CSc 3320: Systems Programming

Spring 2021

Homework

3: Total points 100

Submission instructions:

1. Create a Google doc for each homework assignment 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 in your document TWO POINTS WILL BE DEDUCTED per submission.
4. Keep this page 1 intact on all your submissions. If this *submissions instructions* page is missing in your submission TWO POINTS WILL BE DEDUCTED per submission.
5. Each homework will typically have 2-3 PARTS, where each PART focuses on specific topic(s).
6. Start your responses to each PART on a new page.
7. If you are being asked to write code copy the code into a separate txt file and submit that as well.
8. If you are being asked to test code or run specific commands or scripts, provide the evidence of your outputs through a screenshot and copy the same into the document.
9. Upon completion, download a .PDF version of the document and submit the same.

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Campus ID: hgunerli1

Panther #: 002504797

10 pts for the neatness factor of your presentation.

PART 1: 30pts

1. For each command tryout at least one example provided in **Chapter 3** of the Unix textbook. Feel free to use your own example. Show the screenshot for each command's output. Present your output in a tabular form with column 1 as index (1,2,3..), second column as the command, third as the usage, fourth as the screenshot of the output. You can just show a small snapshot for the output -- we do not need the entire screen's image.

Part II : 30pts

2. For each command tryout at least one example provided in **Chapter 4** of the Unix textbook. Feel free to use your own example. Show the screenshot for each command's output. Present your output in a tabular form with column 1 as index (1,2,3..), second column as the command, third as the usage, fourth as the screenshot of the output. You can just show a small snapshot for the output -- we do not need the entire screen's image.

Part III : 30pts

3. For each command tryout at least one example provided in **Chapter 5** of the Unix textbook. Feel free to use your own example. Show the screenshot for each command's output. Present your output in a tabular form with column 1 as index (1,2,3..), second column as the command, third as the usage, fourth as the screenshot of the output. You can just show a small snapshot for the output -- we do not need the entire screen's image.

Part I: Chapter 3

1. at

Command name: at

Usage: allows you to schedule or delete jobs based on time.

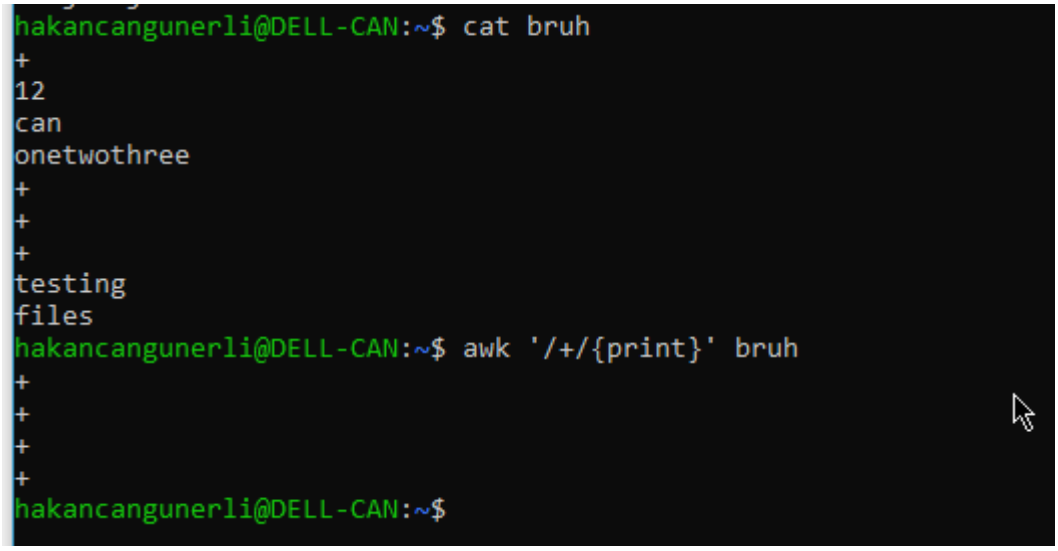
Output:

2. awk

Command name: awk

Usage: finding patterns in files/texts.

Output:

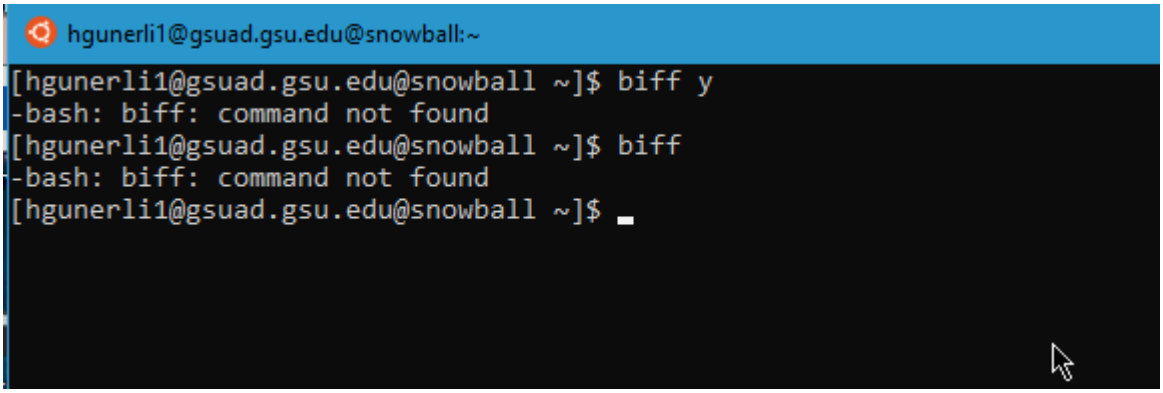


3. **biff**

Command name: biff

Usage: mail notification, does not exist

Output:

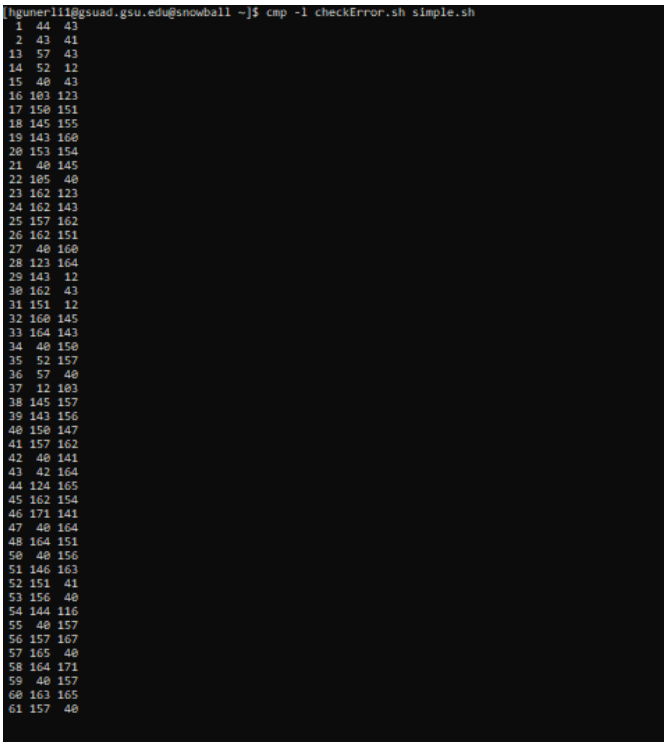


4. **cmp**

Command name: cmp

Usage: check two files for equality byte by byte.

Output:

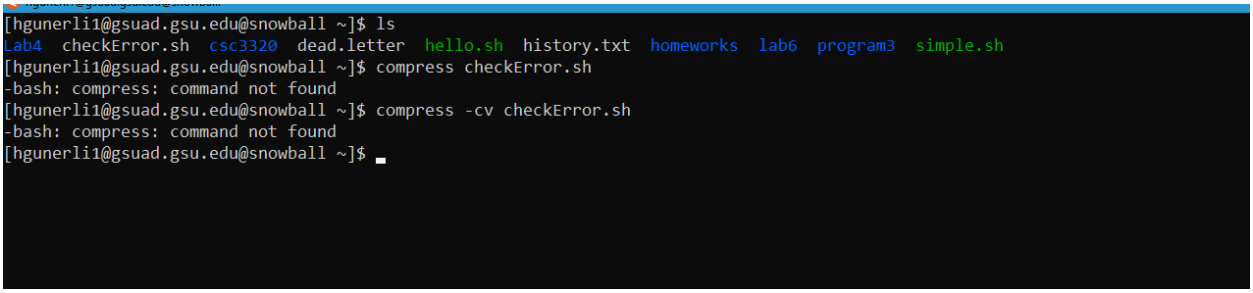


5. **compress**

Command name: compress

Usage: compacts the file.

Output:

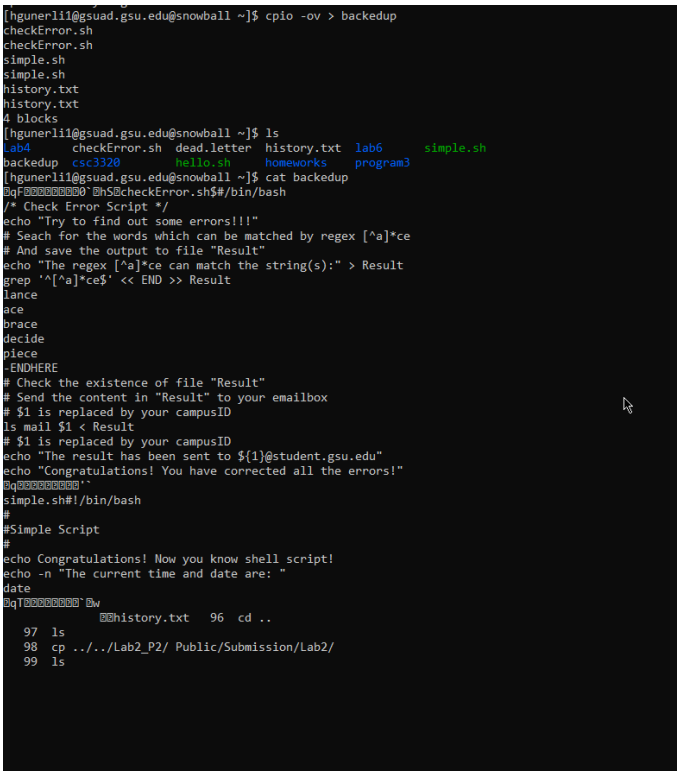


6. **cpio**

Command name: cpio

Usage: create a backup files

Output:



7. **cron**

Command name: cron

Usage: scheduled jobs, similar to at

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cron
cron: can't open or create /var/run/crond.pid: Permission denied
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ sudo cron
[sudo] password for hakancangunerli:
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

8. **crontab**

Command name: crontab

Usage: schedule jobs at a scheduled time

Output:

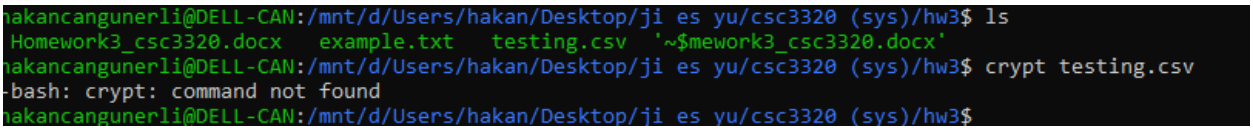
```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ crontab -e
no crontab for hakancangunerli - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: 1
crontab: installing new crontab
"/tmp/crontab.esURER/crontab":24: bad minute
errors in crontab file, can't install.
Do you want to retry the same edit? (y/n) y
crontab: installing new crontab
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   example.txt   testing.csv  '~$mework3_csc3320.docx'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

9. **crypt**

Command name: crypt

Usage: encrypt files, however it is not used that much anymore since it is easy to break for today's standards .

Output:

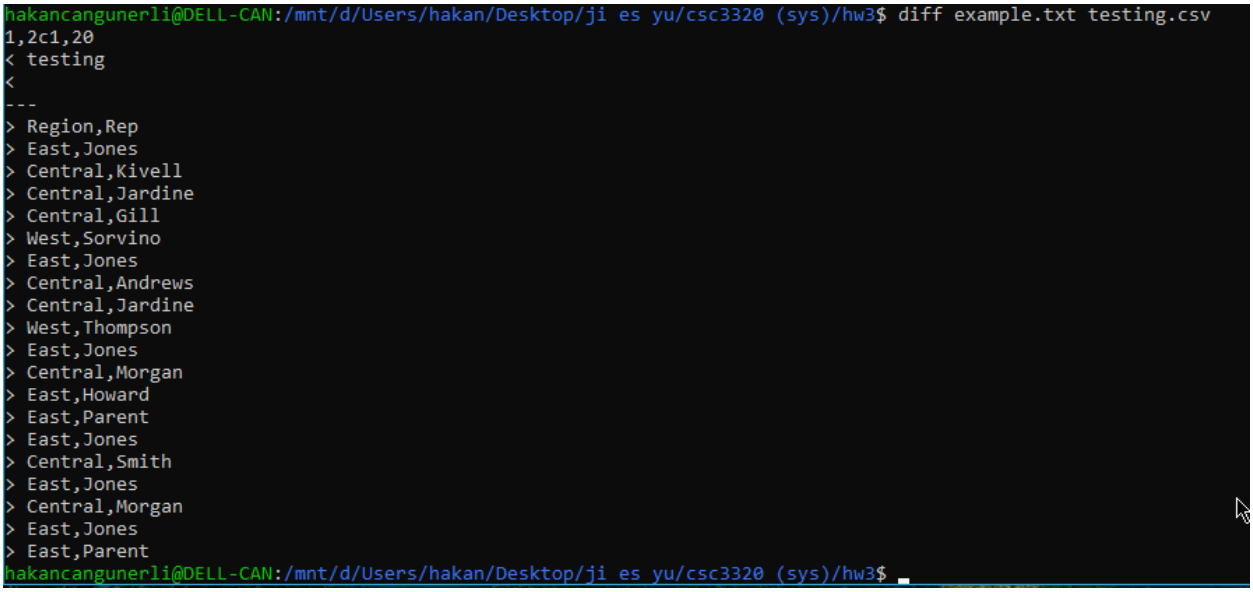


10. **diff**

Command name: diff

Usage: compare and find differences between files

Output:

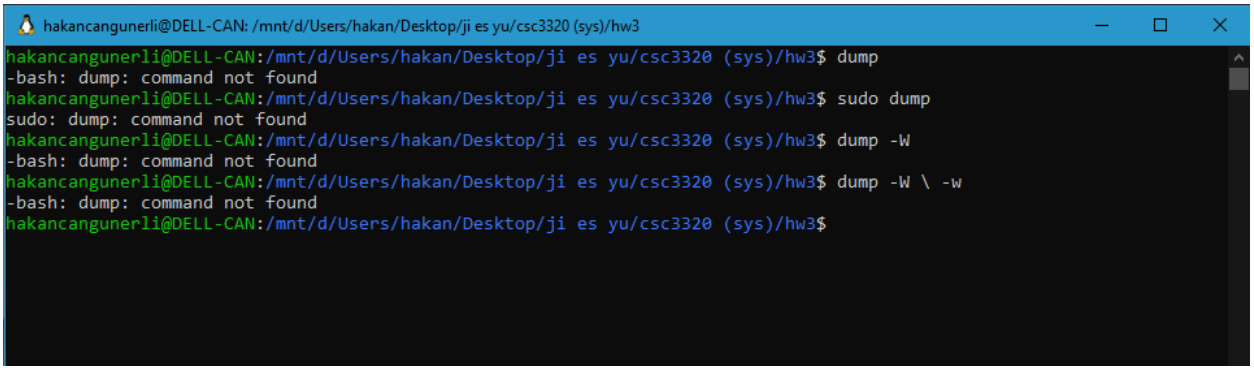


11. **dump**

Command name: dump

Usage: backed up file systems

Output:

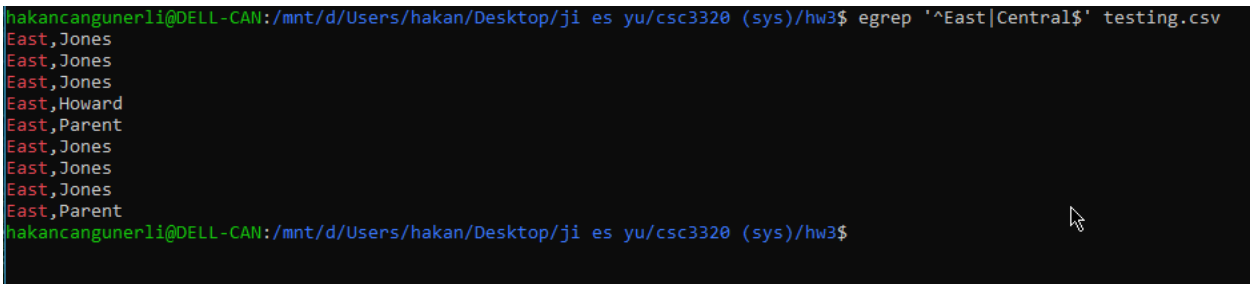


12. **egrep**

Command name: egrep

Usage: similar to grep and fgrep, match pattern this one has extended regex.

Output:

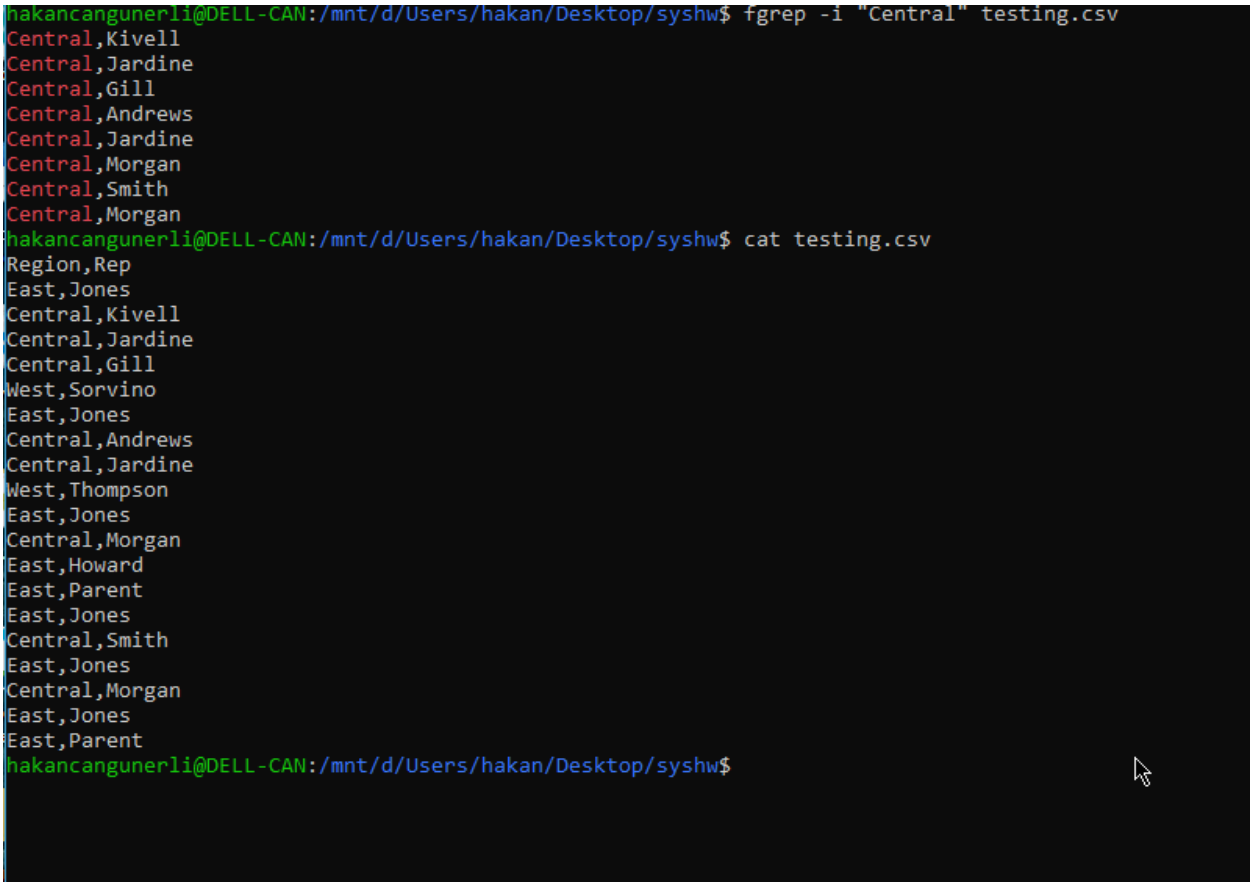


13. **fgrep**

Command name: fgrep

Usage: filter fixed character strings

Output:

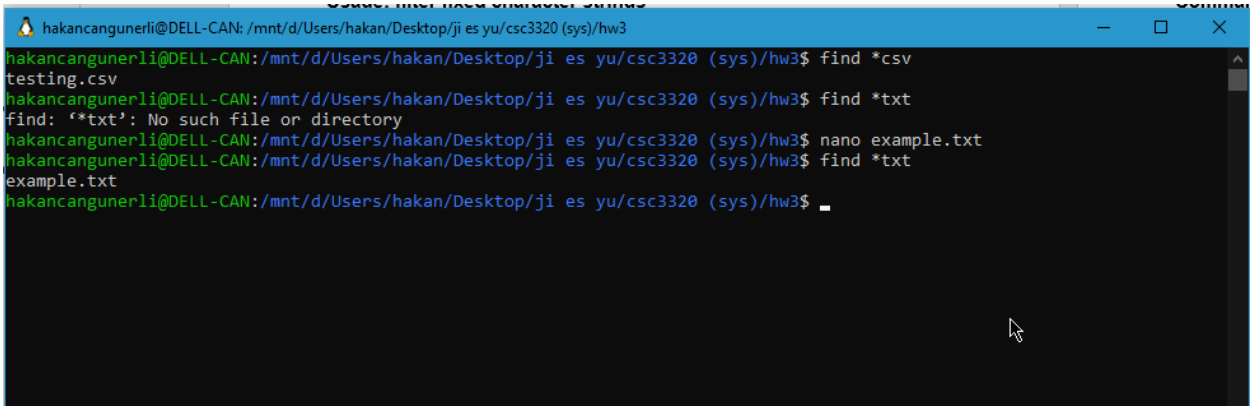


14. find

Command name: find

Usage: search for files

Output:

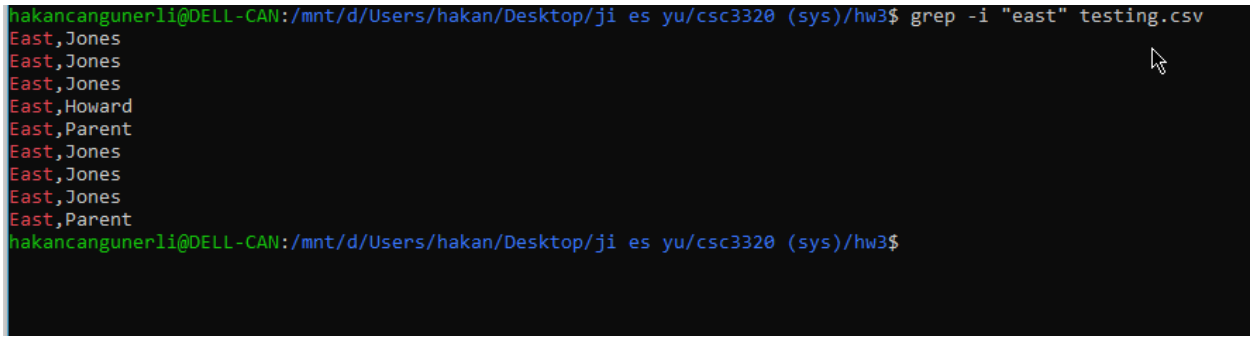


15. grep

Command name: grep

Usage: print lines that match patterns, like fgrep except fgrep is not for regexes.

Output:



16. gunzip

Command name: gunzip

Usage: decompress files, antagonist to gzip

Output:

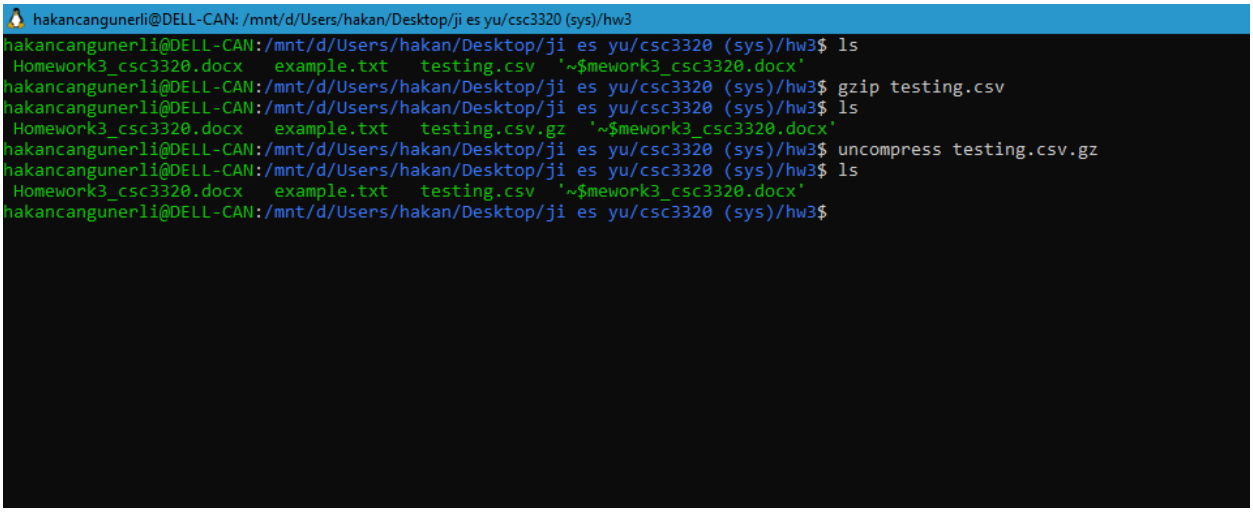
```
hakancangunerli@DELL-CAN: /mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   example.txt   testing.csv  '~$mework3_csc3320.docx'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ gzip testing.csv
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   example.txt   testing.csv.gz  '~$mework3_csc3320.docx'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ gunzip testing.csv.gz
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   example.txt   testing.csv  '~$mework3_csc3320.docx'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

17. gzip

Command name: gzip

Usage: compress files, similar to tar.

Output:

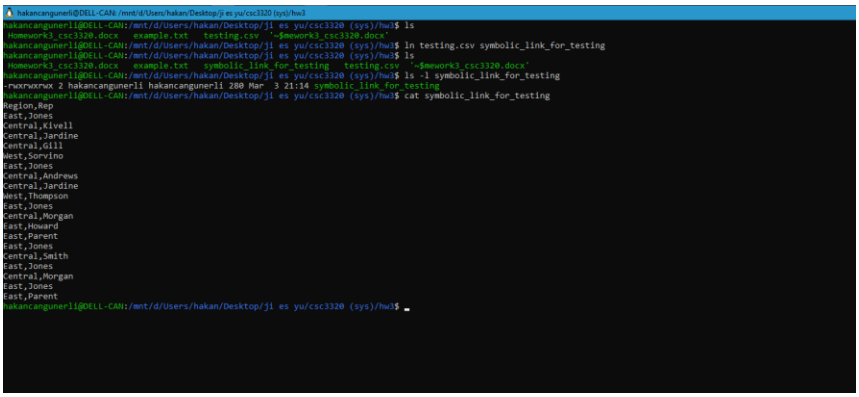


18. ln

Command name: ln

Usage: linking files.

Output:

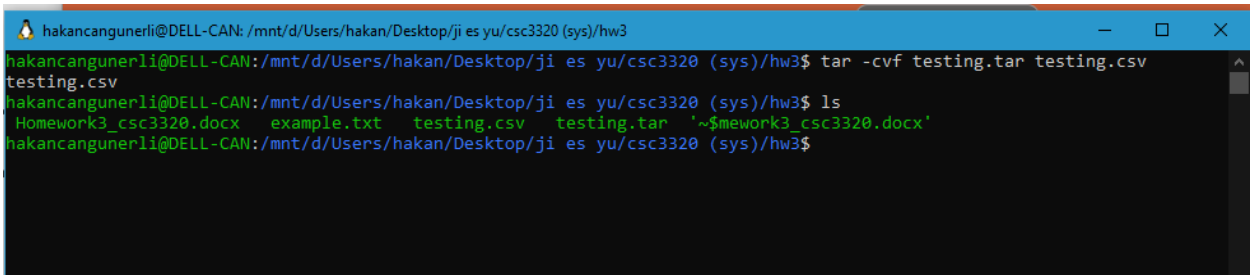


19. tar

Command name: tar

Usage: for compression

Output:



20. time

Command name: time

Usage: how long a command takes to run.

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/syshw$ time fgrep -i 'central' testing.csv
Central,Kivell
Central,Jardine
Central,Gill
Central,Andrews
Central,Jardine
Central,Morgan
Central,Smith
Central,Morgan

real    0m0.005s
user    0m0.003s
sys     0m0.000s
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/syshw$
```

21. mount

Command name: mount

Usage: mount filesystems.

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ mount -l
/dev/sdb on / type ext4 (rw,relatime,discard,errors=remount-ro,data=ordered)
none on /mnt/wsl type tmpfs (rw,relatime)
tools on /init type 9p (ro,relatime,dirsync,aname=tools;fmask=022,loose,access=client,msize=65536,trans=fd,rfd=6,wfd=6)
none on /dev type devtmpfs (rw,nosuid,relatime,size=4022616k,nr_inodes=1005654,mode=755)
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,noatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,noatime)
devpts on /dev/pts type devpts (rw,nosuid,noexec,noatime,gid=5,mode=620,ptmxmode=000)
none on /run type tmpfs (rw,nosuid,noexec,noatime,mode=755)
none on /run/lock type tmpfs (rw,nosuid,nodev,noexec,noatime)
none on /run/shm type tmpfs (rw,nosuid,nodev,noatime)
none on /run/user type tmpfs (rw,nosuid,nodev,noexec,noatime,mode=755)
binfmt_misc on /proc/sys/fs/binfmt_misc type binfmt_misc (rw,relatime)
tmpfs on /sys/fs/cgroup type tmpfs (rw,nosuid,nodev,noexec,relatime,mode=755)
cgroup2 on /sys/fs/cgroup/unified type cgroup2 (rw,nosuid,nodev,noexec,relatime,nsdelegate)
cgroup on /sys/fs/cgroup/cpuset type cgroup (rw,nosuid,nodev,noexec,relatime,cpuset)
cgroup on /sys/fs/cgroup/cpu type cgroup (rw,nosuid,nodev,noexec,relatime,cpu)
cgroup on /sys/fs/cgroup/cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpuacct)
cgroup on /sys/fs/cgroup/blkio type cgroup (rw,nosuid,nodev,noexec,relatime,blkio)
cgroup on /sys/fs/cgroup/memory type cgroup (rw,nosuid,nodev,noexec,relatime,memory)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices)
cgroup on /sys/fs/cgroup/freezer type cgroup (rw,nosuid,nodev,noexec,relatime,freezer)
cgroup on /sys/fs/cgroup/net_cls type cgroup (rw,nosuid,nodev,noexec,relatime,net_cls)
cgroup on /sys/fs/cgroup/perf_event type cgroup (rw,nosuid,nodev,noexec,relatime,perf_event)
cgroup on /sys/fs/cgroup/net_prio type cgroup (rw,nosuid,nodev,noexec,relatime,net_prio)
cgroup on /sys/fs/cgroup/hugetlb type cgroup (rw,nosuid,nodev,noexec,relatime,hugetlb)
cgroup on /sys/fs/cgroup/pids type cgroup (rw,nosuid,nodev,noexec,relatime,pids)
cgroup on /sys/fs/cgroup/rdma type cgroup (rw,nosuid,nodev,noexec,relatime,rdma)
drivers on /usr/lib/wsl/drivers type 9p (ro,nosuid,nodev,noatime,dirsync,aname=drivers;fmask=333;dmask=222,mmap,access=client,msize=65536,trans=fd,rfd=4,wfd=4)
lib on /usr/lib/wsl/lib type 9p (ro,nosuid,nodev,noatime,dirsync,aname=lib;fmask=333;dmask=222,mmap,access=client,msize=65536,trans=fd,rfd=4,wfd=4)
drvfs on /mnt/c type 9p (rw,noatime,dirsync,aname=drvfs;path=C:\;uid=1000;gid=1000;symlinkroot=/mnt/,mmap,access=client,msize=262144,trans=virtio)
drvfs on /mnt/d type 9p (rw,noatime,dirsync,aname=drvfs;path=D:\;uid=1000;gid=1000;symlinkroot=/mnt/,mmap,access=client,msize=262144,trans=virtio)
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

22. tr

Command name: tr

Usage: translate and delete characters

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   example.txt   testing.csv  '~$mework3_csc3320.docx'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat testing.csv | tr “[a-z]” “[A-Z]”
REGION,REP
EAST,JONES
CENTRAL,KIVELL
CENTRAL,JARDINE
CENTRAL,GILL
WEST,SORVINO
EAST,JONES
CENTRAL,ANDREWS
CENTRAL,JARDINE
WEST,THOMPSON
EAST,JONES
CENTRAL,MORGAN
EAST,HOWARD
EAST,PARENT
EAST,JONES
CENTRAL,SMITH
EAST,JONES
CENTRAL,MORGAN
EAST,JONES
EAST,PARENT
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

23. od

Command name: od

Usage: output content as octal values

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ od -b testing.csv
0000000 122 145 147 151 157 156 054 122 145 160 015 012 105 141 163 164
0000020 054 112 157 156 145 163 015 012 103 145 156 164 162 141 154 054
0000040 113 151 166 145 154 154 015 012 103 145 156 164 162 141 154 054
0000060 112 141 162 144 151 156 145 015 012 103 145 156 164 162 141 154
0000100 054 107 151 154 154 015 012 127 145 163 164 054 123 157 162 166
0000120 151 156 157 015 012 105 141 163 164 054 112 157 156 145 163 015
0000140 012 103 145 156 164 162 141 154 054 101 156 144 162 145 167 163
0000160 015 012 103 145 156 164 162 141 154 054 112 141 162 144 151 156
0000200 145 015 012 127 145 163 164 054 124 150 157 155 160 163 157 156
0000220 015 012 105 141 163 164 054 112 157 156 145 163 015 012 103 145
0000240 156 164 162 141 154 054 115 157 162 147 141 156 015 012 105 141
0000260 163 164 054 110 157 167 141 162 144 015 012 105 141 163 164 054
0000300 120 141 162 145 156 164 015 012 105 141 163 164 054 112 157 156
0000320 145 163 015 012 103 145 156 164 162 141 154 054 123 155 151 164
0000340 150 015 012 105 141 163 164 054 112 157 156 145 163 015 012 103
0000360 145 156 164 162 141 154 054 115 157 162 147 141 156 015 012 105
0000400 141 163 164 054 112 157 156 145 163 015 012 105 141 163 164 054
0000420 120 141 162 145 156 164 015 012
0000430
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

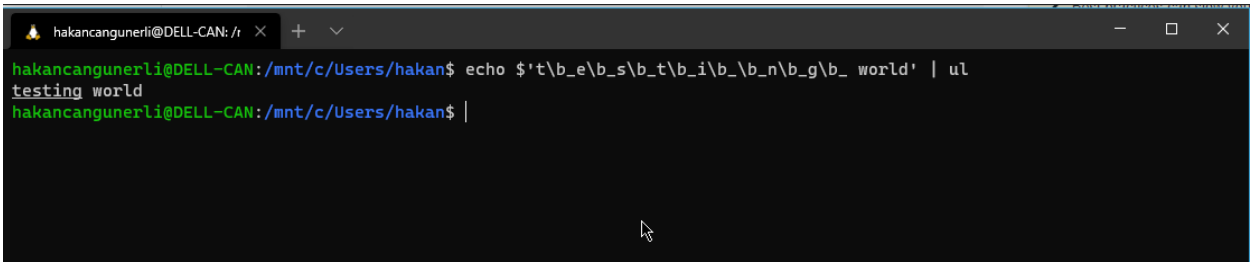
Saved to this PC

24. ul

Command name: ul

Usage: underline text

Output:

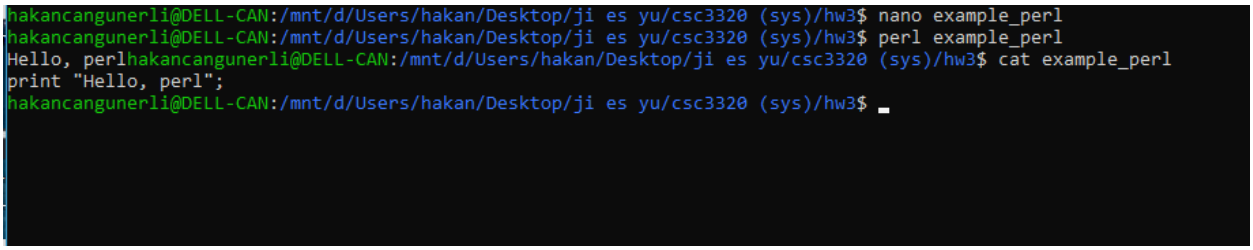


25. perl

Command name: perl

Usage: writing commands using perl, a programming language.

Output:



26. sed

Command name: sed

Usage: stream editing, matching.

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ sed 's/East/Central/' testing.csv
Region,Rep
Central,Jones
Central,Kivell
Central,Jardine
Central,Gill
West,Sorvino
Central,Jones
Central,Andrews
Central,Jardine
West,Thompson
Central,Jones
Central,Morgan
Central,Howard
Central,Parent
Central,Jones
Central,Smith
Central,Jones
Central,Morgan
Central,Jones
Central,Parent
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat testing.csv
Region,Rep
East,Jones
Central,Kivell
Central,Jardine
Central,Gill
West,Sorvino
East,Jones
Central,Andrews
Central,Jardine
West,Thompson
East,Jones
Central,Morgan
East,Howard
East,Parent
East,Jones
Central,Smith
East,Jones
Central,Morgan
East,Jones
East,Parent
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

27. sort

Command name: sort text files.

Usage: sort testing.csv

Output:

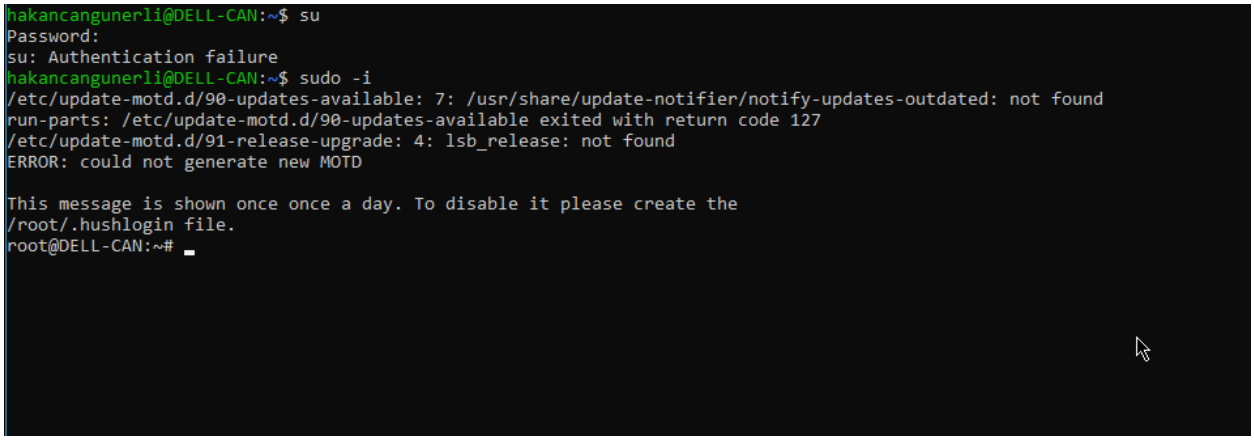
```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/syshw$ cat testing.csv
Region,Rep
East,Jones
Central,Kivell
Central,Jardine
Central,Gill
West,Sorvino
East,Jones
Central,Andrews
Central,Jardine
West,Thompson
East,Jones
Central,Morgan
East,Howard
East,Parent
East,Jones
Central,Smith
East,Jones
Central,Morgan
East,Jones
East,Parent
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/syshw$ sort testing.csv
Central,Andrews
Central,Gill
Central,Jardine
Central,Jardine
Central,Kivell
Central,Morgan
Central,Morgan
Central,Smith
East,Howard
East,Jones
East,Jones
East,Jones
East,Jones
East,Jones
East,Jones
East,Parent
East,Parent
Region,Rep
West,Sorvino
West,Thompson
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/syshw$
```

28. **su**

Command name: su

Usage: creates a temporary shell. This won’t work for ubuntu since su is disabled by default.

Output

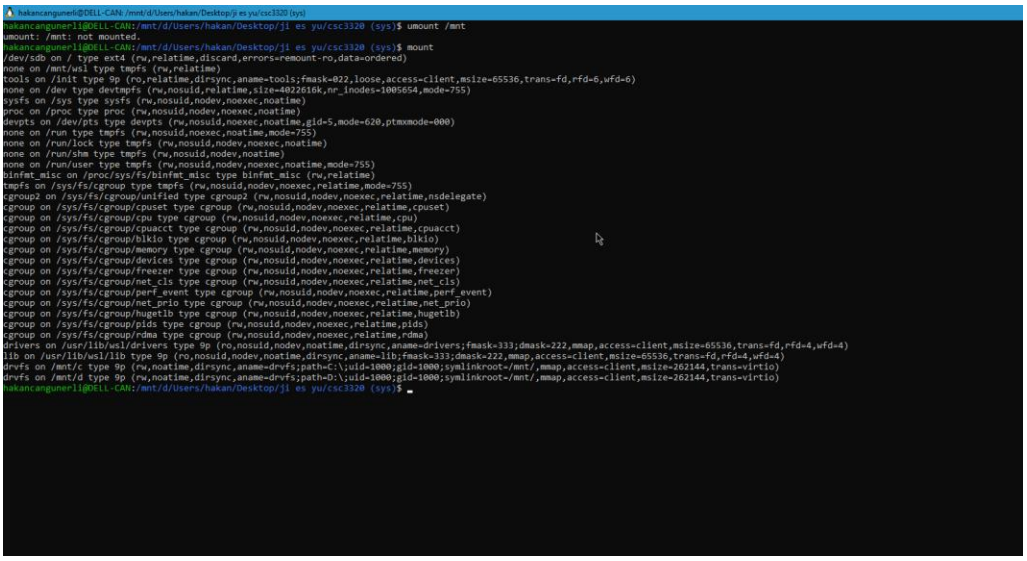


29. **umount**

Command name: umount

Usage: unmount a filesystem, antagonist to mount

Output

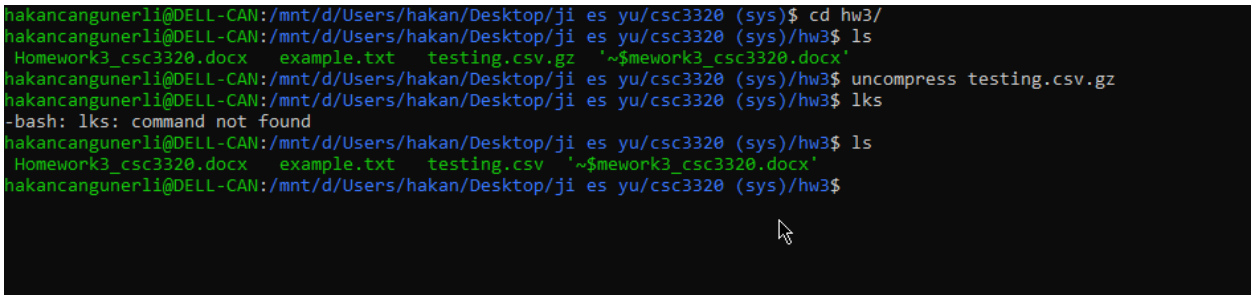


30. **uncompress**

Command name: uncompress

Usage: uncompress files, antagonist to compress/gzip.

Output

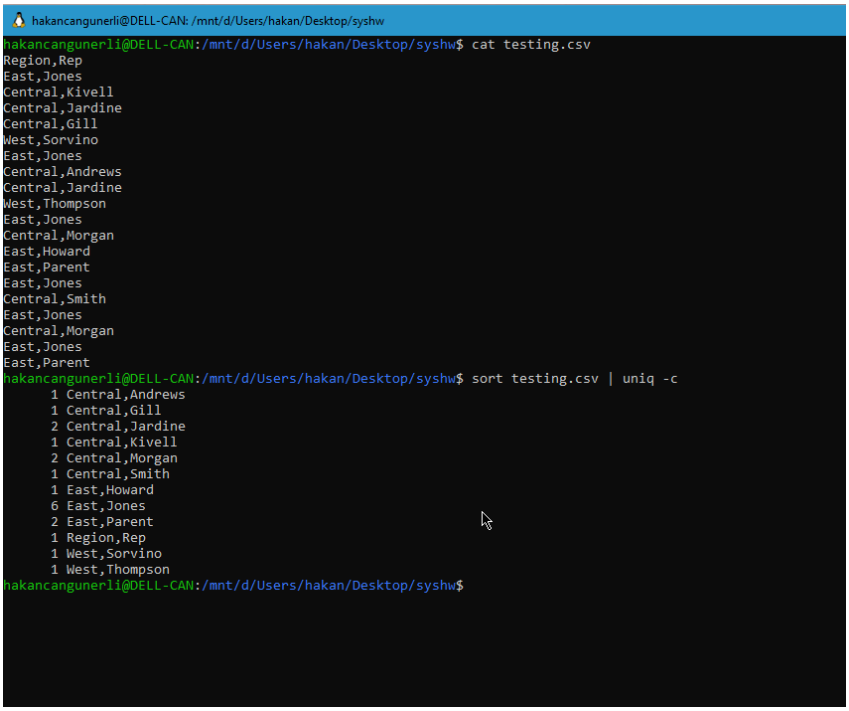


31. **uniq**

Command name: uniq

Usage: how many times a character is present uniquely.

Output

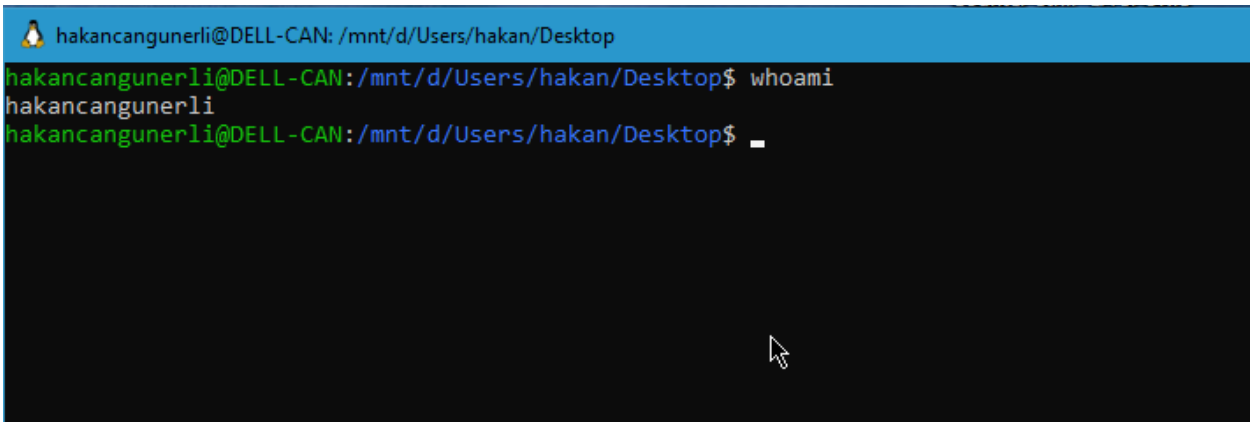


32. whoami

Command name: whoami

Usage: print the userid

Output



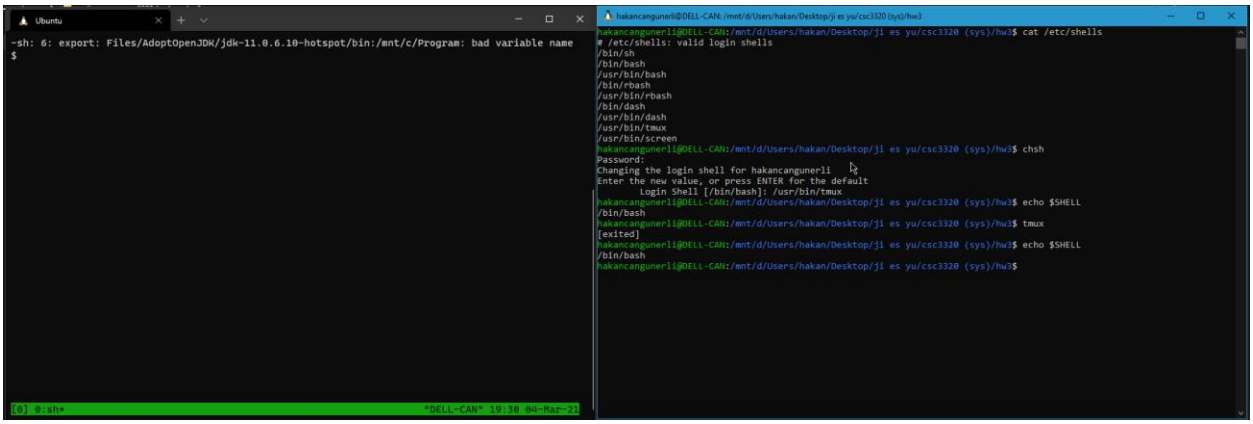
Part II: Chapter 4

1. chsh

Command name: chsh

Usage: changing the shell.

Output:

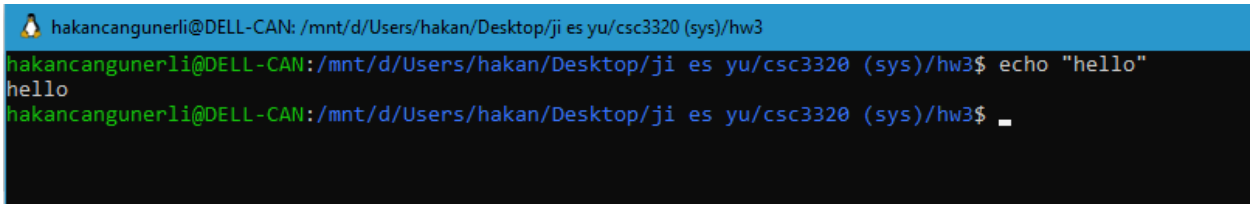


2. echo

Command name: echo

Usage: output a line of text

Output:

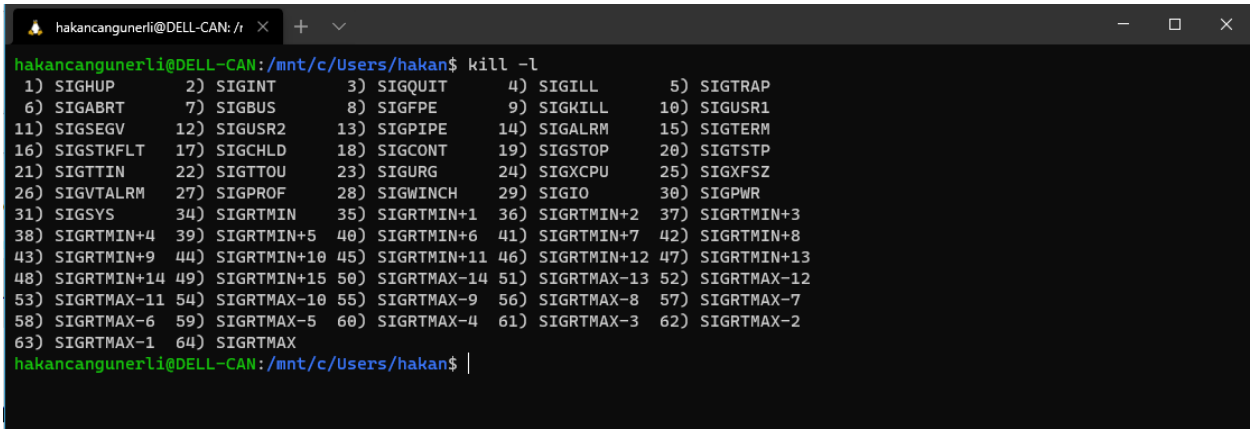


3.kill

Command name: kill

Usage: kill a process

Output:

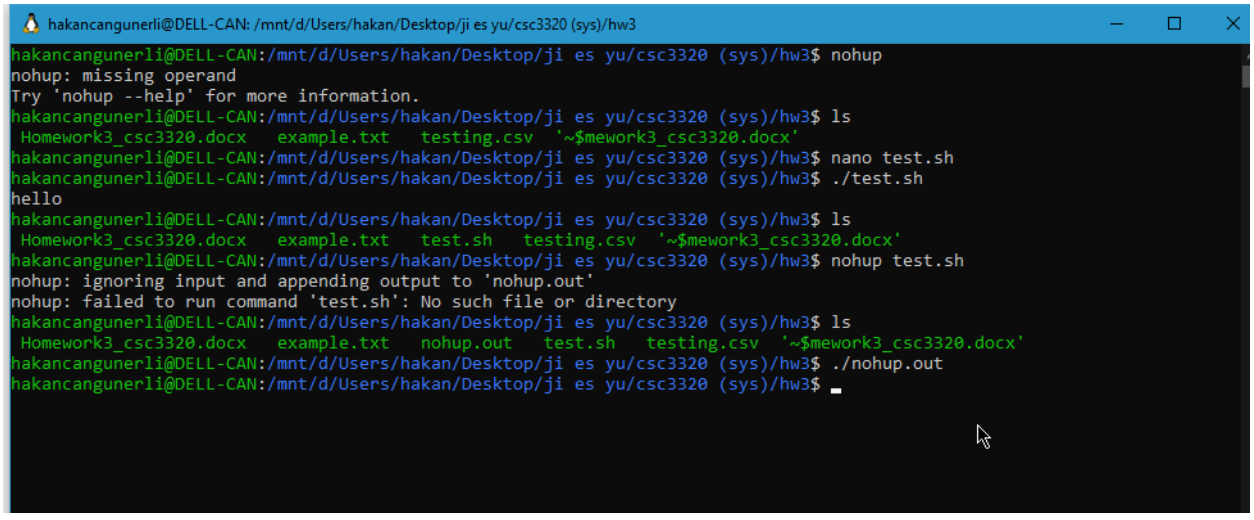


4. nohup

Command name: nohup

Usage: run the command even if the session gets disconnected.

Output:

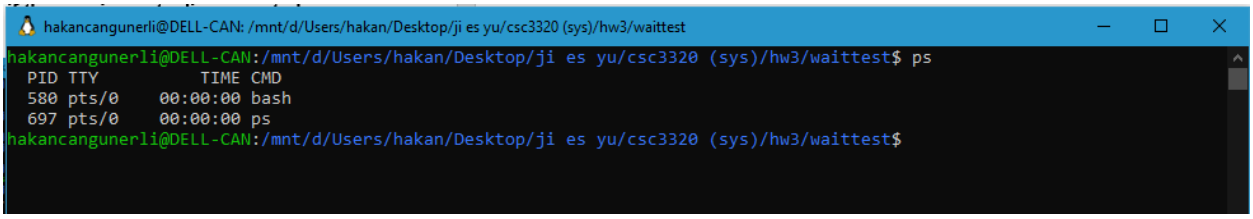


5. ps

Command name: ps

Usage: running processes of a system

Output:

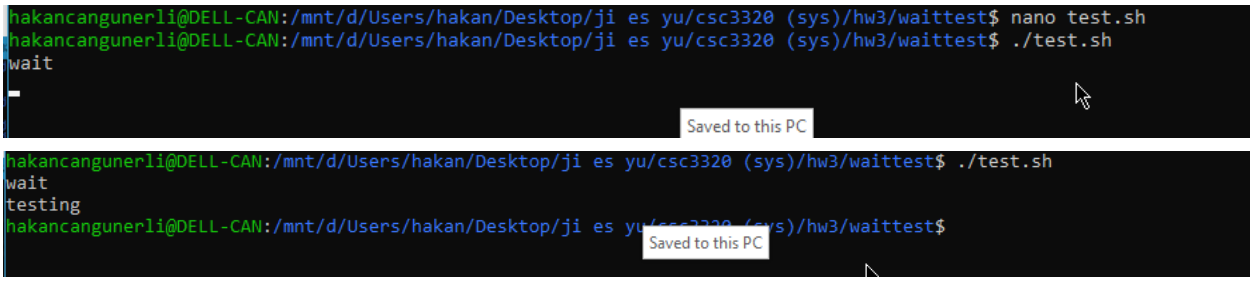


6. sleep

Command name: sleep

Usage: wait for an execution of a script

Output:

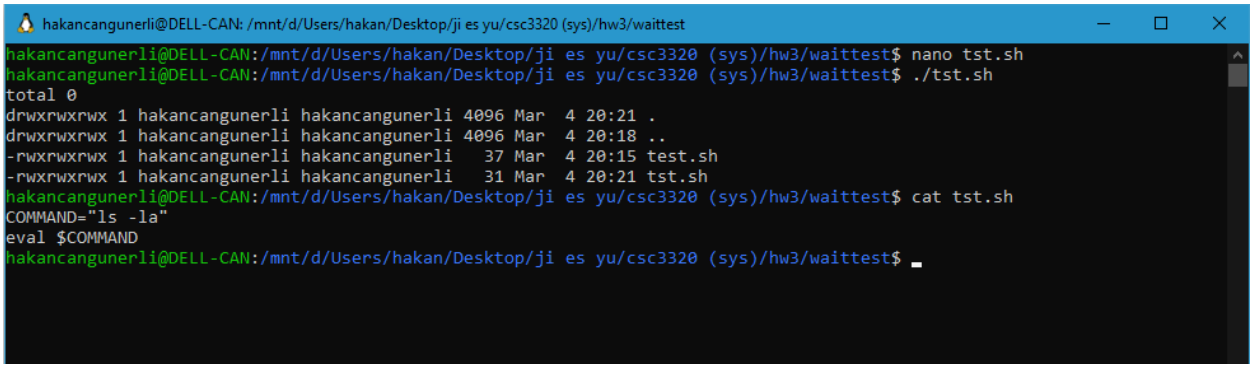


7. eval

Command name: eval

Usage: execute commands, similar to exec.

Output:

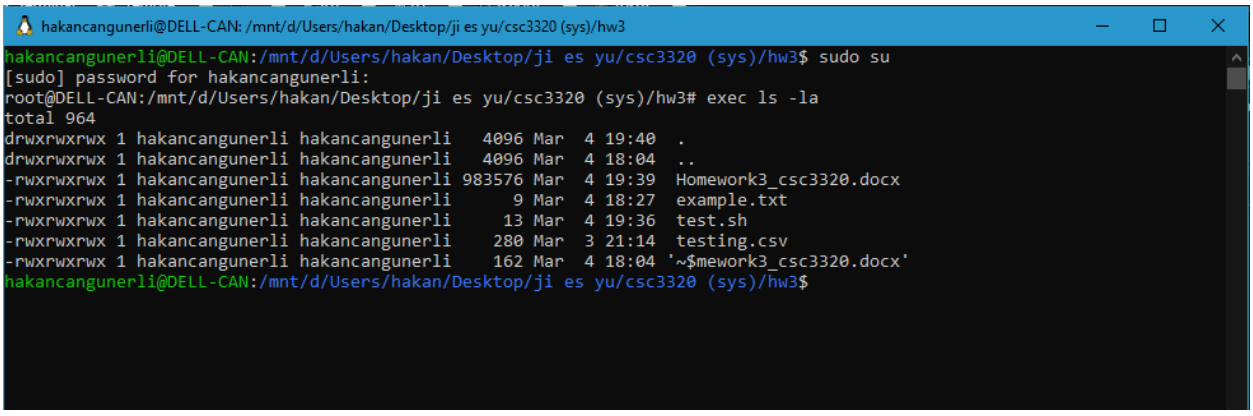


8. exec

Command name: exec

Usage: exec command allows the user to execute a command from the bash.

Output:

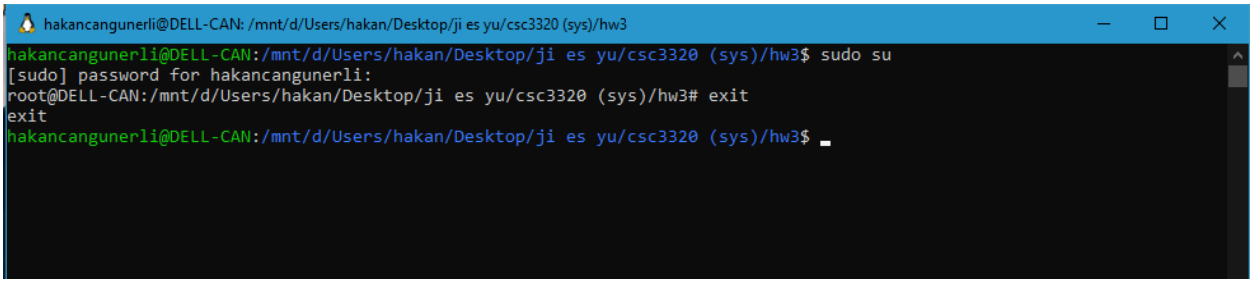


9. exit

Command name: exit

Usage: exit the terminal

Output:

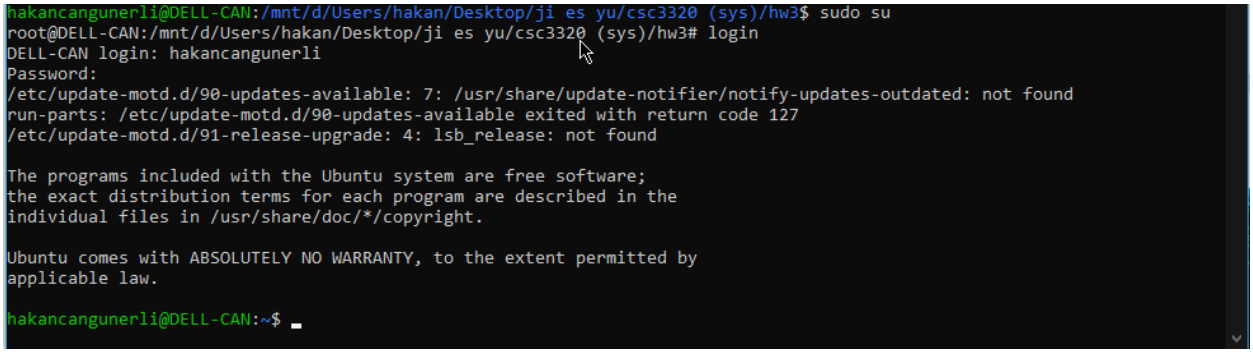


10. login

Command name: login

Usage: login to user

Output:



11. shift

Command name: shift

Usage: shift parameters

Output:

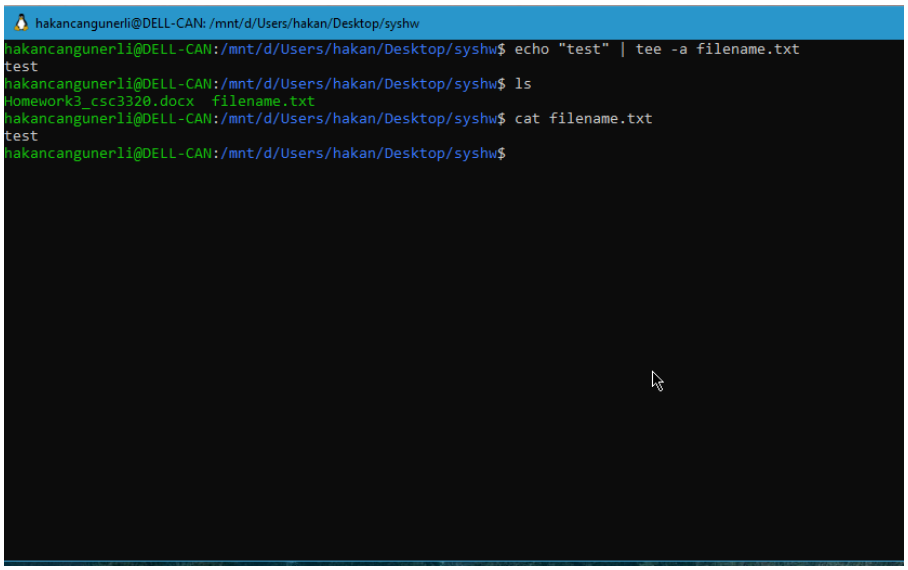
```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat test.sh
echo "hello"
echo "amount of arguments $*"
echo "before shift $1"
shift 2
echo "after shift $1"
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ./test.sh
hello
amount of arguments
before shift
after shift
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ sh ./test.sh X1 X2 X3 X4
hello
amount of arguments X1 X2 X3 X4
before shift X1
after shift X3
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

12. tee

Command name: tee

Usage: tee allows to read from the input and write to an output/file.

Output:

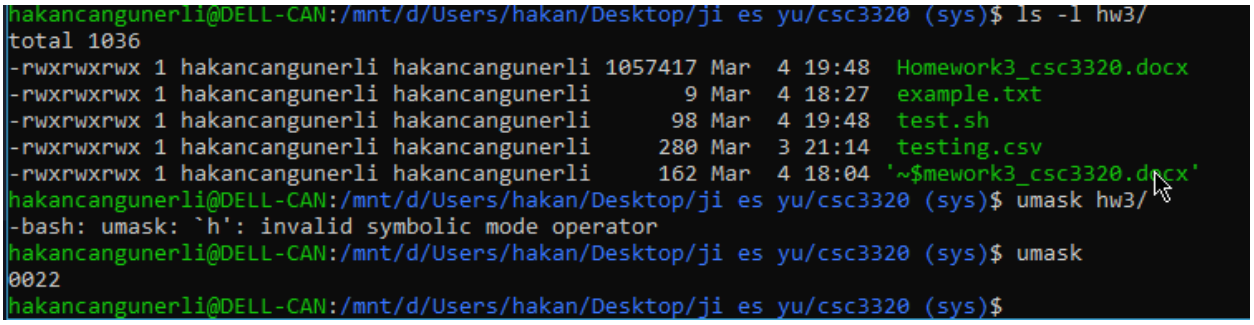


13. umask

Command name: umask

Usage: assign a def file permission for new created files

Output:

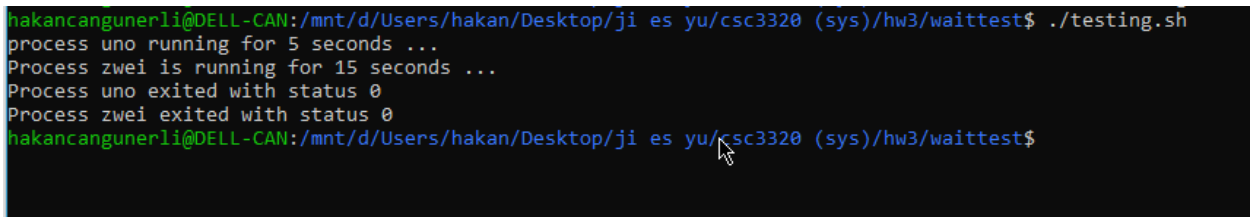


14. wait

Command name: wait

Usage: wait allows you to wait for completing a process.

Output:



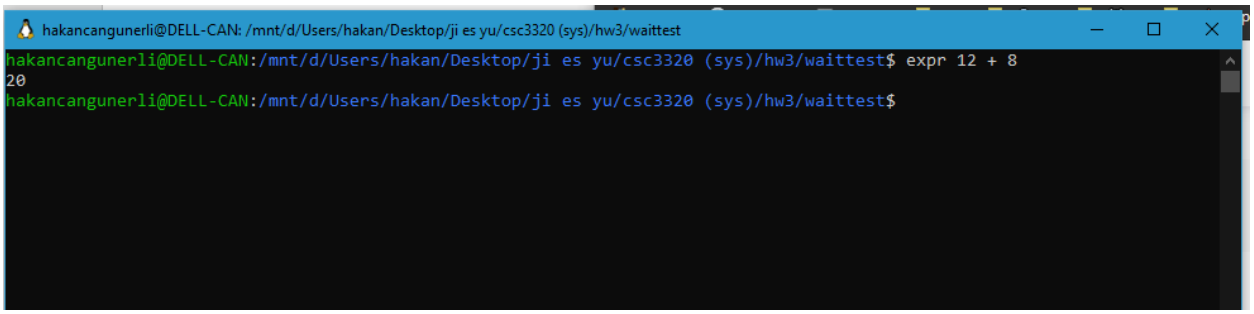
Part III: Chapter 5

1.expr

Command name: expr

Usage: evaluate expressions

Output:

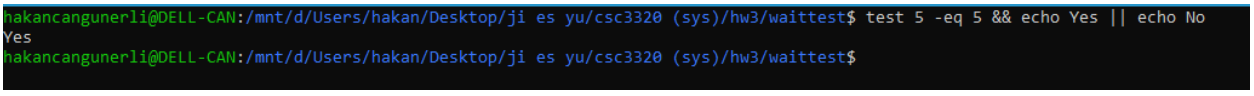


2.test

Command name :test

Usage : check and compare values

Output:



3.break

Command name :break

Usage : terminate the loop

Output:

```
hakancangunerli@DELL-CAN: /mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ls
 Homework3_csc3320.docx   break_test.sh   example.txt   testing.csv  '~$mework3_csc3320.docx'  '~WRL2681.tmp'
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat break_test.sh
i=1
while(( $i<=10 ))
do
if (( $i==5 ))
then
break
fi
echo $i
((++i))
done
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ./break_test.sh
1
2
3
4
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

4.case..in..esac

Command name : case..in..esac

Usage : similar to a switch statement

Output:

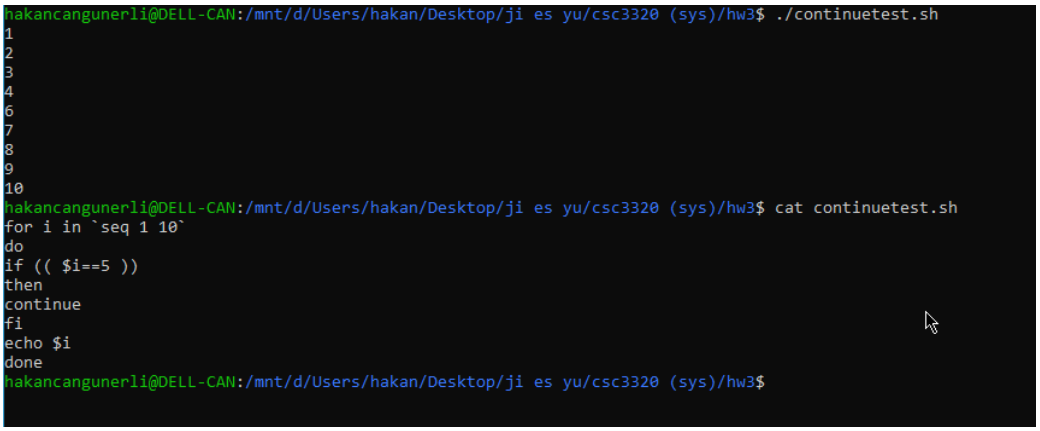
```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ./fruit.sh
I like bananas.
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat fruit.sh
FRUIT="banana"

case "$FRUIT" in
   "apple") echo "i hate apples ."
   ;;
   "banana") echo "I like bananas."
   ;;
   "kiwi") echo "i somewhat like kiwi."
   ;;
esac
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

5.continue

Command name :continue

Usage : skip the current iteration for loops.

Output:

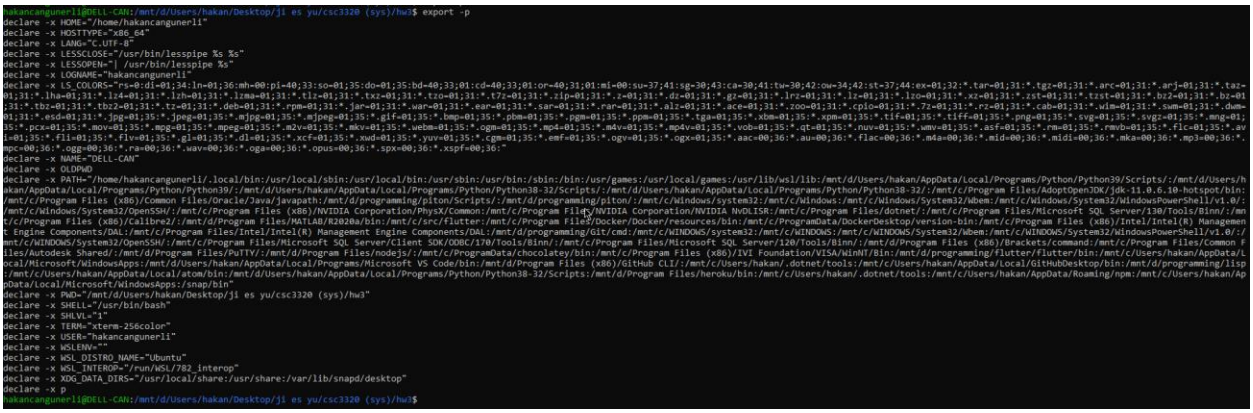


6.export

Command name : export

Usage: export attribute for variables

Output:



7.for..in..do..done

Command name : for i in

Usage: iteration statement

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ./continuetest.sh
1
2
3
4
6
7
8
9
10
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat continuetest.sh
for i in `seq 1 10`
do
if (( $i==5 ))
then
continue
fi
echo $i
done
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

8. if..then..elif..fi

Command name : if then elif fi

Usage: conditional expression

Output:

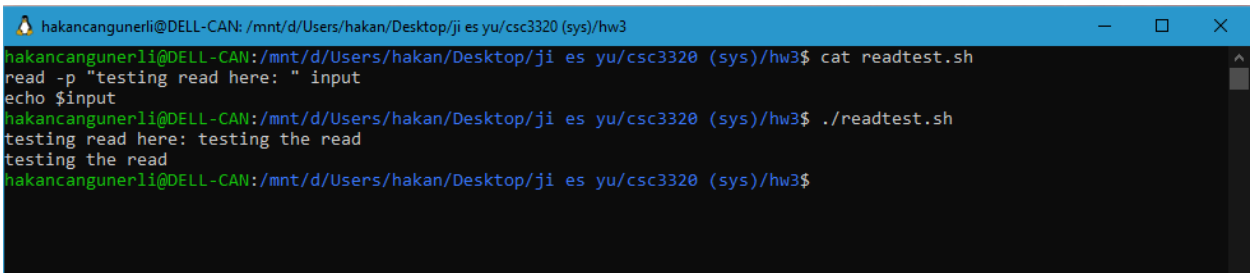
```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ ./continuetest.sh
1
2
3
4
6
7
8
9
10
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ cat continuetest.sh
for i in `seq 1 10`
do
if (( $i==5 ))
then
continue
fi
echo $i
done
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

9.read

Command name : read

Usage: read from a file

Output:

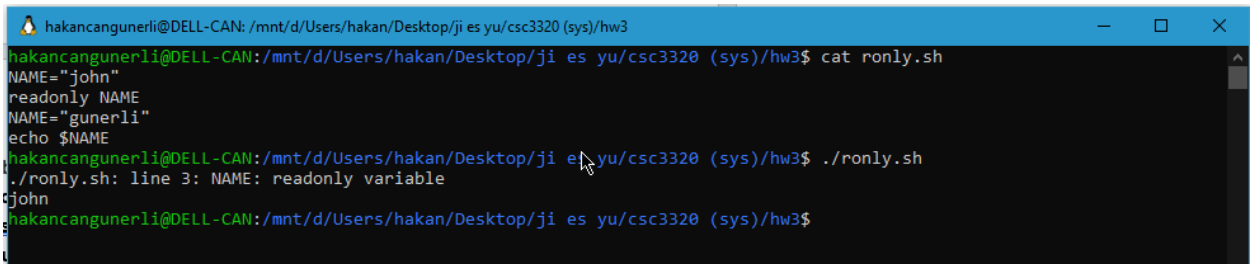


10.readonly

Command name : readonly

Usage: readonly attribute for variables

Output:

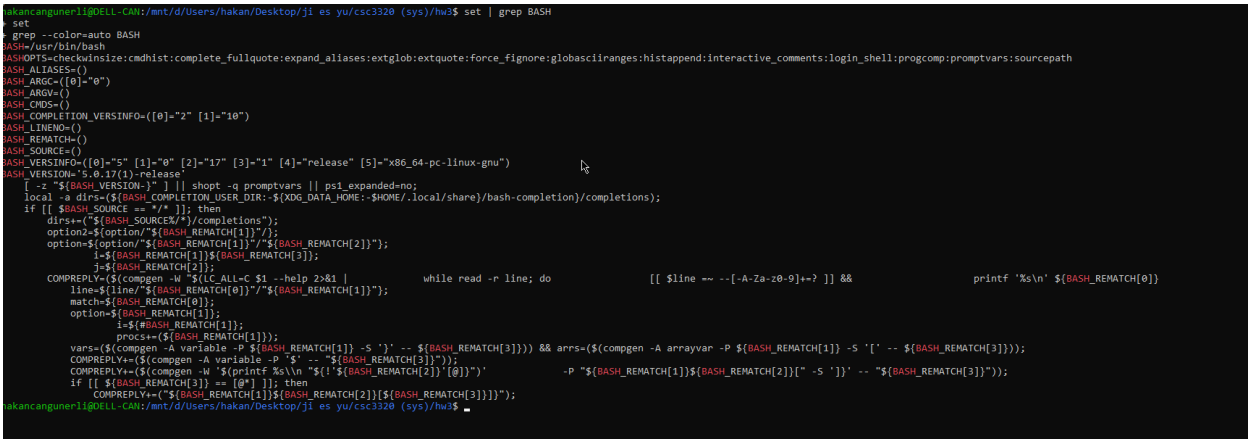


11.set

Command name : set

Usage: set values for shells and parameters.

Output:



12.trap

Command name : trap

Usage: trap signals

Output:

```
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$ trap -l
 1) SIGHUP       2) SIGINT       3) SIGQUIT      4) SIGILL       5) SIGTRAP
 6) SIGABRT      7) SIGBUS       8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
hakancangunerli@DELL-CAN:/mnt/d/Users/hakan/Desktop/ji es yu/csc3320 (sys)/hw3$
```

13.while..do..done

Command name : while..do..done

Usage: perform a command multiple times

Output: