

Things I learn in CEIS106

BY NIRAL PATEL

Introduction

- ▶ In this you will see what I learn in my class.
 - ▶ I was new to terminal use and I always use gui to do my computer work. In slides you will know what can I do in computer with out gui.
 - ▶ We learn how to find a file in the computer with Terminal.
 - ▶ We learn how to bash program with terminal
 - ▶ How to write program in terminal
 - ▶ How change premotion in terminal
 - ▶ Network change and find ip address in terminal
 - ▶ How to monitor system using terminal

Project 1: Linux Installation & bios settings

1. In my HP computer I used "F10" to get to BIOS settings
2. In BIOS I make sure Virtualization Technology was enable.

Mware Workstation 15 Player (Non-commercial use only)



Sep 10 20:14



ral1988



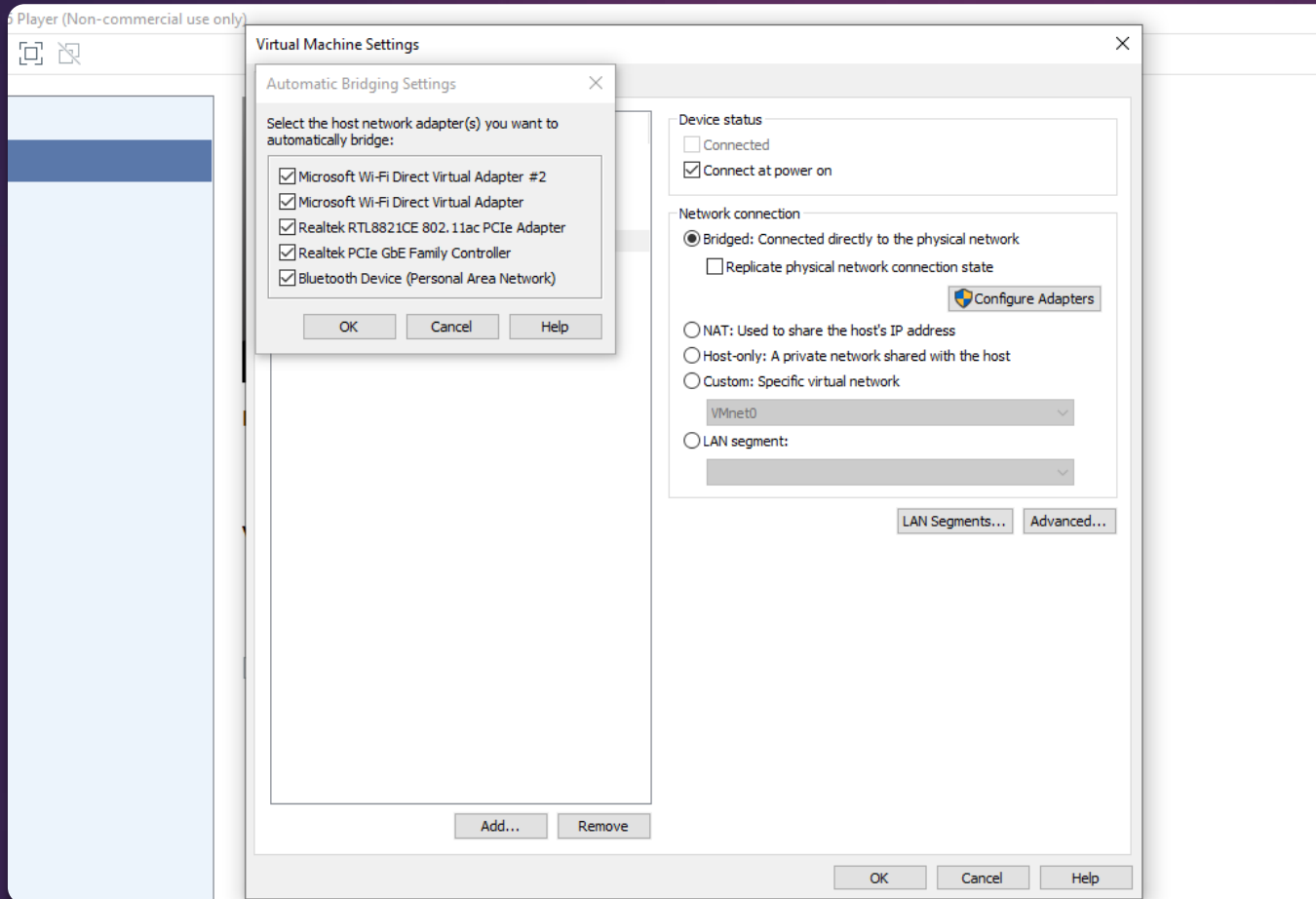
Trash

here to search



Project 2: Filesystem Hierarchy

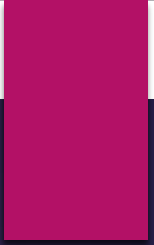
- ▶ Connect ubuntu vm to Internet
- ▶ Navigate the linux file system tree
- ▶ Create directories and file
- ▶ Copy and remove the directories and file
- ▶ Locate directories and file



Connect
the ubuntu
vm to
Internet

```
Activities Terminal Sep 15 22:00 niral1988@ubuntu: ~/JanFebSession/course1
niral1988@ubuntu:~/JanFebSession$ cd course1
niral1988@ubuntu:~/JanFebSession/course1$ touch file1 file2 file3
niral1988@ubuntu:~/JanFebSession/course1$ ls
file1 file2 file3
niral1988@ubuntu:~/JanFebSession/course1$ tree -d -L 2-
.
├──
└──
0 directories
niral1988@ubuntu:~/JanFebSession/course1$ tree -d -L 2-
.
├──
└──
0 directories
niral1988@ubuntu:~/JanFebSession/course1$ tree -d -L 2-
/home/niral1988
├── Desktop
├── Documents
├── Downloads
├── JanFebSession
│   ├── course1
│   ├── course2
│   └── course3
├── Music
├── Pictures
├── Public
├── snap
├── snap-store
├── Templates
└── Videos
14 directories
niral1988@ubuntu:~/JanFebSession/course1$ ls -l ~/JanFebSession/course1
total 0
-rw-rw-r-- 1 niral1988 niral1988 0 Sep 15 21:55 file1
```

Create directories and files.



Copy and remove directories and files

```
Activities Terminal Sep 15 22:05 niral1988@ubuntu: ~
├── file2
├── file3
├── course2
├── course3
├── MarAprSession
│   ├── course1
│   │   ├── file1
│   │   ├── file2
│   │   └── file3
│   ├── course2
│   └── course3
6 directories, 6 files
niral1988@ubuntu:~$ rmdir MarAprSession/course3
niral1988@ubuntu:~$ ls MarAprSession
course1 course2
niral1988@ubuntu:~$ rm MarAprSession/course1/file3
niral1988@ubuntu:~$ tree JanFebSession MarAprSession
JanFebSession
├── course1
│   ├── file1
│   ├── file2
│   └── file3
├── course2
├── course3
├── MarAprSession
│   ├── course1
│   │   ├── file1
│   │   └── file2
│   └── course2
5 directories, 5 files
```

Locate directories and files

- ▶ Pwd = Print working directory
- ▶ Cd Change directory
- ▶ Relative path is related to the present working directory
- ▶ Absolute path is use to located the specific location for the path

```
DeVry Ubuntu - VMware Workstation 15 Player (Non-commercial use only)
Player | [Pause] | [Fullscreen] | [Refresh] | [Close]
Activities | Terminal | Sep 16 06:18
niral1988@ubuntu: ~
locate is already the newest version (4.7.0-1ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 106 not upgraded.
niral1988@ubuntu:~$ locate -S
Database /var/cache/locate/locatedb is in the GNU LOCATE02 format.
Database was last modified at 2020:09:16 06:16:00.672615548 -0700
Locate database size: 3905516 bytes
All Filenames: 322705
File names have a cumulative length of 20765228 bytes.
Of those file names,
    63 contain whitespace,
    0 contain newline characters,
    and 6 contain characters with the high bit set.
Compression ratio 81.19% (higher is better)
niral1988@ubuntu:~$ sudo updatedb
/usr/bin/find: '/run/user/1000/doc': Permission denied
/usr/bin/find: '/run/user/1000/gvfs': Permission denied
niral1988@ubuntu:~$ locate -i course
/home/niral1988/JanFebSession/course1
/home/niral1988/JanFebSession/course1/file1
/home/niral1988/JanFebSession/course1/file2
/home/niral1988/JanFebSession/course1/file3
/home/niral1988/JanFebSession/course2
/home/niral1988/JanFebSession/course3
/home/niral1988/MarAprSession/course1
/home/niral1988/MarAprSession/course1/file1
/home/niral1988/MarAprSession/course1/file2
/home/niral1988/MarAprSession/course2
niral1988@ubuntu:~$ locate -r /file1$
/home/niral1988/JanFebSession/course1/file1
/home/niral1988/MarAprSession/course1/file1
niral1988@ubuntu:~$
```


Project 3 :Shell Scripts

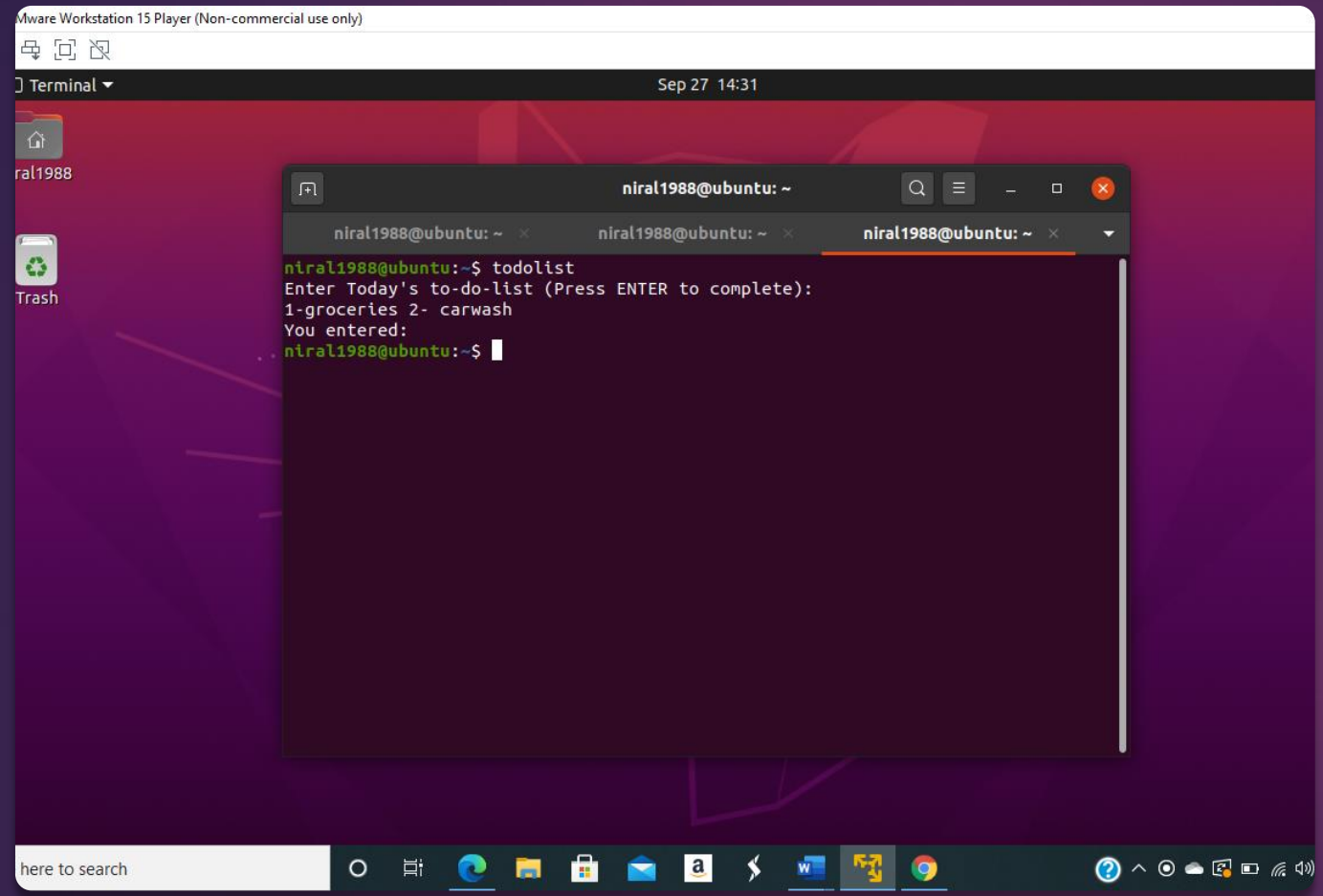
- ▶ Create shell script
- ▶ Change script file permissions
- ▶ Set the PATH variable
- ▶ Make the Path Variable permanent

```
Workstation 12 Player (Non-commercial use only)
Terminal Sep 27 14:18
niral1988@ubuntu: ~
niral1988@ubuntu:~$ cd ~
niral1988@ubuntu:~$ pwd
/home/niral1988
niral1988@ubuntu:~$ nano todolist
niral1988@ubuntu:~$ chmod 755 todolist
niral1988@ubuntu:~$ ls -l todolist
-rwxr-xr-x 1 niral1988 niral1988 204 Sep 27 14:16 todolist
niral1988@ubuntu:~$ ./todolist
Enter Today's to-do-list (Press ENTER to complete):
1-work 2- family -3 school
You entered:
niral1988@ubuntu:~$
```

Change Script file Permissions

```
Virtual Machine Workstation 15 Player (Non-commercial use only)
Terminal Sep 27 14:26
niral1988@ubuntu: ~
Try: sudo apt install <deb name>
niral1988@ubuntu:~$ cd ~
niral1988@ubuntu:~$ pwd
/home/niral1988
niral1988@ubuntu:~$ todolist
Command 'todolist' not found, but can be installed with:
sudo snap install todolist
niral1988@ubuntu:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/home/ed
niral1988@ubuntu:~$ PATH=$PATH:/home/niral1988
niral1988@ubuntu:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/home/ed:/home/niral1988
niral1988@ubuntu:~$ todolist
Enter Today's to-do-list (Press ENTER to complete):
1-School 2- Work 3 -Family
You entered:
niral1988@ubuntu:~$
```

Set the PATH variable



Make the
PATH
Variable
permanent

Project 4 user group Management

- ▶ Add user and groups in CLI
- ▶ Test user and group settings
- ▶ Add user in GUI
- ▶ Remove user and groups

```
VMware Workstation 15 Player (Non-commercial use only)
Terminal Oct 2 19:16
mary
Trash
mary@ubuntu: ~
1- school 2- school 3- school
You entered:
mary@ubuntu:~$ cat MyToDoLists
Fri 02 Oct 2020 07:14:30 PM PDT
Today's to-do-list --
mary@ubuntu:~$ cat mytodolist
cat: mytodolist: No such file or directory
mary@ubuntu:~$ cat MyToDoLists
Fri 02 Oct 2020 07:14:30 PM PDT
Today's to-do-list --
mary@ubuntu:~$ todolist
Enter Today's to-do-list (Press ENTER to complete):
1-scholl 2-school 3-school
You entered:
mary@ubuntu:~$ cat MyToDoLists
Fri 02 Oct 2020 07:14:30 PM PDT
Today's to-do-list --
Fri 02 Oct 2020 07:15:53 PM PDT
Today's to-do-list --
mary@ubuntu:~$
```

Test user and group settings

```
VMware Workstation 15 Player (Non-commercial use only)
Terminal Oct 4 01:50
john
john@ubuntu: ~
john@ubuntu:~/Desktop$ cd ~
john@ubuntu:~$ pwd
/home/john
john@ubuntu:~$ nano .bashrc
john@ubuntu:~$ source .bashrc
john@ubuntu:~$ todoist
Enter Today's to-do-list (Press ENTER to complete):
1-family 2-family 3-family
You entered:
john@ubuntu:~$ cat MyToDoLists
Sun 04 Oct 2020 01:50:04 AM PDT
Today's to-do-list --
john@ubuntu:~$
```

Add user in GUI

```
Virtual Machine Workstation 15 Player (Non-commercial use only)
Terminal Oct 4 01:55
niral1988@ubuntu: ~
niral1988@ubuntu:~$ sodo userdel -r mary
Command 'sodo' not found, did you mean:
  command 'nodo' from snap nodo (master)
  command 'todo' from deb devtodo (0.1.20-7build1)
  command 'sudo' from deb sudo (1.8.31-1ubuntu1.1)
  command 'sudo' from deb sudo-ldap (1.8.31-1ubuntu1.1)
See 'snap info <snapname>' for additional versions.
niral1988@ubuntu:~$ sudo userdel -r mary
[sudo] password for niral1988:
userdel: mary mail spool (/var/mail/mary) not found
niral1988@ubuntu:~$ sudo userdel -r john
userdel: john mail spool (/var/mail/john) not found
niral1988@ubuntu:~$ sudo groupdel students
niral1988@ubuntu:~$ sudo chgrp niral1988 todolist
niral1988@ubuntu:~$ ls -l todolist
-rwxr-x--- 1 niral1988 niral1988 204 Sep 27 14:16 todolist
niral1988@ubuntu:~$
```

Remove users and groups

Project 5 : Network configuration

- ▶ Discover host ip configurations
- ▶ User network utilities

```
niral1988@ubuntu: ~  
lt qlen 1000  
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
inet 127.0.0.1/8 scope host lo  
    valid_lft forever preferred_lft forever  
inet6 ::1/128 scope host  
    valid_lft forever preferred_lft forever  
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000  
    link/ether 00:0c:29:92:a0:0b brd ff:ff:ff:ff:ff:ff  
    inet 10.1.10.203/24 brd 10.1.10.255 scope global dynamic noprefixroute ens33  
3  
    valid_lft 86222sec preferred_lft 86222sec  
    inet6 fe80::366b:6e30:3a29:e02d/64 scope link noprefixroute  
    valid_lft forever preferred_lft forever  
niral1988@ubuntu:~$ ip route  
default via 10.1.10.1 dev ens33 proto dhcp metric 100  
10.1.10.0/24 dev ens33 proto kernel scope link src 10.1.10.203 metric 100  
169.254.0.0/16 dev ens33 scope link metric 1000  
niral1988@ubuntu:~$ ping -c 4 10.1.10.1  
PING 10.1.10.1 (10.1.10.1) 56(84) bytes of data.  
64 bytes from 10.1.10.1: icmp_seq=1 ttl=64 time=4.30 ms  
64 bytes from 10.1.10.1: icmp_seq=2 ttl=64 time=4.30 ms  
64 bytes from 10.1.10.1: icmp_seq=3 ttl=64 time=3.39 ms  
64 bytes from 10.1.10.1: icmp_seq=4 ttl=64 time=4.61 ms  
  
--- 10.1.10.1 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3005ms  
rtt min/avg/max/mdev = 3.391/4.149/4.606/0.455 ms  
niral1988@ubuntu:~$
```

Discover host Ip configurations



```
Activities Terminal Oct 11 10:26 niral1988@ubuntu: ~
9 23.203.151.171 53.979 ms
10 104.123.152.24 53.752 ms
niral1988@ubuntu:~$ nslookup www.devry.edu 8.8.8.8
Server:      8.8.8.8
Address:    8.8.8.8#53

Non-authoritative answer:
www.devry.edu canonical name = prod-www-devry-edu.azureedge.net.
prod-www-devry-edu.azureedge.net canonical name = prod-www-devry-edu.akstd.azureedge.net.
prod-www-devry-edu.akstd.azureedge.net canonical name = azureedge.mdc.akamaized.net.
azureedge.mdc.akamaized.net canonical name = a1879.dscw14.akamai.net.
Name:   a1879.dscw14.akamai.net
Address: 104.123.152.17
Name:   a1879.dscw14.akamai.net
Address: 104.123.152.10
Name:   a1879.dscw14.akamai.net
Address: 104.123.152.8
Name:   a1879.dscw14.akamai.net
Address: 104.123.152.11
Name:   a1879.dscw14.akamai.net
Address: 104.123.152.18
Name:   a1879.dscw14.akamai.net
Address: 2600:1407:a800::1737:dc08
Name:   a1879.dscw14.akamai.net
Address: 2600:1407:a800::1737:dc10
Name:   a1879.dscw14.akamai.net
Address: 2600:1407:a800::1737:dc09
Name:   a1879.dscw14.akamai.net
Address: 2600:1407:a800::1737:dc0a
Name:   a1879.dscw14.akamai.net
Address: 2600:1407:a800::1737:dc0b
niral1988@ubuntu:~$
```

Use network utilities

Project 6 : system performance monitoring

- ▶ Monitor Processes
- ▶ Monitor user activities
- ▶ Monitor network bandwidth usage

```

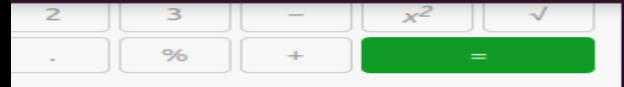
niral1988@ubuntu: ~
8.8.8: icmp_seq=53 ttl=117 time=26.3 ms
8.8.8: icmp_seq=54 ttl=117 time=26.9 ms
8.8.8: icmp_seq=55 ttl=117 time=21.6 ms
8.8.8: icmp_seq=56 ttl=117 time=36.6 ms
8.8.8: icmp_seq=57 ttl=117 time=19.8 ms
8.8.8: icmp_seq=58 ttl=117 time=16.8 ms
8.8.8: icmp_seq=59 ttl=117 time=24.6 ms
8.8.8: icmp_seq=60 ttl=117 time=23.4 ms
8.8.8: icmp_seq=61 ttl=117 time=27.8 ms
8.8.8: icmp_seq=62 ttl=117 time=23.7 ms
8.8.8: icmp_seq=63 ttl=117 time=25.6 ms
8.8.8: icmp_seq=64 ttl=117 time=32.4 ms
8.8.8: icmp_seq=65 ttl=117 time=33.9 ms
8.8.8: icmp_seq=66 ttl=117 time=30.6 ms
8.8.8: icmp_seq=67 ttl=117 time=16.8 ms
8.8.8: icmp_seq=68 ttl=117 time=25.5 ms
8.8.8: icmp_seq=69 ttl=117 time=23.3 ms
8.8.8: icmp_seq=70 ttl=117 time=21.9 ms
8.8.8: icmp_seq=71 ttl=117 time=32.4 ms
8.8.8: icmp_seq=72 ttl=117 time=2105 ms
8.8.8: icmp_seq=73 ttl=117 time=1101 ms
8.8.8: icmp_seq=74 ttl=117 time=77.8 ms
8.8.8: icmp_seq=75 ttl=117 time=16.5 ms

```

```

niral1988@ubuntu: ~
191Mb      381Mb      572Mb      76
ubuntu.lan:55434 => ord30s31-in-f14.1e10:https 28.8Kb 1
<=> 7.07Kb 1
ubuntu.lan:35324 => 104.16.249.249:https 2.50Kb 1
<=> 5.10Kb 1
ubuntu.lan => dns.google 672b
<=> 0.98Kb
ubuntu.lan:49814 => _gateway:domain 320b
<=> 1.12Kb
ubuntu.lan:51518 => _gateway:domain 320b
<=> 768b
ubuntu.lan:48262 => 207.229.143.77:https 208b
<=> 208b
ubuntu.lan:57923 => _gateway:domain 0b
<=> 0b
ubuntu.lan:39576 => og-in-f94.1e100.net:http 0b
<=> 0b
ubuntu.lan:39584 => og-in-f94.1e100.net:http 0b
<=> 0b
TX: cum: 223KB peak: 184Kb rates: 32.8Kb 1
RX: 4.14MB 5.65Mb 15.2Kb 3
TOTAL: 4.36MB 5.83Mb 48.0Kb 1

```



Monitor system network bandwidth

- ▶ K to kill 15 Sigterm
- ▶ When we open Firefox it was using 16% processor
- ▶ Flag value come up as S (super user)
- ▶ System use root to hide username

Problems

- ▶ Learning new commands
- ▶ Spell the same work different for computer language.

Skill learn

- ▶ How to get in BIOS
- ▶ Know how to run program in terminal and run it with bash
- ▶ How to monitor system
- ▶ Make user name
- ▶ Set up network connection
- ▶ Create password
- ▶ Find file and directory as needed
- ▶ Give and take premotion of some file

Conclusion slide

- ▶ Taking this class my point of view of computer OS change. Thinking how much things happens in the background while we do one click. I wants to learn more so I can understand what else happens in the back and change the code as I like.