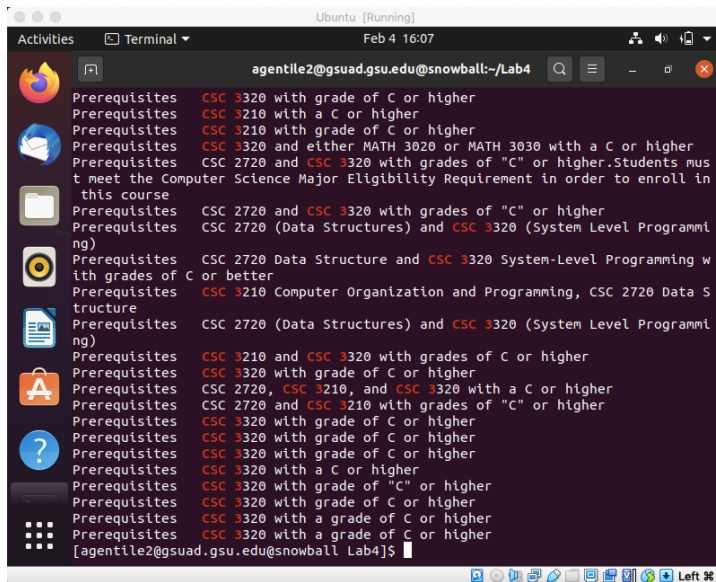


Alexandra Gentile
Lab 4

4.

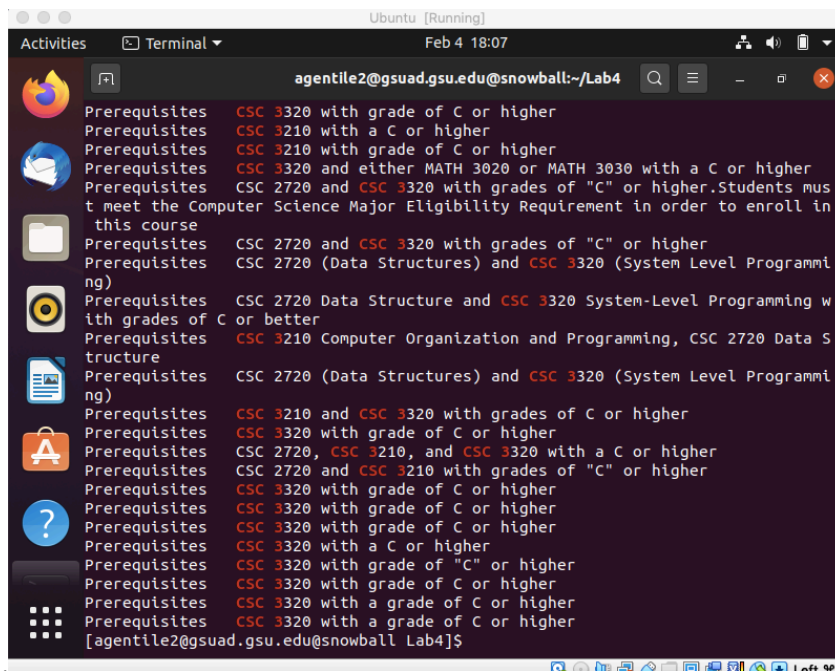


A terminal window titled 'Ubuntu [Running]' with the date 'Feb 4 16:07'. The prompt is 'agentile2@gsuad.gsu.edu@snowball:~/Lab4'. The terminal shows the output of a search command, displaying lines from a file that contain the string 'CSC 3'. The output is as follows:

```
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 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 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
[agentile2@gsuad.gsu.edu@snowball:~/Lab4]$
```

This command searches the lines containing the string “CSC 3”

5. No output is produced



A terminal window titled 'Ubuntu [Running]' with the date 'Feb 4 18:07'. The prompt is 'agentile2@gsuad.gsu.edu@snowball:~/Lab4'. The terminal shows the output of a search command, displaying lines from a file that contain the string 'CSC 3' or 'CSC 1'. The output is as follows:

```
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 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 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
[agentile2@gsuad.gsu.edu@snowball:~/Lab4]$
```

6.

This string searches the lines containing either “CSC 3” OR “CSC 1”

```

agentile2@gsuad.gsu.edu@snowball:~/Lab4$ egrep 'CSC 3|CSC 1' CSC_Course.txt
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
[agentile2@gsuad.gsu.edu@snowball Lab4]$
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

```

7.

This also searches the lines containing the string “CSC 3” OR “CSC 1”

8. No output is produced

9. No output is produced

```

agentile2@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
CSC 4760 Big Data Programming
Students must meet the Computer Science Major Eligibility Requirement in order to enroll in this course. Crosslisted with CSC 6760. This course will cover the technologies, tools, frameworks and languages that are most commonly used in Big Data Programming. Focus will be on algorithms for analyzing and mining massive datasets, graphs and social network data. Topics include the storage, management, processing and analysis of massive datasets, as well as Big Data governance, security, and privacy issues.
CSC 4840 Advanced Computer Graphics Programming
[agentile2@gsuad.gsu.edu@snowball Lab4]$

```

10.

This command searches the lines beginning with “CSC” and ending with “Programming” with any combination of words/characters inbetween

11.

```

agentile2@gsuad.gsu.edu@snowball:~/Lab4
Prerequisites with grades of C or better
Prerequisites CSC 3210 Computer Organization and Programming, CSC 2720 Data S
structure
Prerequisites CSC 2720 (Data Structures) and CSC 3320 (System Level Programmi
ng)
CSC 4330 Programming Language Concepts
CSC 4370 Web Programming
CSC 4380 Windowing Systems Programming
CSC 4760 Big Data Programming
Students must meet the Computer Science Major Eligibility Requirement in order
to enroll in this course. Crosslisted with CSC 6760. This course will cover the
technologies, tools, frameworks and languages that are most commonly used in B
ig Data Programming. Focus will be on algorithms for analyzing and mining massi
ve datasets, graphs and social network data. Topics include the storage, manage
ment, processing and analysis of massive datasets, as well as Big Data governan
ce, security, and privacy issues.
CSC 4840 Advanced Computer Graphics Programming
[agentile2@gsuad.gsu.edu@snowball Lab4]$ grep '^CSC.*Programming$' CSC_Course.t
xt
CSC 2301 Introduction to Python Programming
CSC 3210 Computer Organization and Programming
CSC 3320 System-Level Programming
CSC 4225 Internetwork Programming
CSC 4370 Web Programming
CSC 4380 Windowing Systems Programming
CSC 4760 Big Data Programming
CSC 4840 Advanced Computer Graphics Programming
[agentile2@gsuad.gsu.edu@snowball Lab4]$

```

This line searches for the lines containing “CSC” and ending with “Programming”

```

agentile2@gsuad.gsu.edu@snowball:~/Lab4
Prerequisites CSC 3210 Computer Organization and Programming, CSC 2720 Data S
tructure
Prerequisites CSC 2720 (Data Structures) and CSC 3320 (System Level Programmi
ng)
CSC 4330 Programming Language Concepts
CSC 4370 Web Programming
CSC 4380 Windowing Systems Programming
CSC 4760 Big Data Programming
Students must meet the Computer Science Major Eligibility Requirement in order
to enroll in this course. Crosslisted with CSC 6760. This course will cover the
technologies, tools, frameworks and languages that are most commonly used in B
ig Data Programming. Focus will be on algorithms for analyzing and mining massi
ve datasets, graphs and social network data. Topics include the storage, manage
ment, processing and analysis of massive datasets, as well as Big Data governan
ce, security, and privacy issues.
CSC 4840 Advanced Computer Graphics Programming
[agentile2@gsuad.gsu.edu@snowball Lab4]$ grep '^CSC.*Programming$' CSC_Course.t
xt
CSC 2301 Introduction to Python Programming
CSC 3210 Computer Organization and Programming
CSC 3320 System-Level Programming
CSC 4225 Internetwork Programming
CSC 4370 Web Programming
CSC 4380 Windowing Systems Programming
CSC 4760 Big Data Programming
CSC 4840 Advanced Computer Graphics Programming
[agentile2@gsuad.gsu.edu@snowball Lab4]$ grep --color 'CSC[^3]*3{2}' CSC_Course
.txt
[agentile2@gsuad.gsu.edu@snowball Lab4]$

```

12.

This command does not produce an output because {} is not a special character

```

agentile2@gsuad.gsu.edu@snowball:~/Lab4
[agentile2@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 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 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
[agentile2@gsuad.gsu.edu@snowball Lab4]$

```

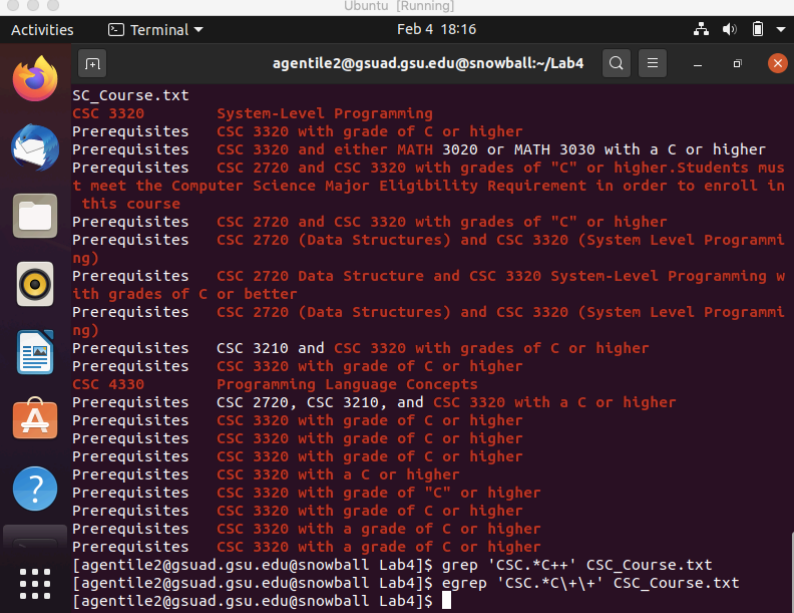
13. This command searches and outputs the lines with colored words that have a string “CSC” followed by a “3” or “2”

```

agentile2@gsuad.gsu.edu@snowball:~/Lab4
[agentile2@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 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 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
[agentile2@gsuad.gsu.edu@snowball Lab4]$ grep 'CSC.*C++' CSC_Course.txt
[agentile2@gsuad.gsu.edu@snowball Lab4]$

```

- 14.

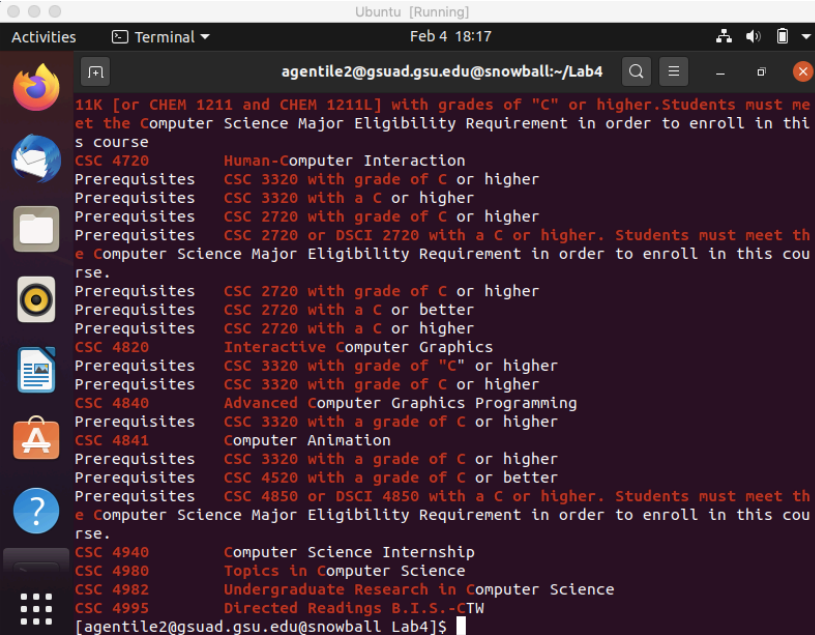


```

agentile2@gsuad.gsu.edu@snowball:~/Lab4$ grep 'CSC.*C++' SC_Course.txt
agentile2@gsuad.gsu.edu@snowball:~/Lab4$ egrep 'CSC.*C\|+\'' SC_Course.txt

```

15.



```

agentile2@gsuad.gsu.edu@snowball:~/Lab4$ grep 'CSC.*C++' SC_Course.txt
agentile2@gsuad.gsu.edu@snowball:~/Lab4$ egrep 'CSC.*C\|+\'' SC_Course.txt

```

16.

This command searches and outputs the lines beginning with “CSC” and ending with “C”

```
agentile2@gsuad.gsu.edu@snowball:~/Lab4
CSC 4720 Human-Computer Interaction
Prerequisites CSC 3320 with grade of C or higher
Prerequisites CSC 3320 with a C or higher
Prerequisites CSC 2720 with grade of C or higher
Prerequisites CSC 2720 or DSCI 2720 with a C or higher. Students must meet the Computer Science Major Eligibility Requirement in order to enroll in this course.
Prerequisites CSC 2720 with grade of C or higher
Prerequisites CSC 2720 with a C or better
Prerequisites CSC 2720 with a C or higher
CSC 4820 Interactive Computer Graphics
Prerequisites CSC 3320 with grade of "C" or higher
Prerequisites CSC 3320 with grade of C or higher
CSC 4840 Advanced Computer Graphics Programming
Prerequisites CSC 3320 with a grade of C or higher
CSC 4841 Computer Animation
Prerequisites CSC 3320 with a grade of C or higher
Prerequisites CSC 4520 with a grade of C or better
Prerequisites CSC 4850 or DSCI 4850 with a C or higher. Students must meet the Computer Science Major Eligibility Requirement in order to enroll in this course.
CSC 4940 Computer Science Internship
CSC 4980 Topics in Computer Science
CSC 4982 Undergraduate Research in Computer Science
CSC 4995 Directed Readings B.I.S.-CTW
[agentile2@gsuad.gsu.edu@snowball Lab4]$ sed -E -n 's/(CSC 3[0-9]{3})(.*)/\1p'
CSC_Course.txt
sed: -e expression #1, char 25: unterminated 's' command
[agentile2@gsuad.gsu.edu@snowball Lab4]$
```

Option 1.