

Operating Systems

Practice 2. System Program

AI Software, Gachon University

Objective

- Be familiar with Linux shell
 - Learn Linux file system
 - Learn various system program
- Practice Linux system program
 - mission
- Prerequisite
 - Linux is installed on virtual machine (Refer to the last slide).

Linux shell

- Bash (Bourne Again Shell) is default

Check current shell

- \$ echo \$SHELL

```
jungchancho@ubuntu:~$ echo $SHELL
/bin/bash
jungchancho@ubuntu:~$
```

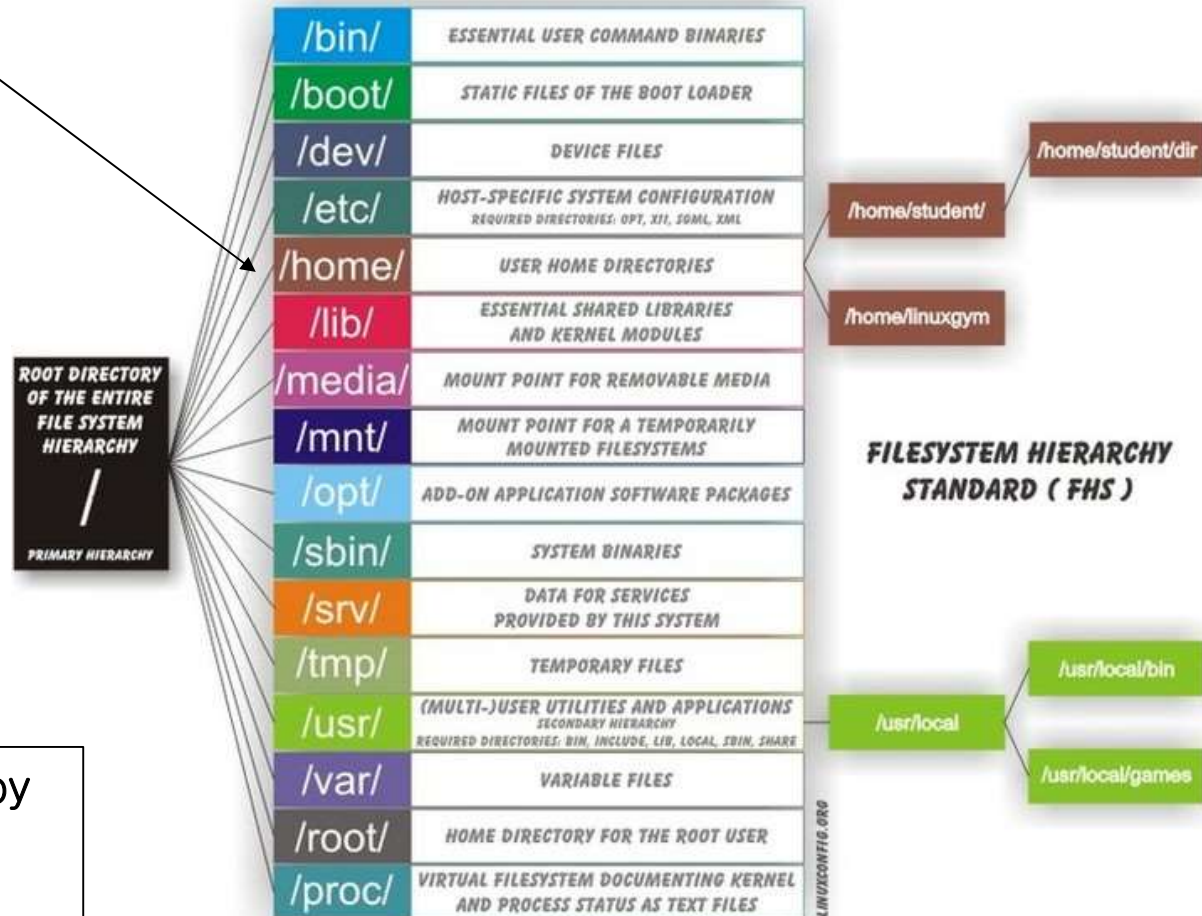
PWD

- PWD: display current path

```
jungchancho@ubuntu:~$ pwd  
/home/jungchancho  
jungchancho@ubuntu:~$
```

Linux file system

You will be here after log-in



You can see this architecture by

```
$ cd /  
$ ls
```

Directory rules

- / : root directory
- . : current directory
- .. : upper directory
- When you want to move to upper directory of current directory
\$ cd ..

Useful command (directory)

- ls: List information about files
 - \$ ls
- mkdir : make new directory at current directory
 - \$ mkdir [directory name]
- rmdir: remove directory
 - \$ rmdir [directory name] (when directory is empty)
 - \$ rm -r [directory name]
 - \$ rm -rf [directory name] (force remove even though there are something in directory)

Useful command (file)

- touch: create new file
 - `$ touch [file name]`
- rm: remove file
 - `$ rm [file name]`
 - `$ rm *` (remove all files in current directory)
- mv: move file
 - Case #1: move to other directory
 - ▶ `$ mv aaa.txt ..` (move this file to the upper directory)
 - Case #2: change file name
 - ▶ `$ mv aaa.txt bbb.txt` (change the name of aaa.txt to bbb.txt)
- cp: copy
 - `$ cp aaa.txt bbb.txt`

Useful command (file)

- man: display manual page
 - \$ man [command]
 - (example) \$ man cp
- Next page : space bar
- Exit: q

```
CP(1)                                User Commands                                CP(1)
NAME
    cp - copy files and directories
SYNOPSIS
    cp [OPTION]... [-I] SOURCE DEST
    cp [OPTION]... SOURCE... DIRECTORY
    cp [OPTION]... -t DIRECTORY SOURCE...
DESCRIPTION
    Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY.

    Mandatory arguments to long options are mandatory for short options
    too.

    -a, --archive
        same as -dR --preserve=all

    --attributes-only
        don't copy the file data, just the attributes

    --backup[=CONTROL]
Manual page cp(1) line 1 (press h for help or q to quit)
```

Useful command (general)

- whoami: display user account
 - \$ whoami
- date: display time
 - \$ date
- top: system monitoring
 - \$ top
- ps: display process list
 - \$ ps (or \$ps -ax)
 - \$ ps -ax | more
- clear : clear screen
 - \$ clear

Useful command (edit)

- vim: execute vim
 - `$ vim [file_name]`
- gedit: execute gedit
 - `$ gedit [file_name]`
 - `$ gedit [file_name] &` → run gedit as another process
- cat: display contents of file
 - `$ cat [file_name]`
- nautilus: display GUI version of current directory
 - `nautilus . &`

Useful command

- du: disk usage
 - `$ du -h /home`
- Whereis: find location of “command”
 - `$ whereis python`
- Some useful command
 - `↑/↓` : previous/next command
 - `cd`: go to home directory
 - `cd -` : go to previous directory
 - `shutdown`: power off (`$shutdown -h now`)

Useful command (compression)

- tar
 - pack
 - ▶ \$ tar cvzf [compressed file name] [directory name]
 - unpack
 - ▶ \$ tar xvzf [compressed_file]
 - option
 - c:compress / x:extract
 - v: display processing (allow to omit)
 - z: gz (b:bz2)
 - f: file name

Practice mission

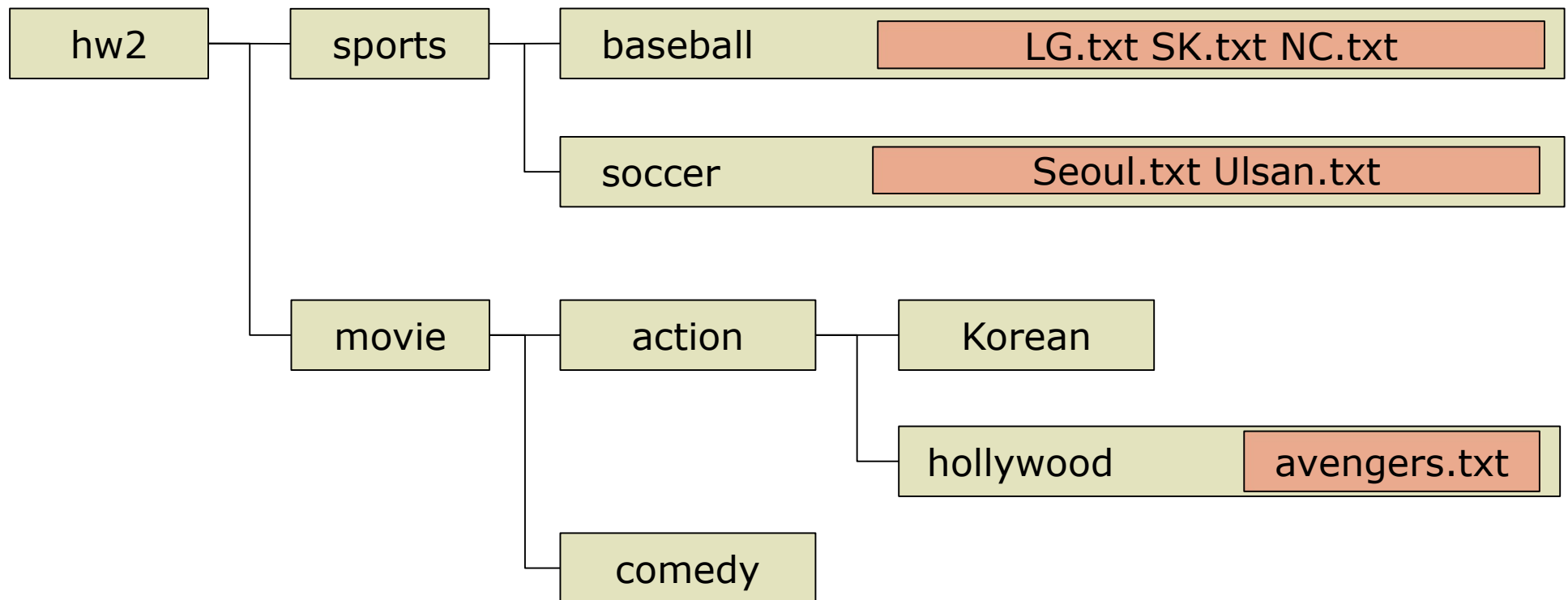
- Make 'hw2' directory under your home directory
 - Ex) home/your_name/homework/hw2

Practice mission

directory

file

- Build directory architecture like below



Practice mission

directory

file

- Contents of avengers.txt

```
jungchancho@ubuntu:~/homework$ cat ./hw2/movie/action/hollywood/avengers.txt
Iron man
Thor
Captain America
Black Widow
jungchancho@ubuntu:~/homework$
```

Practice mission

- I will check your homework as below

1. Filename should be hw2_ID_NAME.tar.gz → 30 points

```
jungchancho@ubuntu:~/homework/hw2-temp$ ls
hw2_0000_JUNGCHANCHO.tar.gz
jungchancho@ubuntu:~/homework/hw2-temp$ tar xvzf hw2_0000_JUNGCHANCHO.tar.gz
./hw2/
./hw2/sports/
./hw2/sports/baseball/
./hw2/sports/baseball/LG.txt
./hw2/sports/baseball/SK.txt
./hw2/sports/baseball/NC.txt
./hw2/sports/soccer/
./hw2/sports/soccer/Seoul.txt
./hw2/sports/soccer/Ulsan.txt
./hw2/movie/
./hw2/movie/action/
./hw2/movie/action/hollywood/
./hw2/movie/action/hollywood/avengers.txt
./hw2/movie/action/Korean/
jungchancho@ubuntu:~/homework/hw2-temp$ cat ./hw2/movie/action/hollywood/avengers.txt
Iron man
Thor
Captain America
Black Widow
jungchancho@ubuntu:~/homework/hw2-temp$
```

All directories and files should
be created correctly: 40 points

The contents in avengers.txt
should be correct: 30 points

Practice mission

- Compress hw2 directory to hw2_ID_NAME.tar.gz
- Submit hw2_ID_NAME.tar.gz to cyber campus
 - Due: 2022/03/30 (23:59)