1301 or CSC 2301 with a C or higher, or permission of instructor
Prerequisites   (CSC 1301 or DSCI 1301) and (MATH 1113 or MATH 2211) with a C or higher.
Prerequisites   CSC 1302, MATH 2211, and CSC 2510 or MATH 2420 with grades of "C" or higher
Prerequisites   CSC 1301 and CSC 1302 with a C or higher or permission of the department
CSC 3210        Computer Organization and Programming
Prerequisites   CSC 1302, and CSC 2510 or MATH 2420 with A C or higher
CSC 3320        System-Level Programming
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3210 with a C or higher
Prerequisites   CSC 3210 with grade of C or higher
Prerequisites   CSC 3320 and either MATH 3020 or MATH 3030 with a C or higher
Prerequisites   CSC 2720 and CSC 3320 with grades of "C" or higher.Students must meet the Computer Scien
ce Major Eligibility Requirement in order to enroll in this course
Prerequisites   CSC 2720 and CSC 3320 with grades of "C" or higher
Prerequisites   CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites   CSC 2720 Data Structure and CSC 3320 System-Level Programming with grades of C or better
Prerequisites   CSC 3210 Computer Organization and Programming, CSC 2720 Data Structure
Prerequisites   CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites   CSC 3210 and CSC 3320 with grades of C or higher
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 2720, CSC 3210, and CSC 3320 with a C or higher
Prerequisites   CSC 2720 and CSC 3210 with grades of "C" or higher
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3320 with a C or higher
Prerequisites   CSC 3320 with grade of "C" or higher
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3320 with a grade of C or higher
Prerequisites   CSC 3320 with a grade of C or higher
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 8: No Output. would return the phrases that contain '3.000 Credit hours' is the same as grep -f. However, no such phrase is present.

Question 9.No Output. would return the lines that contain the entire string '3.000 Credit hours'. However, no such phrases are present.

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ fgrep '3.000 Credit hours' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ fgrep '3.000 Credit hours' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ fgrep -x '3.000 Credit hours' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
[kguchu1@gsuad.gsu.edu@snowball Lab4]$  fgrep -x '3.000 Credit hours' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ fgrep -x '3.000 Credit hours' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 10. Will highlights all strings beginning with the phrase "CSC" and containing the phrase "Programming" within it.

```
[[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep '^CSC.*Programming' CSC_Course.txt
CSC 2301        Introduction to Python Programming
CSC 2302        Python Programming for Data Science
CSC 3210        Computer Organization and Programming
CSC 3320        System-Level Programming
CSC 4225        Internetwork Programming
CSC 4330        Programming Language Concepts
CSC 4370        Web Programming
CSC 4380        Windowing Systems Programming
CSC 4760        Big Data Programming
CSC 4840        Advanced Computer Graphics Programming
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 11. Will highlights all strings beginning with the phrase "CSC" and ending in the phrase "Programming".

```
[[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep '^CSC.*Programming$' CSC_Course.txt
CSC 2301        Introduction to Python Programming
CSC 3210        Computer Organization and Programming
CSC 3320        System-Level Programming
CSC 4225        Internetwork Programming
CSC 4370        Web Programming
CSC 4380        Windowing Systems Programming
CSC 4760        Big Data Programming
CSC 4840        Advanced Computer Graphics Programming
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 12. No Output

```
[[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep --color 'CSC[^3]*3{2}' CSC_Course.txt
[[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep --color -w 'CSC[^3]+3{2}[^3]+' CSC_Course.txt
CSC 3320        System-Level Programming
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3320 and either MATH 3020 or MATH 3030 with a C or higher
```

Question 13. Will output in a highlighted color only whole words that begin with CSC followed by two "3"s

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep --color -w 'CSC[^3]*3{2}[^3]*' CSC_Course.txt
CSC 3320          System-Level Programming
Prerequisites     CSC 3320 with grade of C or higher
Prerequisites     CSC 3320 and either MATH 3020 or MATH 3030 with a C or higher
Prerequisites     CSC 2720 and CSC 3320 with grades of "C" or higher.Students must meet the Computer Scien
ce Major Eligibility Requirement in order to enroll in this course
Prerequisites     CSC 2720 and CSC 3320 with grades of "C" or higher
Prerequisites     CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites     CSC 2720 Data Structure and CSC 3320 System-Level Programming with grades of C or bette
Prerequisites     CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
Prerequisites     CSC 3210 and CSC 3320 with grades of C or higher
Prerequisites     CSC 3320 with grade of C or higher
CSC 4330          Programming Language Concepts
Prerequisites     CSC 2720, CSC 3210, and CSC 3320 with a C or higher
Prerequisites     CSC 3320 with grade of C or higher
Prerequisites     CSC 3320 with grade of C or higher
Prerequisites     CSC 3320 with grade of C or higher
Prerequisites     CSC 3320 with a C or higher
Prerequisites     CSC 3320 with grade of "C" or higher
Prerequisites     CSC 3320 with grade of C or higher
Prerequisites     CSC 3320 with a grade of C or higher
Prerequisites     CSC 3320 with a grade of C or higher
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 14. No Output. Searches for file that contains phrase that starts
with "CSC" and ends with "C++"

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep --color 'CSC[^3]*3{2}[^3]*' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C\+\+' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C\+\+' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 15. No Output searches file for phrases that begin with "CSC" and
end with "C++"

```
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep --color 'CSC[^3]*3{2}[^3]*' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C\+\+' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C\+\+' CSC_Course.txt
[kguchu1@gsuad.gsu.edu@snowball Lab4]$
```

Question 16.
 Will search the file and output the highlighted extended pattern that
contains phrases that start with "CSC" and end with the letter C.