Group 13 – Phase 1

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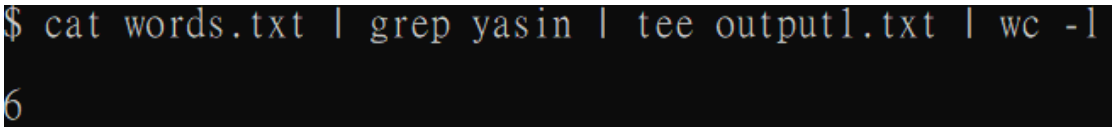
Usage of the program

We developed our own shell in C that replicates feature from the Linux commands or a program to execute including its name. We implemented single and composed commands using 0 to 3 pipes.

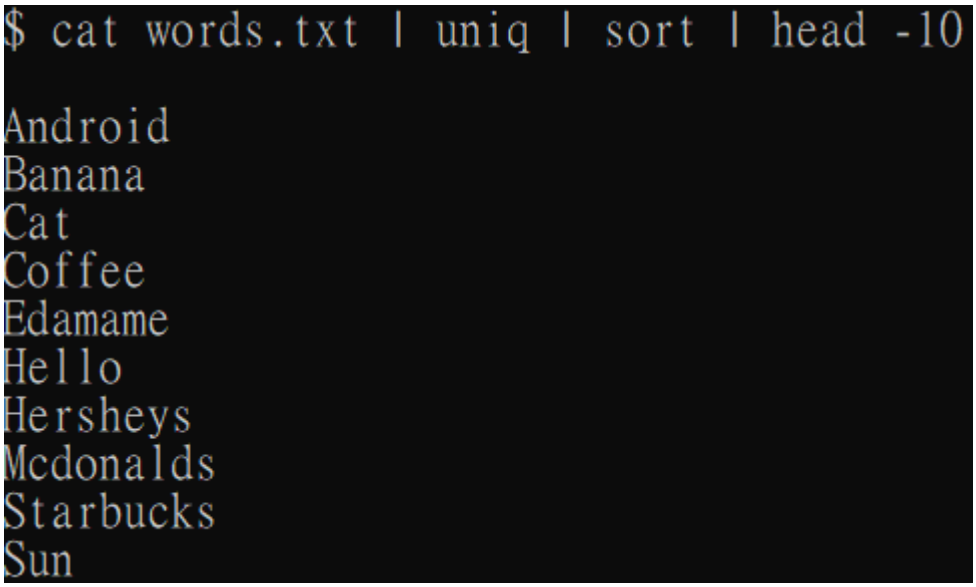
Example test cases and results

--- *3 pipes* ---

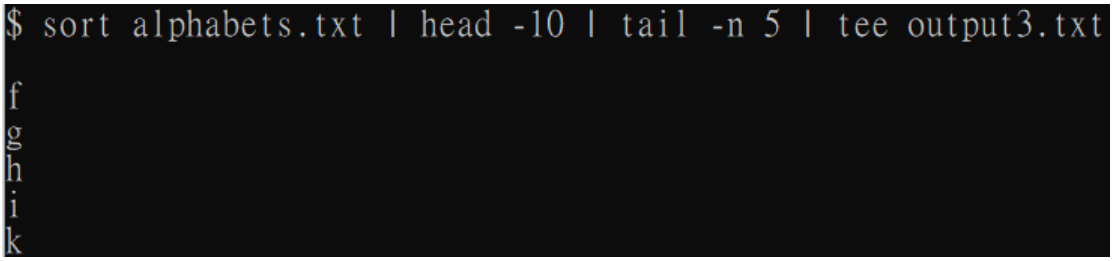
cat words.txt | grep yasin | tee output1.txt | wc -l



cat words.txt | uniq | sort | head -10



sort alphabets.txt | head -10 | tail -n 5 | tee output3.txt



--- *2 pipes* ---

sort words.txt | head -10 | grep 'a'

```
$ sort words.txt | head -10 | grep 'a'

Banana
Cat
Edamame
Mcdonalds
Starbucks
```

cat words.txt | grep yasin | wc -l

```
$ cat words.txt | grep yasin | wc -l

6
```

--- *1 pipe* ---

cat alphabets.txt | tail -10

```
$ cat alphabets.txt | tail -10

l
w
q
r
z
f
u
g
n
h
```

cat words.txt | uniq

```
$ cat words.txt | uniq

Hello
Mcdonalds
Coffee
yasin hey
Starbucks
Banana
yasin
Water
Test
fish
yasin yo
bread
potato
Cat
Edamame
yasin more
Sun
burger
Hersheys
Swimming
Android
```

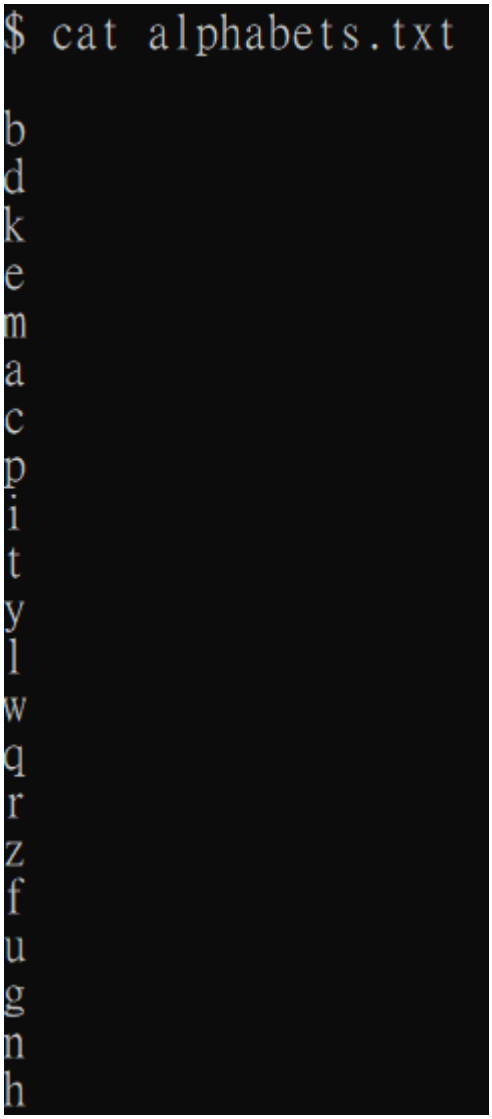
df | tee disk_usage.txt

```
$ df | tee disk_usage.txt

Filesystem     1K-blocks      Used Available Use% Mounted on
rootfs         249467900 216037344  33430556  87% /
none           249467900 216037344  33430556  87% /dev
none           249467900 216037344  33430556  87% /run
none           249467900 216037344  33430556  87% /run/lock
none           249467900 216037344  33430556  87% /run/shm
none           249467900 216037344  33430556  87% /run/user
tmpfs          249467900 216037344  33430556  87% /sys/fs/cgroup
C:\            249467900 216037344  33430556  87% /mnt/c
D:\            249470972  46119964 203351008  19% /mnt/d
```

--- *0 pipes* ---

cat alphabets.txt

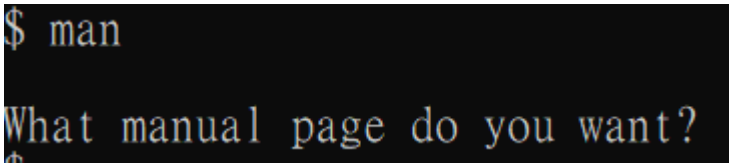


ls -l

```
$ ls -l

total 56
-rwxrwxrwx 1 yaya1721 yaya1721     7 Mar 11 14:10 Makefile
-rwxrwxrwx 1 yaya1721 yaya1721 17568 Mar 11 16:39 Phase1
-rwxrwxrwx 1 yaya1721 yaya1721 11339 Mar 11 16:39 Phase1.c
drwxrwxrwx 1 yaya1721 yaya1721   512 Mar 11 15:09 a
-rwxrwxrwx 1 yaya1721 yaya1721    63 Mar 13 01:36 alphabets.txt
-rwxrwxrwx 1 yaya1721 yaya1721   581 Mar 13 01:35 disk_usage.txt
-rwxrwxrwx 1 yaya1721 yaya1721    32 Mar  5 16:44 file4.
-rwxrwxrwx 1 yaya1721 yaya1721    54 Mar 13 01:24 output1.txt
-rwxrwxrwx 1 yaya1721 yaya1721    48 Mar  5 21:59 output2.txt
-rwxrwxrwx 1 yaya1721 yaya1721    14 Mar 13 01:30 output3.txt
-rwxrwxrwx 1 yaya1721 yaya1721 17496 Mar 10 16:31 phase1.o
-rwxrwxrwx 1 yaya1721 yaya1721   189 Mar  5 21:59 words.txt
```

man



pwd

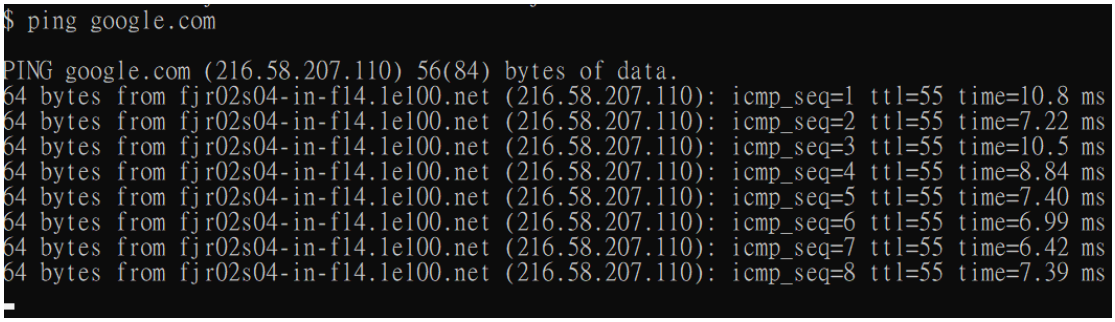
touch dummy.txt

Create a file in the same directory called dummy.txt

rm dummy.txt

Remove the file, dummy.txt

ping google.com



Description of implementation

We developed our own shell in C programming language. After parsing the input from the command line, we determined how many pipes should be used in each command and called the corresponding function. Within each function, we forked child process and created pipes. Parent process should execute the last command after its child process executed the previous commands if the number of commands is larger than one. User is able to exit the program by inputting “exit” on the command line interface.