```
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ ls                          ─── List everything in the Lab2 directory
Lab 2.pdf          file.txt          lab2_nucleotide.fna lab2_protein.faa    lab2file1.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ cat file.txt                 ─── Print out the contents of file.txt
heLlO world hello hi hello hello howdy
Hello student
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -c "hello" file.txt
1                                                                                          ─── Count the number of lines that contain "hello" in file.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep "hello" file.txt | wc -l
       1
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ egrep -o "hello" file.txt
hello
hello                                                                                      ─── Print out the matched portion of the lines that contain "hello" in file.txt, treating "hello"
hello                                                                                          as an ERE
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -Eo "hello" file.txt
hello
hello
hello
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -Eo "hello" file.txt | wc -l   ─── Count the number of occurrences of "hello" in file.txt, treating "hello" as an ERE
       3
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ egrep -i "hello" file.txt --color   ─── Print and color the occurrences of "hello" in file.txt, treating "hello" as an ERE and
heLlO world hello hi hello hello howdy                                                             ignoring case
Hello student
testing HELLO
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ egrep -io "hello" file.txt          ─── Print the occurrences of "hello" in file.txt, treating "hello" as an ERE and ignoring
heLlO                                                                                              case
hello
hello
hello
Hello
HELLO
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep "h." file.txt --color          ─── Color the occurrences of "h" followed by any single character in file.txt
heLlO world hello hi hello hello howdy
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -o "h." file.txt               ─── Print each occurrence of "h" followed by any single character in file.txt
he
he
hi
he
he
ho
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -o "h.*" file.txt              ─── Print out the occurrence of "h" followed by an infinite amount of any single character
heLlO world hello hi hello hello howdy                                                                until the end of the line in file.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep "h.*o" file.txt --color        ─── Print out the line and color the occurrence of "h" followed by an infinite amount of any
heLlO world hello hi hello hello howdy                                                                single character until the final letter "o" in file.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -o "he..o" file.txt            ─── Print out each occurrence of "he__o" in file.txt, where the underscores are any
hello                                                                                                single character
hello
hello
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep "he..o" file.txt --color       ─── Print out the line and color each occurrence of "he__o" in file.txt, where the
heLlO world hello hi hello hello howdy                                                                underscores are any single character
```

```
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ ls ————————————————— List everything in the Lab2 directory
Lab 2.pdf              file.txt              lab2_nucleotide.fna  lab2_protein.faa      lab2file1.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ cat file.txt ———————— Print out the contents of file.txt
heLlO world hello hi hello hello howdy
Hello student
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -c "^Hello" file.txt ——————— Count the number of lines that start with "Hello" in file.txt
1
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep "^Hello" file.txt --color ——————— Print the lines and color the occurrences of "Hello" at the beginning of a line in
Hello student                                                                              file.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -v "^Hello" file.txt ——————— Print the lines that do not contain "Hello" at the beginning of a line in file.txt
heLlO world hello hi hello hello howdy
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -v "^Hello" file.txt | wc -l ——————— Count the number of lines that do not contain "Hello" at the beginning of a line in
       3                                                                                    file.txt
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ grep -n "hello" file.txt ——————— Print out the lines and line numbers of lines that contain "hello" in file.txt
1:heLlO world hello hi hello hello howdy
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ sed 's/hello/world/g' file.txt ——————— Find all occurrences of "hello" and replace them with "world" in file.txt and print
heLlO world world hi world world howdy                                                      the result
Hello student
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ sed '/hello/d' file.txt ——————— Delete all lines that contain "hello" in file.txt and print the result
Hello student
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ sed 's/[A-Z]/\L&/g' file.txt ——————— Replace all uppercase letters with lowercase letters in file.txt and print the result
hello world hello hi hello hello howdy
hello student
testing hello
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ sed 's/[a-z]/\U&/g' file.txt ——————— Replace all lowercase letters with uppercase letter in file.txt and print the result
HELLO WORLD HELLO HI HELLO HELLO HOWDY
HELLO STUDENT
TESTING HELLO
BINF 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ sed 's/student$/hi/g' file.txt ——————— Find all occurrences of "student" that occur at the end of a line in file.txt, replace
heLlO world hello hi hello hello howdy                                                      them with "hi", and print the result
Hello hi
testing HELLO
binf 2111
madelinebellanger@Madelines-iMac:~/Desktop/BINF2111/F24/Lab2$ tr '[:upper:]' '[:lower:]' < file.txt ——— Replace all uppercase letters with lowercase letters in file.txt and print the result
hello world hello hi hello hello howdy
hello student
testing hello
binf 2111
```