4)

```
[rsutradhar1@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC 3' CSC_Course.txt
CSC 3210        Computer Organization and Programming
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 Science Major Eli
lity 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
```

This goes through every line in the word doc and then prints out lines that explicitly contain "CSC 3" in them

5)

No output, this command explicitly looks for the string "CSC 3|CSC 1" which does not exist in the file

6)

This goes though every line of the text file for either the string "CSC 3" or the string "CSC 1" and prints it out if it finds any

```
[rsutradhar1@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
```

7)This does the same thing as the last command. It uses extended regex to look for the string "CSC 3" or "CSC 1" in the file and prints out the line

```
[rsutradhar1@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
```

8)No output. This looks for the string "3.0000 Credit Hours" which does not exist in the file.

9)No output. This looks for lines that match excatly what the regex is, "3.000 Credit hours', and that does not exist in the text file

10) this looks for lines that contians a string that start with "CSC" has any number of characters, then ends with "programming"

```
[rsutradhar1@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
Prerequisites     CSC 2720 (Data Structures) and CSC 3320 (System Level Programming)
CSC 4225          Internetwork 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)
CSC 4330          Programming Language Concepts
CSC 4370          Web Programming
CSC 4380          Windowing Systems Programming
```

11) this looks for line that start with "CSC" and end with "Programming" and prints them out. The ' . ' in the middle allows there to be any number of character between "CSC" and "Programming" . This differs from the previous one because it needs the entire line to fit the regex

```
[rsutradhar1@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
```

12)No result

This looks for a sting that is explicitly "CSC[^3]*3{2}" which does not exist in the file

13) This looks for a substring that starts with CSC, then there is any number of characters that are not '3' then there is a '33' followed by any number of characters except for "3". The -w only selecs whole words.

```
[rsutradhar1@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 Science Major Eli
lity 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 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
```

14)No output

this looks explicitly for "CSC.*C++" which does not exist

15)No output

this looks explicitly for "CSC.*C++" which does not exist, the \+\+ turned it from a special character to a regular charater

16)this looks for "CSC" then any character except a new like, then any number of character any number of times, then "C" after which it stops looking.

```
[rsutradhar1@gsuad.gsu.edu@snowball Lab4]$ egrep 'CSC.*C++' 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
CSC 2510        Theoretical Foundations of Computer Science
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
CSC 2920        Ethical and Social Issues in Computing
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
Prerequisites   CSC 3320 with grade of C or higher
Prerequisites   CSC 3210 with a C or higher
```