CSc 3320: Systems Programming

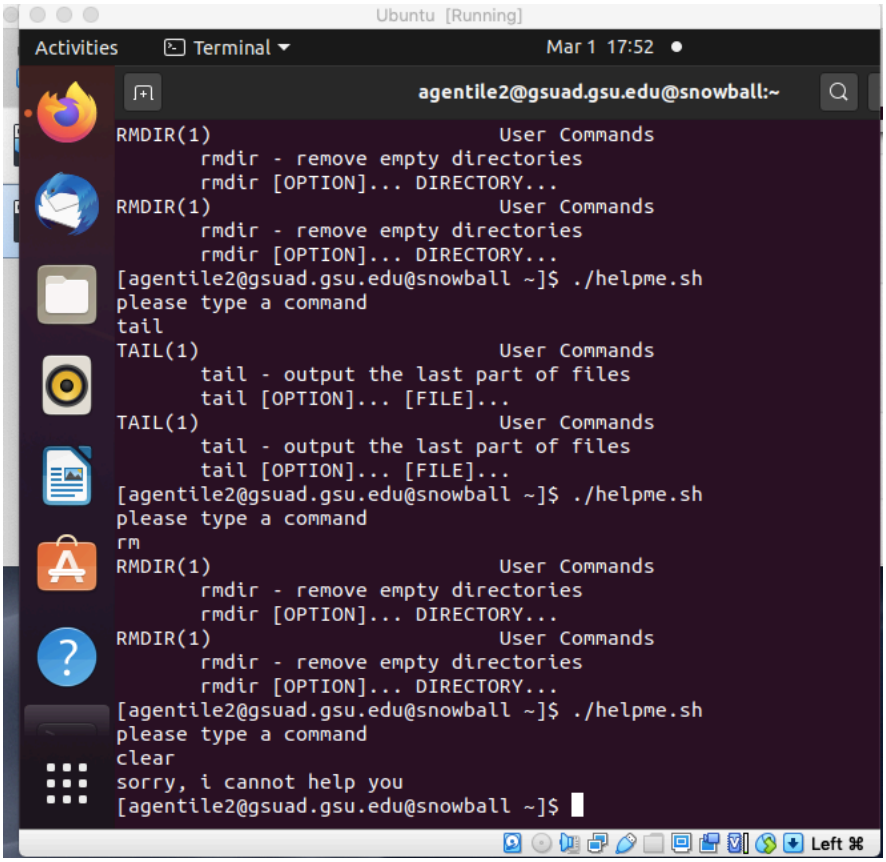
Spring 2021

Midterm 1: Total points = 100
Assigned: 26th Feb 2021: 12.01 PM
Submission Deadline: 2nd Mar 2021: 12.01 PM
(No extensions. If your submission is not received by this time then it will NOT be accepted.)
Submission instructions:

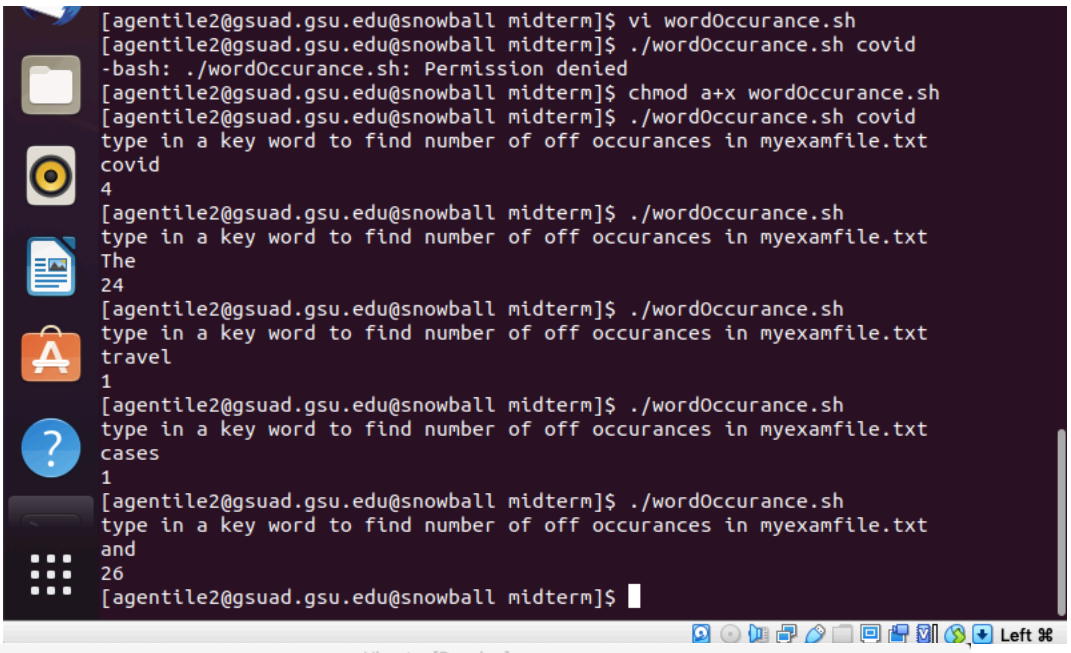
1. Create a Google doc for your submission.
2. Start your responses from page 2 of the document and copy these instructions on page 1.
3. Fill in your name, campus ID and panther # in the fields provided. If this information is missing TWO POINTS WILL BE DEDUCTED.
4. Keep this page 1 intact. If this submissions instructions page is missing in your submission TWO POINTS WILL BE DEDUCTED.
5. Start your responses to each QUESTION on a new page.
6. If you are being asked to write code copy the code into a separate txt file and submit that as well. The code should be executable. E.g. if asked for a C script then provide myfile.c so that we can execute that script. In your answer to the specific question, provide the steps on how to execute your file (like a ReadMe).
7. If you are being asked to test code or run specific commands or scripts, provide the evidence of your outputs through a screenshot and/or screen video-recordings and copy the same into the document.
8. Upon completion, download a .PDF version of the google doc document and submit the same along with all the supplementary files (videos, pictures, scripts etc).

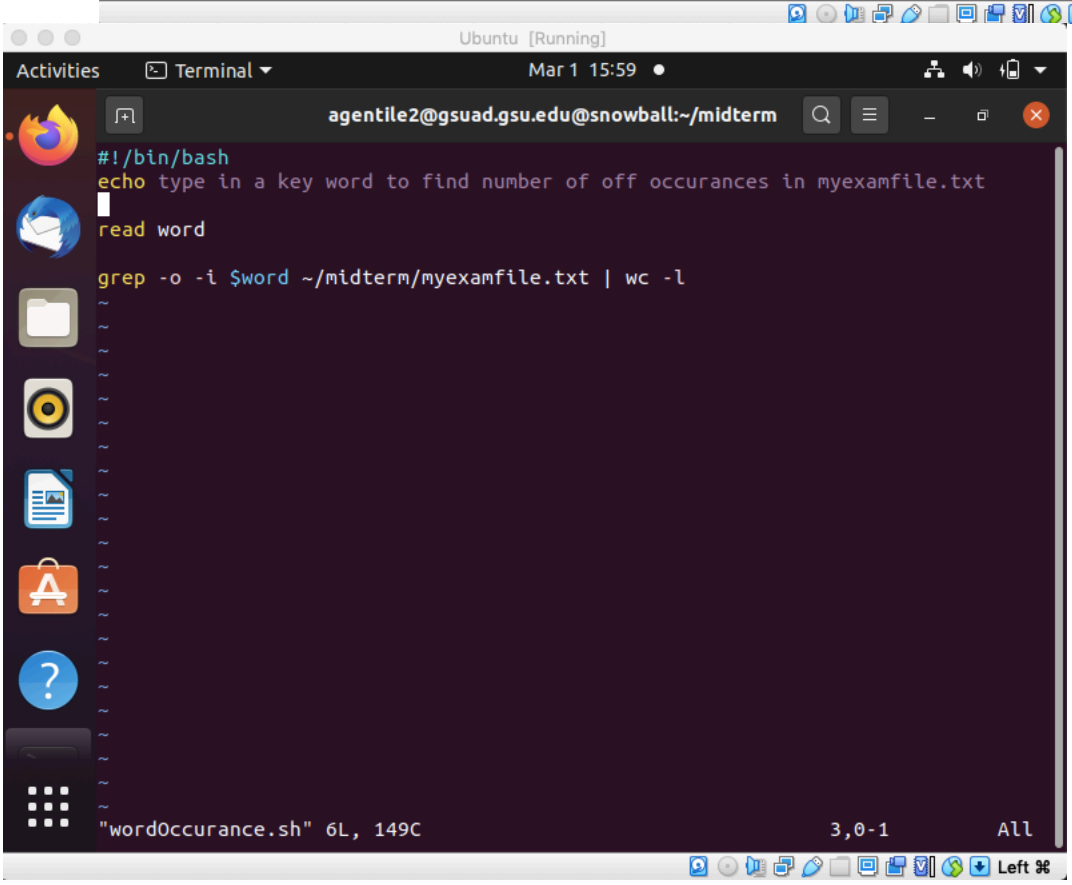
Full Name: Alexandra Gentile
Campus ID: 002413770
Panther #: agentile2

1.

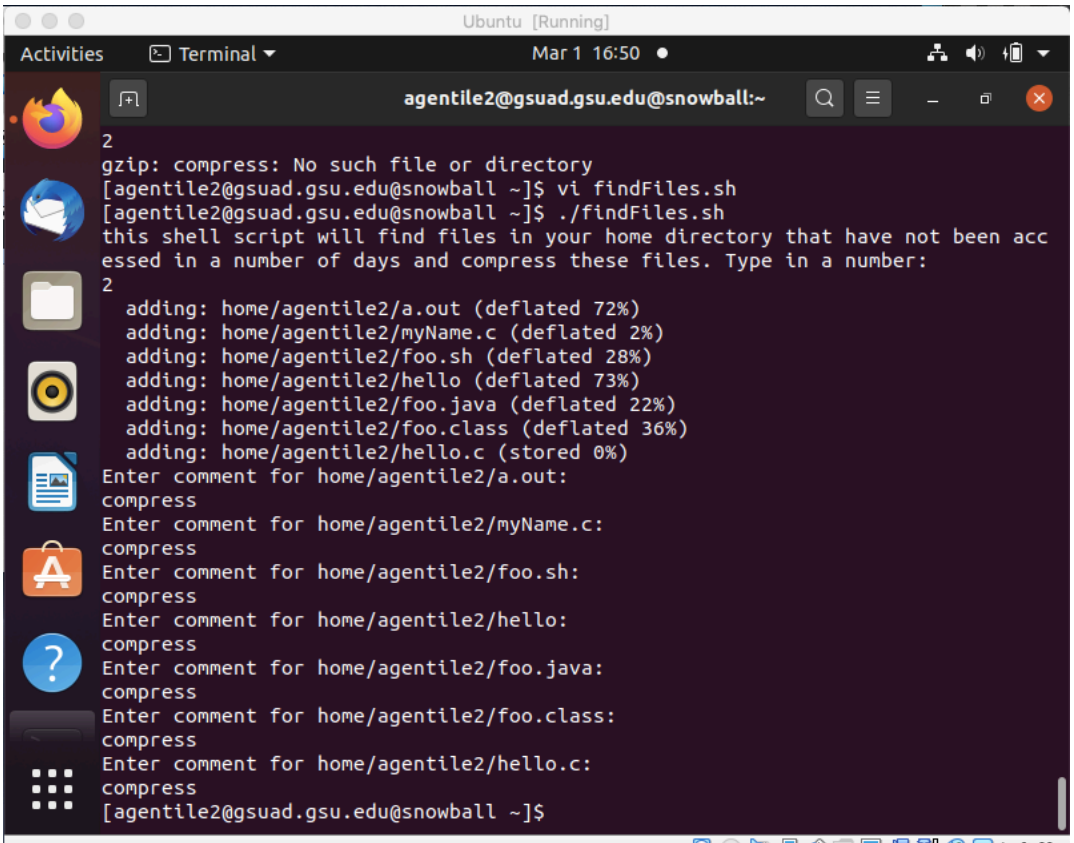

Ubuntu [Running]
Activities
Terminal
Mar 1 17:52
agentile2@gsuad.gsu.edu@snowball:~
RMDIR(1) User Commands
rmdir - remove empty directories
rmdir [OPTION]... DIRECTORY...
RMDIR(1) User Commands
rmdir - remove empty directories
rmdir [OPTION]... DIRECTORY...
[agentile2@gsuad.gsu.edu@snowball ~]$ ./helpme.sh
please type a command
tail
TAIL(1) User Commands
tail - output the last part of files
tail [OPTION]... [FILE]...
TAIL(1) User Commands
tail - output the last part of files
tail [OPTION]... [FILE]...
[agentile2@gsuad.gsu.edu@snowball ~]$ ./helpme.sh
please type a command
rm
RMDIR(1) User Commands
rmdir - remove empty directories
rmdir [OPTION]... DIRECTORY...
RMDIR(1) User Commands
rmdir - remove empty directories
rmdir [OPTION]... DIRECTORY...
[agentile2@gsuad.gsu.edu@snowball ~]$ ./helpme.sh
please type a command
clear
sorry, i cannot help you
[agentile2@gsuad.gsu.edu@snowball ~]$
Left ⌘

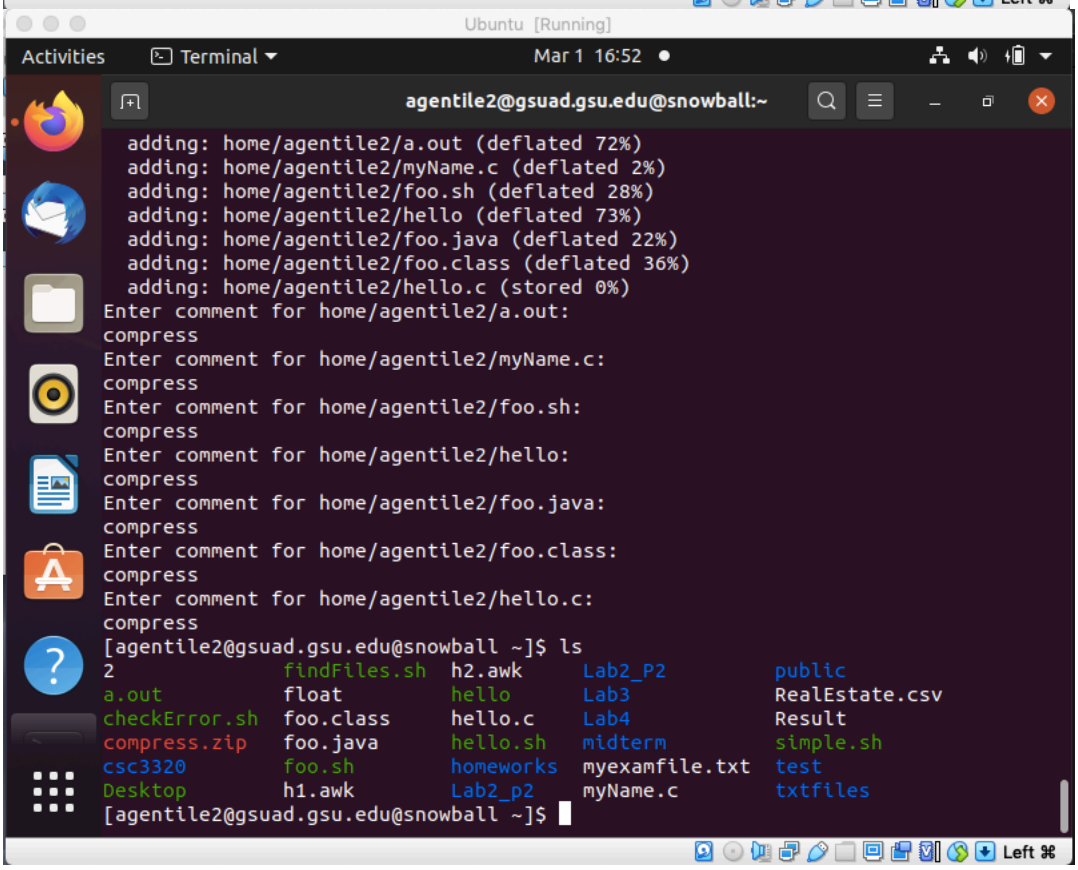
2.


[agentile2@gsuad.gsu.edu@snowball midterm]$ vi wordOccurance.sh
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh covid
-bash: ./wordOccurance.sh: Permission denied
[agentile2@gsuad.gsu.edu@snowball midterm]$ chmod a+x wordOccurance.sh
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh covid
type in a key word to find number of off occurances in myexamfile.txt
covid
4
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh
type in a key word to find number of off occurances in myexamfile.txt
The
24
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh
type in a key word to find number of off occurances in myexamfile.txt
travel
1
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh
type in a key word to find number of off occurances in myexamfile.txt
cases
1
[agentile2@gsuad.gsu.edu@snowball midterm]$ ./wordOccurance.sh
type in a key word to find number of off occurances in myexamfile.txt
and
26
[agentile2@gsuad.gsu.edu@snowball midterm]$
Left ⌘

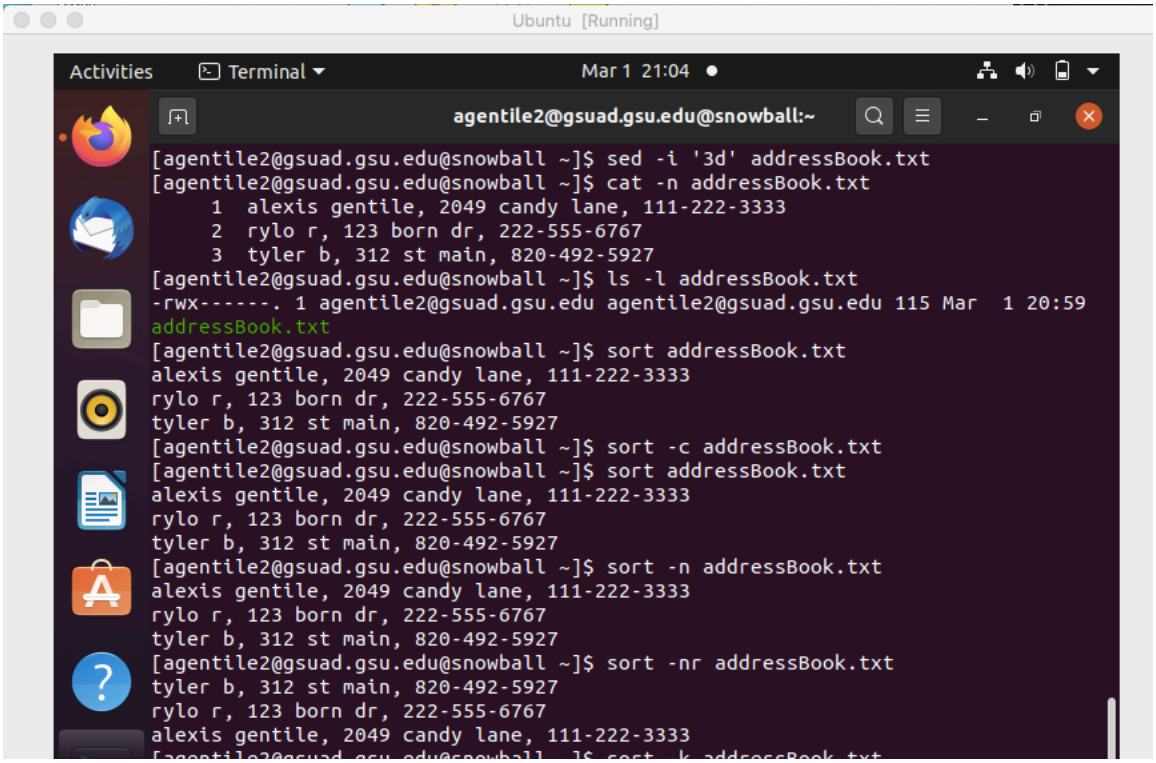

Ubuntu [Running]
Activities
Terminal
Mar 1 15:59
agentile2@gsuad.gsu.edu@snowball:~/midterm
#!/bin/bash
echo type in a key word to find number of off occurances in myexamfile.txt
read word
grep -o -i $word ~/midterm/myexamfile.txt | wc -l
"wordOccurance.sh" 6L, 149C
3,0-1
All
Left ⌘

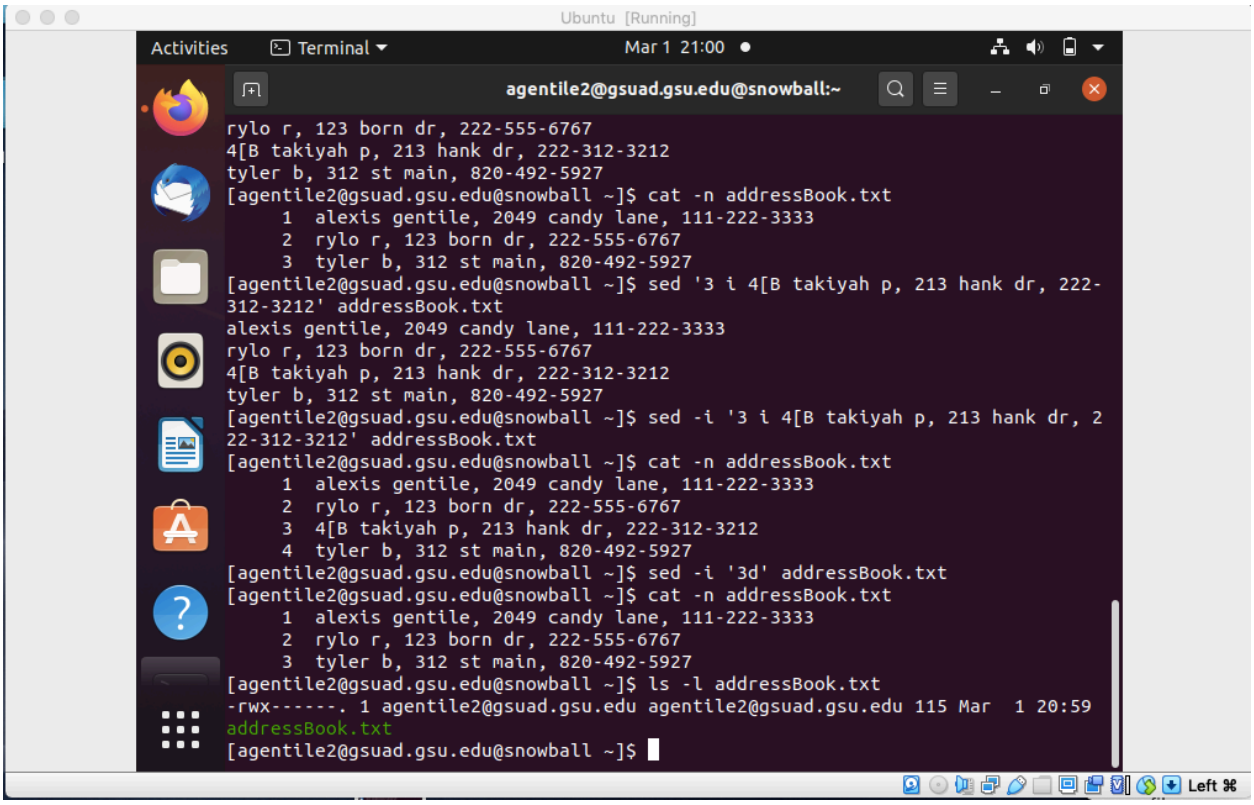
3.


Ubuntu [Running]
Activities
Terminal
Mar 1 16:50
agentile2@gsuad.gsu.edu@snowball:~
2
gzip: compress: No such file or directory
[agentile2@gsuad.gsu.edu@snowball ~]$ vi findFiles.sh
[agentile2@gsuad.gsu.edu@snowball ~]$ ./findFiles.sh
this shell script will find files in your home directory that have not been acc
essed in a number of days and compress these files. Type in a number:
2
adding: home/agentile2/a.out (deflated 72%)
adding: home/agentile2/myName.c (deflated 2%)
adding: home/agentile2/foo.sh (deflated 28%)
adding: home/agentile2/hello (deflated 73%)
adding: home/agentile2/foo.java (deflated 22%)
adding: home/agentile2/foo.class (deflated 36%)
adding: home/agentile2/hello.c (stored 0%)
Enter comment for home/agentile2/a.out:
compress
Enter comment for home/agentile2/myName.c:
compress
Enter comment for home/agentile2/foo.sh:
compress
Enter comment for home/agentile2/hello:
compress
Enter comment for home/agentile2/foo.java:
compress
Enter comment for home/agentile2/foo.class:
compress
Enter comment for home/agentile2/hello.c:
compress
[agentile2@gsuad.gsu.edu@snowball ~]$
Left ⌘

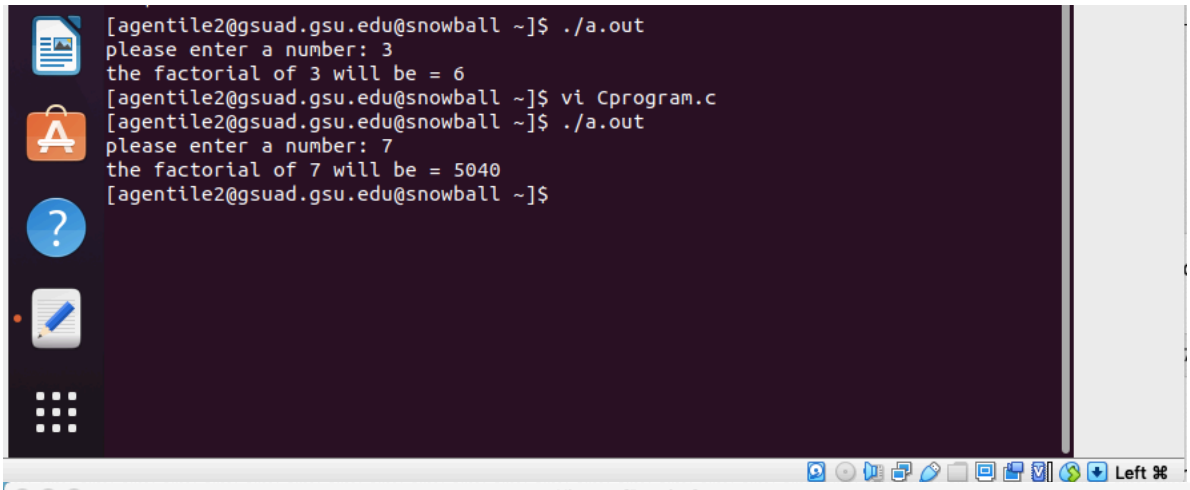

Ubuntu [Running]
Activities
Terminal
Mar 1 16:52
agentile2@gsuad.gsu.edu@snowball:~
adding: home/agentile2/a.out (deflated 72%)
adding: home/agentile2/myName.c (deflated 2%)
adding: home/agentile2/foo.sh (deflated 28%)
adding: home/agentile2/hello (deflated 73%)
adding: home/agentile2/foo.java (deflated 22%)
adding: home/agentile2/foo.class (deflated 36%)
adding: home/agentile2/hello.c (stored 0%)
Enter comment for home/agentile2/a.out:
compress
Enter comment for home/agentile2/myName.c:
compress
Enter comment for home/agentile2/foo.sh:
compress
Enter comment for home/agentile2/hello:
compress
Enter comment for home/agentile2/foo.java:
compress
Enter comment for home/agentile2/foo.class:
compress
Enter comment for home/agentile2/hello.c:
compress
[agentile2@gsuad.gsu.edu@snowball ~]$ ls
2 findFiles.sh h2.awk Lab2_P2 public
a.out float hello Lab3 RealEstate.csv
checkError.sh foo.class hello.c Lab4 Result
compress.zip foo.java hello.sh midterm simple.sh
csc3320 foo.sh homeworks myexamfile.txt test
Desktop h1.awk Lab2_p2 myName.c txtfiles
[agentile2@gsuad.gsu.edu@snowball ~]$
Left ⌘

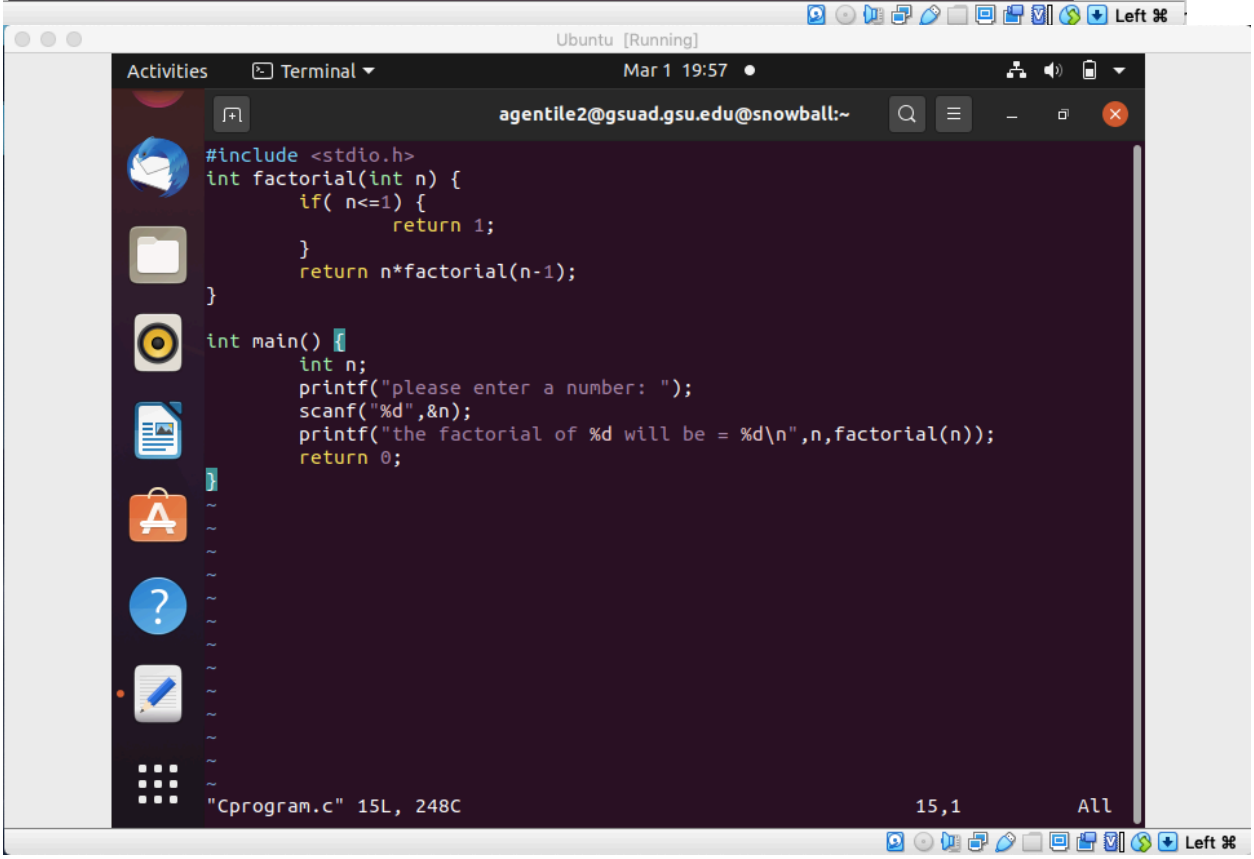
4.


Ubuntu [Running]
Activities
Terminal
Mar 1 21:04
agentile2@gsuad.gsu.edu@snowball:~
[agentile2@gsuad.gsu.edu@snowball ~]$ sed -i '3d' addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$ cat -n addressBook.txt
1 alexis gentile, 2049 candy lane, 111-222-3333
2 rylo r, 123 born dr, 222-555-6767
3 tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ ls -l addressBook.txt
-rwx------. 1 agentile2@gsuad.gsu.edu agentile2@gsuad.gsu.edu 115 Mar 1 20:59
addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$ sort addressBook.txt
alexis gentile, 2049 candy lane, 111-222-3333
rylo r, 123 born dr, 222-555-6767
tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sort -c addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$ sort addressBook.txt
alexis gentile, 2049 candy lane, 111-222-3333
rylo r, 123 born dr, 222-555-6767
tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sort -n addressBook.txt
alexis gentile, 2049 candy lane, 111-222-3333
rylo r, 123 born dr, 222-555-6767
tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sort -nr addressBook.txt
tyler b, 312 st main, 820-492-5927
rylo r, 123 born dr, 222-555-6767
alexis gentile, 2049 candy lane, 111-222-3333


Ubuntu [Running]
Activities
Terminal
Mar 1 21:00
agentile2@gsuad.gsu.edu@snowball:~
rylo r, 123 born dr, 222-555-6767
4[B takiyah p, 213 hank dr, 222-312-3212
tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ cat -n addressBook.txt
1 alexis gentile, 2049 candy lane, 111-222-3333
2 rylo r, 123 born dr, 222-555-6767
3 tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sed '3 i 4[B takiyah p, 213 hank dr, 222-312-3212' addressBook.txt
alexis gentile, 2049 candy lane, 111-222-3333
rylo r, 123 born dr, 222-555-6767
4[B takiyah p, 213 hank dr, 222-312-3212
tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sed -i '3 i 4[B takiyah p, 213 hank dr, 222-312-3212' addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$ cat -n addressBook.txt
1 alexis gentile, 2049 candy lane, 111-222-3333
2 rylo r, 123 born dr, 222-555-6767
3 4[B takiyah p, 213 hank dr, 222-312-3212
4 tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ sed -i '3d' addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$ cat -n addressBook.txt
1 alexis gentile, 2049 candy lane, 111-222-3333
2 rylo r, 123 born dr, 222-555-6767
3 tyler b, 312 st main, 820-492-5927
[agentile2@gsuad.gsu.edu@snowball ~]$ ls -l addressBook.txt
-rwx------. 1 agentile2@gsuad.gsu.edu agentile2@gsuad.gsu.edu 115 Mar 1 20:59
addressBook.txt
[agentile2@gsuad.gsu.edu@snowball ~]$
Left ⌘

5a.





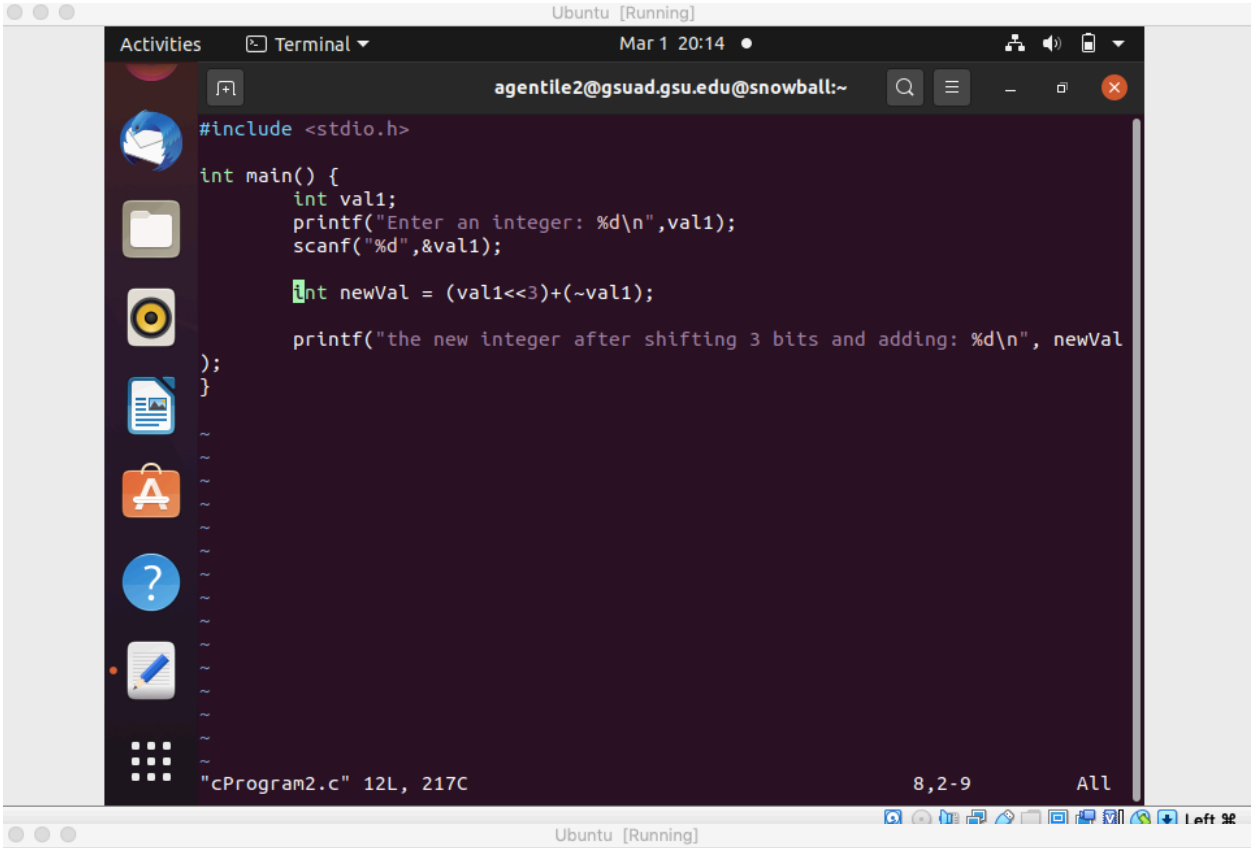
5a. C script

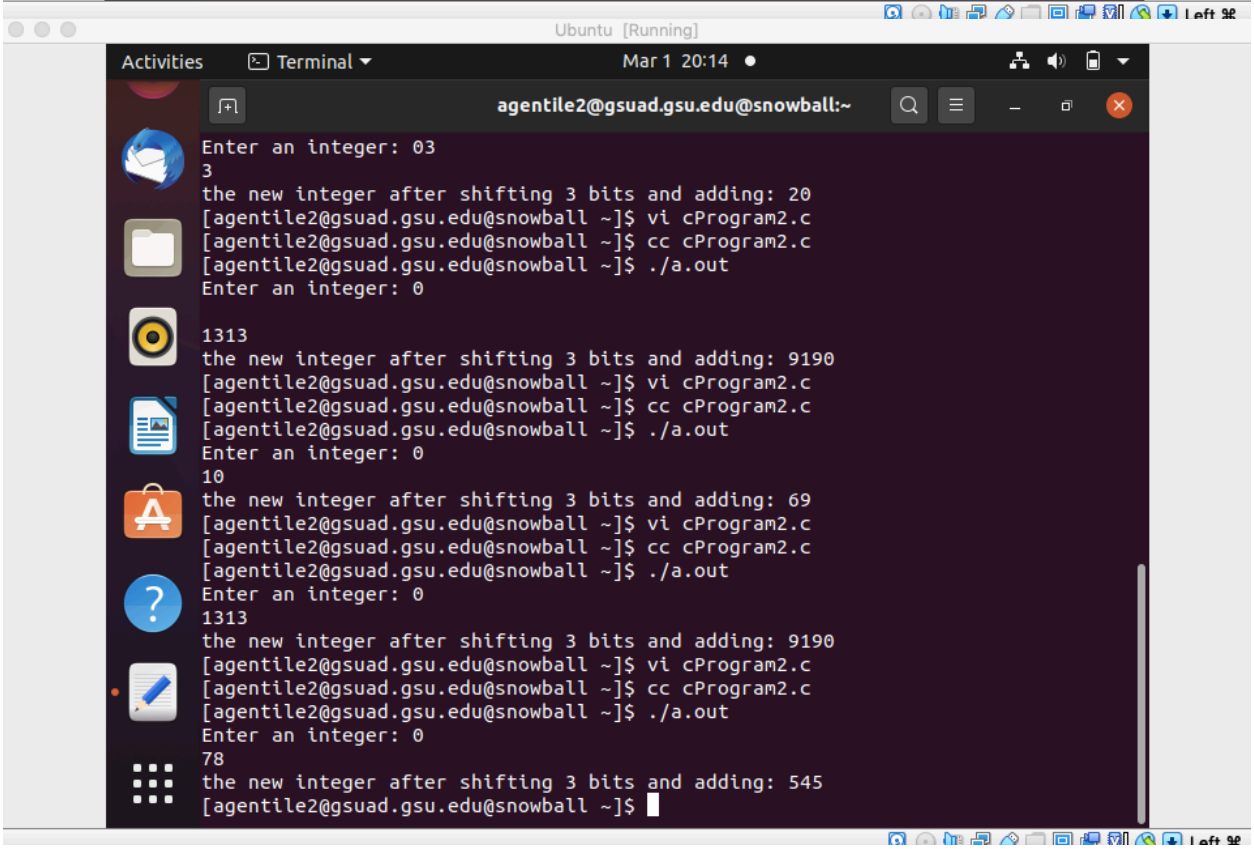
```
#include <stdio.h>
int factorial(int n) {
      if( n<=1) {
            return 1;
      }
      return n*factorial(n-1);
}

int main() {
      int n;
```

```
	printf("please enter a number: ");
	scanf("%d",&n);
	printf("the factorial of %d will be = %d\n",n,factorial(n));
	return 0;
}
```

5b.


Ubuntu [Running]
Activities
Terminal
Mar 1 20:14
agentile2@gsuad.gsu.edu@snowball:~
#include <stdio.h>
int main() {
int val1;
printf("Enter an integer: %d\n",val1);
scanf("%d",&val1);
int newVal = (val1<<3)+(~val1);
printf("the new integer after shifting 3 bits and adding: %d\n", newVal
);
}
"cProgram2.c" 12L, 217C
8,2-9
All


Ubuntu [Running]
Activities
Terminal
Mar 1 20:14
agentile2@gsuad.gsu.edu@snowball:~
Enter an integer: 03
3
the new integer after shifting 3 bits and adding: 20
[agentile2@gsuad.gsu.edu@snowball ~]$ vi cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ cc cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ ./a.out
Enter an integer: 0
1313
the new integer after shifting 3 bits and adding: 9190
[agentile2@gsuad.gsu.edu@snowball ~]$ vi cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ cc cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ ./a.out
Enter an integer: 0
10
the new integer after shifting 3 bits and adding: 69
[agentile2@gsuad.gsu.edu@snowball ~]$ vi cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ cc cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ ./a.out
Enter an integer: 0
1313
the new integer after shifting 3 bits and adding: 9190
[agentile2@gsuad.gsu.edu@snowball ~]$ vi cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ cc cProgram2.c
[agentile2@gsuad.gsu.edu@snowball ~]$ ./a.out
Enter an integer: 0
78
the new integer after shifting 3 bits and adding: 545
[agentile2@gsuad.gsu.edu@snowball ~]$

5b. C script

```
#include <stdio.h>

int main() {
      int val1;
      printf("Enter an integer: %d\n",val1);
      scanf("%d",&val1);

      int newVal = (val1<<3)+(~val1);

      printf("the new integer after shifting 3 bits and adding: %d\n",
newVal);
}
```