

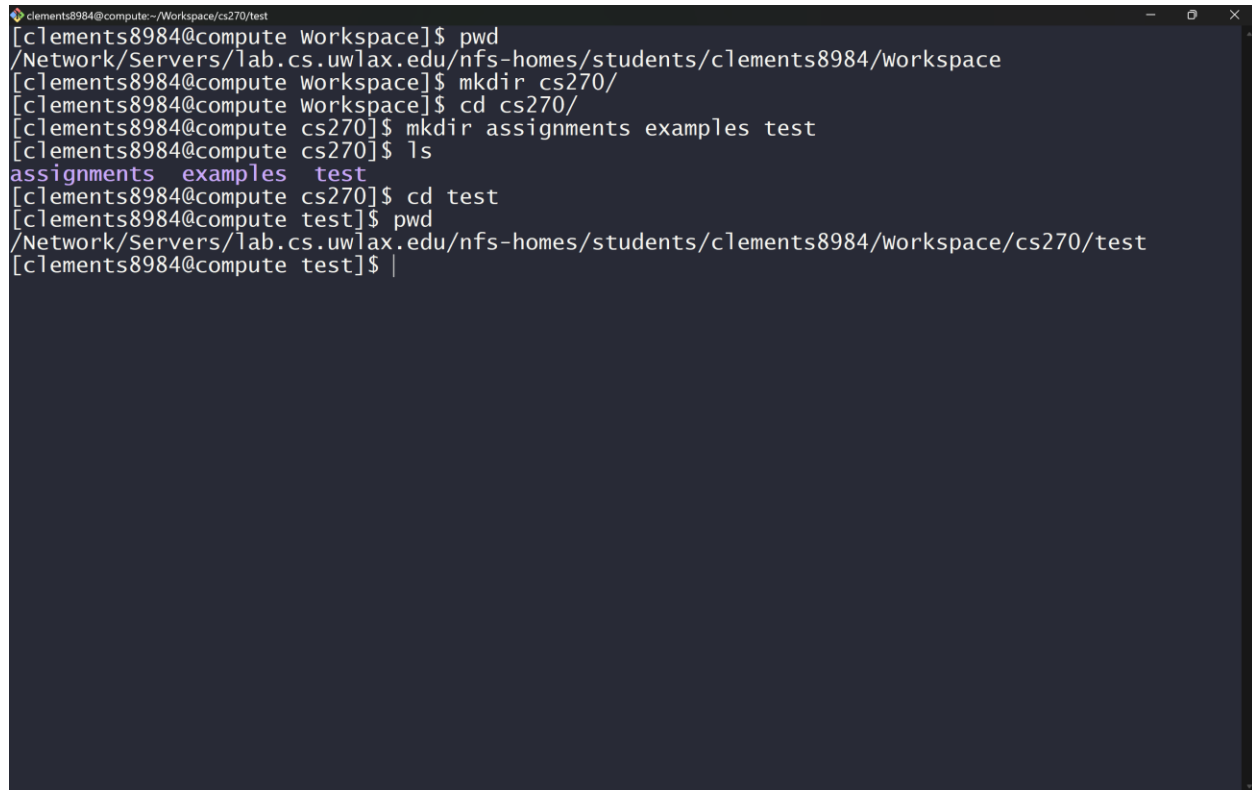
Task 1 (1.1-1.3.1)

```
clements8984@compute:~$ ssh surface-mbc MINGW64 -  
ssh clements8984@compute.cs.uwlab.edu  
clements8984@compute.cs.uwlab.edu's password:  
  
Welcome to compute.cs.uwlab.edu.  
  
The Computer Science Department maintains this computer for the use of students and faculty. Please consult the manual pages or refer to your instructor if you have questions.
```

```
Last login: Thu Nov 7 10:28:36 2024 from 10.14.124.74  
[clements8984@compute ~]$ env  
SHELL=/bin/bash  
HISTCONTROL=ignoredupes  
HISTSIZE=1000  
HOSTNAME=compute.cs.uwlab.edu  
PWD=/usr/bin/nano  
PYTHONPATH=/Network/Servers/lab.cs.uwlab.edu/nfs-homes/students/clements8984  
LOGNAME=clements8984  
KDG_SESSION_TYPE=xty  
NOTD_SHOWNmap  
HOME=/Network/Servers/lab.cs.uwlab.edu/nfs-homes/students/clements8984  
SSH_ASKPASS=/usr/libexec/openssh/gnome-ssh-askpass  
LANG=en_US.UTF-8  
_COLORTERM=truecolor;ln=01:36:mh=00:pt=40;33:cw=01:35:de=40;33:01:cd=40;33:01:or=40  
33:01:ei=01:37:41:su=37;41:sg=30;43:ca=00:tw=30;42:ow=34;44:ex=01:32*;tar=01:31*;tg  
z=01:31*;arc=01:31*;arj=01:31*;taz=01:31*;lha=01:31*;bz2=01:31*;lz=01:31*;lzm=01:31*;  
lzip=01:31*;xz=01:31*;xz=01:31*;7z=01:31*;zip=01:31*;7z=01:31*;gz=01:31*;7z  
01:31*;lz=01:31*;lz=01:31*;xz=01:31*;xzt=01:31*;bz2=01:31*;bz=01:31*;tbz=  
01:31*;tbz2=01:31*;tz=01:31*;deb=01:31*;rpm=01:31*;jar=01:31*;war=01:31*;ear=01:31*;sar  
01:31*;rar=01:31*;alz=01:31*;ace=01:31*;zoo=01:31*;cpio=01:31*;7z=01:31*;rz=01:31*;cab  
01:31*;vim=01:31*;swm=01:31*;dwm=01:31*;esd=01:31*;avif=01:35*;jpg=01:35*;jpeg=01:35*;  
mjpeg=01:35*;njpeg=01:35*;gif=01:35*;bmp=01:35*;png=01:35*;ppm=01:35*;qga=01:3  
5*;xpm=01:35*;vme=01:35*;tif=01:35*;tiff=01:35*;png=01:35*;svg=01:35*;svge=01:35*;img=0  
1:35*;pcx=01:35*;mov=01:35*;mpeg=01:35*;mpg=01:35*;m2v=01:35*;mkv=01:35*;webm=01:35*;we  
bm=01:35*;ogg=01:35*;mp3=01:35*;m4v=01:35*;mp4=01:35*;vob=01:35*;qt=01:35*;nuv=01:35*;  
wmv=01:35*;asf=01:35*;rm=01:35*;rmvb=01:35*;flc=01:35*;avi=01:35*;fli=01:35*;flv=01:35*;  
gl=01:35*;dl=01:35*;xcf=01:35*;xwd=01:35*;yuv=01:35*;cgm=01:35*;emf=01:35*;ogv=01:35*;  
ogv=01:35*;aac=01:36*;au=01:36*;flac=01:36*;ma=01:36*;mid=01:36*;midi=01:36*;mk=01:36*  
*;mp3=01:36*;mpc=01:36*;ogg=01:36*;ra=01:36*;wav=01:36*;oga=01:36*;opus=01:36*;spx=01:36  
*;xspf=01:36*;+00:90;*+00:90*;bak=00:90*;crdownload=00:90*;dpkg-dist=00:90*;dpkg-new=00;  
90*;enig=01:36*;dkpg-tmp=00:90*;old=00:90*;orig=00:90*;part=00:90*;rej=00:90*;rpmanew  
=00:90*;rpmorig=00:90*;rpmsave=00:90*;swp=00:90*;tmp=00:90*;ucf-dist=00:90*;ucf-nem=00:90  
*;ucf-old=00:90;  
SSH_CONNECTION=10.124.74.65031.138.49.184.54.22  
KDG_SESSION_CLASS=user  
SELINUX_ROLE_REQUESTED=  
TERM=xterm  
LESSOPEN=||/usr/bin/lesspipe.sh %s  
USER=clements8984  
SELINUX_USE_CURRENT_RANGE=  
SHLLVL=1  
KDG_SESSION_ID=1668  
CLASSPATH=./usr/share/java/junit.jar:/usr/share/java/hamcrest/hamcrest.jar  
KDG_RUNTIME_DIR=/run/user/11843  
SSH_CLIENT=10.14.124.74.65031.22  
DEBUGINFO_URL=https://debuginfo.fedoraproject.org/  
PATH=/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin  
SELINUX_LEVEL_REQUESTED=  
DHUS_SESSION_BUS_ADDRESS=unix:path=/run/user/11843/bus  
MAIL=/var/spool/mail/clements8984  
SSH_TTY=/dev/pts/6  
_=usr/bin/env  
[clements8984@compute ~]$
```

Above, you can see me ssh into the compute.cs server from my personal surface computer. My environment is configured as expected, as can be seen from the output of the 'env' command in the above screenshot.

Task 2 (1.4)

A terminal window with a dark background and light-colored text. The window title bar shows the user 'clements8984' and the current directory 'compute--/Workspace/cs270/test'. The terminal displays a series of commands and their outputs: 'pwd' returns the full path to the workspace; 'mkdir cs270/' creates a new directory; 'cd cs270/' changes the current directory; 'mkdir assignments examples test' creates three subdirectories; 'ls' lists these subdirectories; 'cd test' changes to the 'test' subdirectory; and a final 'pwd' command shows the full path to the 'test' directory.

```
clements8984@compute--/Workspace/cs270/test
[clements8984@compute workspace]$ pwd
/Network/Servers/lab.cs.uw1ax.edu/nfs-homes/students/clements8984/workspace
[clements8984@compute workspace]$ mkdir cs270/
[clements8984@compute workspace]$ cd cs270/
[clements8984@compute cs270]$ mkdir assignments examples test
[clements8984@compute cs270]$ ls
assignments  examples  test
[clements8984@compute cs270]$ cd test
[clements8984@compute test]$ pwd
/Network/Servers/lab.cs.uw1ax.edu/nfs-homes/students/clements8984/workspace/cs270/test
[clements8984@compute test]$ |
```

Here, you can see me print my working directory, make the cs270 directory, then that directory's three subdirectories. I then enter the subdirectory 'test' and execute the 'pwd' command again to print my current location in the filesystem.

Task 3 (1.5)

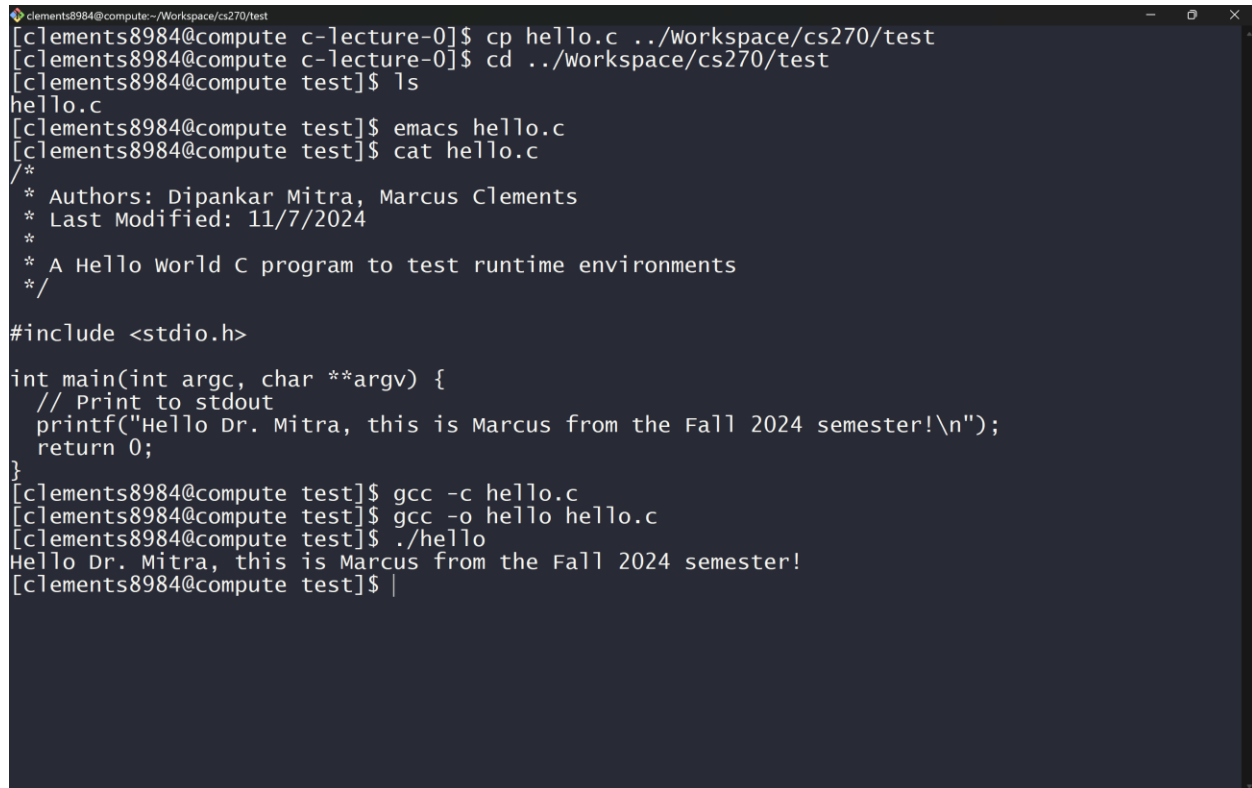
```
clements8984@compute ~/c-lecture-0
[clements8984@compute ~]$ cd c-lecture-0
[clements8984@compute c-lecture-0]$ ls
cmdline.c  hello.c  prog.c  TODO
[clements8984@compute c-lecture-0]$ emacs hello.c
[clements8984@compute c-lecture-0]$ cat hello.c
/*
 * Dipankar Mitra, Marcus Clements
 * 11/7/2024
 * Example Program
 *
 * A Hello World C program
 */

#include <stdio.h>

int main(int argc, char **argv) {
    // Print to stdout
    printf("Hello, Marcus!\n");
    return 0;
}
[clements8984@compute c-lecture-0]$ ls
cmdline.c  hello.c  hello.c~  prog.c  TODO
[clements8984@compute c-lecture-0]$ rm hello.c~ #Remove autosaved buffer from emacs
[clements8984@compute c-lecture-0]$ ls
cmdline.c  hello.c  prog.c  TODO
[clements8984@compute c-lecture-0]$ |
```

Here, after transferring and unzipping the c-lecture-0 archive, I'm left with the 'c-lecture-0' directory in the root of my computing environment. I move into it, edit the 'hello.c' file in emacs, then save it and print the files again. I also removed the autosaved buffer created automatically by emacs.

Task 3 (1.5) continued:



```
clements8984@compute ~/Workspace/cs270/test
[clements8984@compute c-lecture-0]$ cp hello.c ../Workspace/cs270/test
[clements8984@compute c-lecture-0]$ cd ../Workspace/cs270/test
[clements8984@compute test]$ ls
hello.c
[clements8984@compute test]$ emacs hello.c
[clements8984@compute test]$ cat hello.c
/*
 * Authors: Dipankar Mitra, Marcus Clements
 * Last Modified: 11/7/2024
 *
 * A Hello World C program to test runtime environments
 */

#include <stdio.h>

int main(int argc, char **argv) {
    // Print to stdout
    printf("Hello Dr. Mitra, this is Marcus from the Fall 2024 semester!\n");
    return 0;
}
[clements8984@compute test]$ gcc -c hello.c
[clements8984@compute test]$ gcc -o hello hello.c
[clements8984@compute test]$ ./hello
Hello Dr. Mitra, this is Marcus from the Fall 2024 semester!
[clements8984@compute test]$
```

Then, as instructed, I copy the file from the ‘c-lecture-0’ directory to the ‘test’ directory I created earlier. After navigating to the ‘test’ directory, I confirm the file is present there then edit it again to print a customized message and include my name and date. I then compile the program without linking it, then link it to a specific executable, ‘hello’. All that’s left after this is to execute the file with ‘./hello’, and the function executes as expected, printing the message to the screen.

Task 4 (1.6)

```
clements9984@computer:~/Workspace/ci270/test
top - 11:14:07 up 10 days, 2:25, 16 users, load average: 0.25, 0.10, 0.18
Tasks: 266 total, 1 running, 265 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni, 99.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 15982.6 total, 1072.7 free, 2349.1 used, 12895.6 buff/cache
MiB Swap: 8192.0 total, 8191.5 free, 0.5 used, 13633.5 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
246953 breuh13+  20   0 3584120  800972 23424 S   1.0   4.9   0:21.70 qemu-system-x86
247092 breuh13+  20   0 3583372  739328 23296 S   1.0   4.5   0:19.09 qemu-system-x86
247123 clement+ 20   0  19552    6016   3840 R   0.3   0.0   0:00.03 top
     1 root      20   0   54072   22992  10672 S   0.0   0.1   0:34.05 systemd
     2 root      20   0         0         0        0 S   0.0   0.0   0:01.15 kthreadd
     3 root      20   0         0         0        0 S   0.0   0.0   0:00.00 pool_workqueue_relea+
     4 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
     5 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/R-slub_
     6 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/R-netns
     8 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/0:0H-events_+
    11 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
    12 root      20   0         0         0        0 I   0.0   0.0   0:05.13 kworker/u32:1-ipv6_a+
    13 root      20   0         0         0        0 I   0.0   0.0   0:00.00 rcu_tasks_kthread
    14 root      20   0         0         0        0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthre+
    15 root      20   0         0         0        0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthr+
    16 root      20   0         0         0        0 S   0.0   0.0   0:00.25 ksoftirqd/0
    17 root      20   0         0         0        0 I   0.0   0.0   0:38.96 rcu_preempt
    18 root      20   0         0         0        0 S   0.0   0.0   0:00.00 rcu_exp_par_gp_kthre+
    19 root      20   0         0         0        0 S   0.0   0.0   0:00.29 rcu_exp_gp_kthread_w+
    20 root       rt   0         0         0        0 S   0.0   0.0   0:03.28 migration/0
    21 root     -51   0         0         0        0 S   0.0   0.0   0:00.00 idle_inject/0
    22 root      20   0         0         0        0 S   0.0   0.0   0:00.00 cpuhp/0
    23 root      20   0         0         0        0 S   0.0   0.0   0:00.00 cpuhp/1
    24 root     -51   0         0         0        0 S   0.0   0.0   0:00.00 idle_inject/1
    25 root       rt   0         0         0        0 S   0.0   0.0   0:02.85 migration/1
    26 root      20   0         0         0        0 S   0.0   0.0   0:00.22 ksoftirqd/1
```

Here, you can see a screenshot of the ‘top’ command being run from the ‘test’ directory in my computing environment. The process shows up third in a list of processes being run on the system.