

Group 22: Adilet Majit & Shyngys Karishev

Operating Systems

Project Phase 2 – Report

Remote CLI Shell

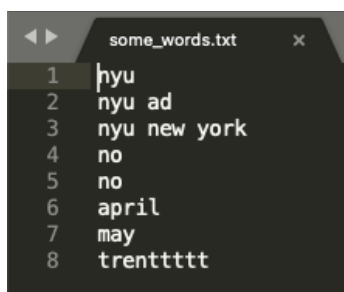
Project Description

We have upgraded the Phase 1 Local CLI Shell with remote access capability to our shell through client-server Socket communication. The client takes inputs from the user and sends requests to the server. The input can be either a command or composed commands, implemented from the last phase version. The server parses the request, identifies and runs the commands, but sends output/result to the client; the client receives and prints it on the screen. The communication works between a client and server, which are run, if on the same computer, from different terminal shells.

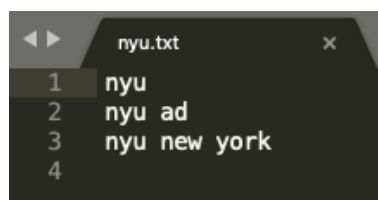
Test Cases

We run the same test cases from the Phase 1 Local shell and check whether the remote commands run correctly and the communication works between the client and server.

3 Pipes



```
1 nyu
2 nyu ad
3 nyu new york
4 no
5 no
6 april
7 may
8 trenttttt
```



```
1 nyu
2 nyu ad
3 nyu new york
4
```

```
1.cat some_words.txt | grep nyu | tee nyu.txt | wc -l
```

```
MacBook-Pro-Adilet:assignment1 adyoka$ ./client
Connected to the server at the port: 5800

*****

**Remote CLI Shell G22 by Adilet and Shyngys**

- Start by typing your commands! -

*****

adyoka: /Users/adyoka/Desktop/assignment1$ cat some_words.txt | grep nyu | tee nyu.txt | wc -l
Client received:
3

MacBook-Pro-Adilet:assignment1 adyoka$ ./serv
Server Received: cat some_words.txt | grep nyu | tee nyu.txt | wc -l
```

2. cat some_words.txt | uniq | sort | head -8

```
adyoka: /Users/adyoka/Desktop/assignment1$ cat some_words.txt | uniq | sort | head -8
Client received:
april
may
no
nyu
nyu ad
nyu new york
trenttttt
```

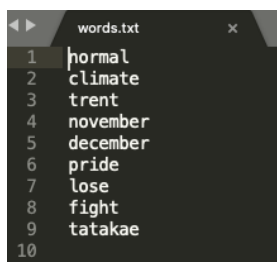
```
Server Received: cat some_words.txt | uniq | sort | head -8
```

3. sort words.txt | head -10 | tail -n 5 | tee output.txt

```
adyoka: /Users/adyoka/Desktop/assignment1$ sort words.txt | head -10 | tail -n 5 | tee output.txt
Client received:
no
nyu
nyu ad
nyu new york
trenttttt
```

```
Server Received: sort words.txt | head -10 | tail -n 5 | tee output.txt
```

2 Pipes



```
words.txt
1 normal
2 climate
3 trent
4 november
5 december
6 pride
7 lose
8 fight
9 tatakae
10
```

4. `sort words.txt | grep n | head -6`

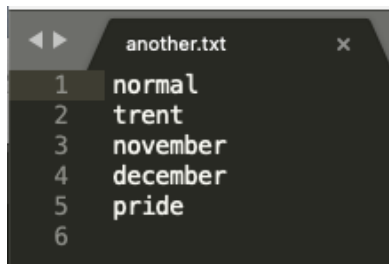
```
adyoka: /Users/adyoka/Desktop/assignment1$ sort words.txt | grep n | head -6
Client received:
normal
november
pride
tatakae
trent
```

5. `cat words.txt | grep er | wc -l`

```
adyoka: /Users/adyoka/Desktop/assignment1$ cat words.txt | grep er | wc -l
Client received:
normal
november
trent
```

6. `cat words.txt | grep r | tee another.txt`

```
adyoka: /Users/adyoka/Desktop/assignment1$ cat words.txt | grep r | tee another.txt
Client received:
normal
trent
november
december
pride
```



1 Pipe

7. `cat words.txt | tail -5`

```
adyoka: /Users/adyoka/Desktop/assignment1$ cat words.txt | tail -5
Client received:
december
pride
lose
fight
tatakae
```

8. `ls -al | more`

```

adyoka: /Users/adyoka/Desktop/assignment1$ ls -al | more
Client received:
total 768
drwx-----@ 16 adyoka  staff    512 Apr  6 23:11 .
drwx-----@ 45 adyoka  staff   1440 Apr  6 23:30 ..
-rw-r--r--@ 1 adyoka  staff    6148 Apr  6 23:05 .DS_Store
-rw-r--r--@ 1 adyoka  staff  170346 Mar 16 22:28 Group22_phase1_report.pdf
-rw-r--r--@ 1 adyoka  staff     37 Apr  6 23:12 another.txt
-rwxr-xr-x 1 adyoka  staff   50256 Apr  6 23:02 client
-rw-r--r--@ 1 adyoka  staff     24 Apr  6 23:02 nyu.txt
drwxr-xr-x 2 adyoka  staff     64 Apr  6 23:05 ou
-rw-r--r--@ 1 adyoka  staff     36 Apr  6 23:10 output.txt
-rwxr-xr-x 1 adyoka  staff   51024 Apr  6 23:02 serv
-rwxr-xr-x 1 adyoka  staff   50984 Apr  6 18:06 shell1
-rw-r--r--@ 1 adyoka  staff   10274 Apr  6 18:06 shell1.c
-rw-r--r--@ 1 adyoka  staff   3154 Apr  6 23:01 shellclient.c
-rw-r--r--@ 1 adyoka  staff  12976 Apr  6 23:01 shellserver.c
-rw-r--r--@ 1 adyoka  staff     49 Apr  6 23:01 some_words.txt
-rw-r--r--@ 1 adyoka  staff     65 Apr  6 23:09 words.txt

```

9. df | tee disk_usage.txt

```

adyoka: /Users/adyoka/Desktop/assignment1$ df | tee disk_usage.txt
Client received:
Filesystem      512-blocks    Used Available Capacity iused      ifree %used Mounted on
/dev/disk1s5s1  976490576  30761776 560490200     6%  577694 2802451000     0% /
devfs           380         380      0    100%    660      0    100% /dev
/dev/disk1s4    976490576  4194344 560490200     1%    2 2802451000     0% /System/Vo
lumes/VM
/dev/disk1s2    976490576   533096 560490200     1%   833 2802451000     0% /System/Vo
lumes/Preboot
/dev/disk1s6    976490576     592 560490200     1%    15 2802451000     0% /System/Vo
lumes/Update
/dev/disk1s1    976490576 378061072 560490200    41% 2405362 2802451000     0% /System/Vo
lumes/Data
map_auto_home      0         0      0    100%     0      0    100% /System/Vo
lumes/Data/home

```

10. cat words.txt | head -4

```

adyoka: /Users/adyoka/Desktop/assignment1$ cat words.txt | head -4
Client received:
normal
climate
trent
november

```

0 Pipe

11. man

```

adyoka: /Users/adyoka/Desktop/assignment1$ man
Client received:
What manual page do you want?

```

12. cat words.txt

```

adyoka: /Users/adyoka/Desktop/assignment1$ cat words.txt
Client received:
normal
climate
trent
november
december
pride
lose
fight
tatakae

```

13. pwd

```
adyoka: /Users/adyoka/Desktop/assignment1$ pwd
Client received:
/Users/adyoka/Desktop/assignment1
```

14. ls

```
adyoka: /Users/adyoka/Desktop/assignment1$ ls
Client received:
Group22_phase1_report.pdf
another.txt
client
disk_usage.txt
nyu.txt
ou
output.txt
serv
shell1
shell1.c
shellclient.c
shellserver.c
some_words.txt
words.txt
```

15. ls -al

```
adyoka: /Users/adyoka/Desktop/assignment1$ ls -al
Client received:
total 776
drwx-----@ 17 adyoka  staff   544 Apr  6 23:30 .
drwx-----@ 51 adyoka  staff  1632 Apr  6 23:37 ..
-rw-r--r--@ 1 adyoka  staff   6148 Apr  6 23:05 .DS_Store
-rw-r--r--@ 1 adyoka  staff 170346 Mar 16 22:28 Group22_phase1_report.pdf
-rw-r--r--@ 1 adyoka  staff    37 Apr  6 23:12 another.txt
-rwxr-xr-x 1 adyoka  staff  50256 Apr  6 23:02 client
-rw-r--r--@ 1 adyoka  staff    771 Apr  6 23:30 disk_usage.txt
-rw-r--r--@ 1 adyoka  staff    24 Apr  6 23:02 nyu.txt
drwxr-xr-x 2 adyoka  staff    64 Apr  6 23:05 ou
-rw-r--r--@ 1 adyoka  staff    36 Apr  6 23:10 output.txt
-rwxr-xr-x 1 adyoka  staff  51024 Apr  6 23:02 serv
-rwxr-xr-x 1 adyoka  staff  50984 Apr  6 18:06 shell1
-rw-r--r--@ 1 adyoka  staff  10274 Apr  6 18:06 shell1.c
-rw-r--r--@ 1 adyoka  staff   3154 Apr  6 23:01 shellclient.c
-rw-r--r--@ 1 adyoka  staff  12976 Apr  6 23:01 shellserver.c
-rw-r--r--@ 1 adyoka  staff    49 Apr  6 23:01 some_words.txt
-rw-r--r--@ 1 adyoka  staff    65 Apr  6 23:09 words -al
```

16. mkdir funny, rmdir funny

```
adyoka: /Users/adyoka/Desktop/assignment1$ mkdir funny
Client received:
ds.txt

adyoka: /Users/adyoka/Desktop/assignment1$ ls
Client received:
Group22_phase1_report.pdf
another.txt
client
disk_usage.txt
funny
nyu.txt
ou
output.txt
serv
shell1
shell1.c
shellclient.c
shellserver.c
some_words.txt
words.txt

adyoka: /Users/adyoka/Desktop/assignment1$ rmdir funny
```

17. exit

```
adyoka: /Users/adyoka/Desktop/assignment1$ exit
Exiting client socket...
All processes terminated. End of session.
MacBook-Pro-Adilet:assignment1 adyoka$
```

```
MacBook-Pro-Adilet:assignment1 adyoka$ ./serv
Server Received: df | tee disk_usage.txt
Server Received: exit
Exiting server socket...
```