

```

xeffles@xeffles-VirtualBox:~/Downloads/lab8$ ./mssh
command?: ls
-l          alias          lab8      process
#Makefile#  command          linkedlist tokenize
Makefile    cscd340Lab7systematic.pdf mssh      utils
Untitled Document cscd340Lab7val.pdf  output.txt wc
Untitled Foldercscd340Lab8.c      pipes
command?: ls -al | wc -w
229
command?: alias c=wc -w
command?: ls -al | c
229
command?: history
0: ls
1: exit
2: ls
3: exit
4: alias b=ls -l
5: b
6: exit
7: exit
8: exit
9: ls
10: ls -al | wc -w
11: alias b=wc -w
12: ls -al | b
13: exit
14: ls -al | b
15: exit
16: ls
17: ls -al | wc -w
18: alias c=wc -w
19: ls -al | c
20: history
command?: !9
-l          alias          lab8      process
#Makefile#  command          linkedlist tokenize
Makefile    cscd340Lab7systematic.pdf mssh      utils
Untitled Document cscd340Lab7val.pdf  output.txt wc
Untitled Foldercscd340Lab8.c      pipes
command?: pwd

```

```
/home/xeffles/Downloads/lab8
command?: cd ..
command?: pwd
/home/xeffles/Downloads
command?: cd lab8
command?: pwd
/home/xeffles/Downloads/lab8
command?: ls -al > output.txt
command?: cut -b 1,2,3 < output.txt | wc -w
26
command?: PATH=$PATH:/my/path/isfake
command?: ls
command?: ms
command?: pwd
command?: exit
```

```
xeffles@xeffles-VirtualBox:~/Downloads/lab8$ valgrind ./mssh
==32696== Memcheck, a memory error detector
==32696== Copyright (C) 2002-2015, and GNU GPL'd, by Julian Seward et al.
==32696== Using Valgrind-3.11.0 and LibVEX; rerun with -h for copyright info
==32696== Command: ./mssh
==32696==
command?: ls -al | cut -b 1,2,3 | wc -w
26
command?: history
0: ls
1: alias a=pwd
2: a
3: ls -l | cut -b 1,2,3 | wc -w
4: exit
5: ls -l | cut -b 1,2,3 | wc -w
6: pwd
7: cut -b 1,2,3 < output.txt | wc -w
8: exit
9: ls -al | cut -b 1,2,3 | wc -w
10: history
command?: !0
-l          alias          lab8      process
#Makefile# command          linkedlist tokenize
```

```
Makefile      cscd340Lab7systematic.pdf  mssh    utils
Untitled Document  cscd340Lab7val.pdf    output.txt  wc
Untitled Foldercscd340Lab8.c          pipes
command?: pwd
/home/xeffles/Downloads/lab8
command?: !!
/home/xeffles/Downloads/lab8
command?: alias d=!3
command?: d
20
command?: d
20
command?: ls -l | cut -b 1,2,3 | wc -w
20
command?: exit
==32696==
==32696== HEAP SUMMARY:
==32696==    in use at exit: 0 bytes in 0 blocks
==32696==   total heap usage: 131 allocs, 131 frees, 28,197 bytes allocated
==32696==
==32696== All heap blocks were freed -- no leaks are possible
==32696==
==32696== For counts of detected and suppressed errors, rerun with: -v
==32696== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
```