Digital IC Design

Week2: Basic Linux Operation needed for IC EDA Solution Operations

2024 | Nineplus Infotech X Anseong Polytechnic University
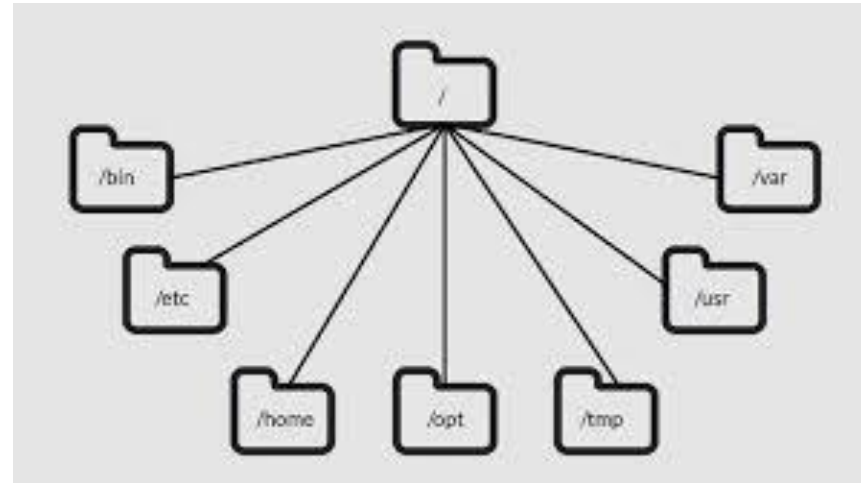*Sr Research Engineer, William Woo*

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1. Basic Linux Operation

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Directory

cd {directory}
pwd

- Use Absolute PATH
- Use Relative PATH
- Use user's home

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Manual

man {command}

- Search Keyword
- Moving Back & Forth
- Quit Manual

Clear the screen

clear

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Listing Directory

ls –option {directory}

- Listing Directory
- Read Output
- Options
  - Hidden File / Directory
  - Verbose

```
dr-xr-xr-x.  17 root root    4096 Aug 13 10:31 .
dr-xr-xr-x.  17 root root    4096 Aug 13 10:31 ..
-rw-r--r--.   1 root root  439505 Aug  9 16:36 .readahead
lrwxrwxrwx.   1 root root       7 Aug  9 16:20 bin -> usr/bin
dr-xr-xr-x.   4 root root    4096 Aug 10 13:32 boot
drwxr-xr-x.  21 root root    3560 Aug  9 16:34 dev
drwxr-xr-x. 148 root root    8192 Aug 17 02:01 etc
drwxr-xr-x.   5 root root      66 Aug 16 00:12 home
lrwxrwxrwx.   1 root root       7 Aug  9 16:20 lib -> usr/lib
lrwxrwxrwx.   1 root root       9 Aug  9 16:20 lib64 -> usr/lib64
drwxr-xr-x.   2 root root       6 Dec 15  2017 media
drwxr-xr-x.   2 root root       6 Dec 15  2017 mnt
drwxr-xr-x.   4 root root      41 Aug  9 16:56 opt
dr-xr-xr-x. 866 root root       0 Aug  9 16:34 proc
dr-xr-x---.  18 root root    4096 Aug 17 02:01 root
drwxr-xr-x.  45 root root    1360 Aug 18 06:54 run
lrwxrwxrwx.   1 root root       8 Aug  9 16:20 sbin -> usr/sbin
drwxr-xr-x.   2 root root       6 Dec 15  2017 srv
dr-xr-xr-x.  13 root root       0 Aug  9 16:34 sys
drwxrwxrwt.  29 root root   20480 Aug 18 16:01 tmp
drwxr-xr-x.  13 root root     207 Aug  9 16:20 usr
drwxr-xr-x.  20 root root    4096 Aug  9 16:34 var
```

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Init File[s] / Directorie[s]

touch {file_name}

- Make multiple files

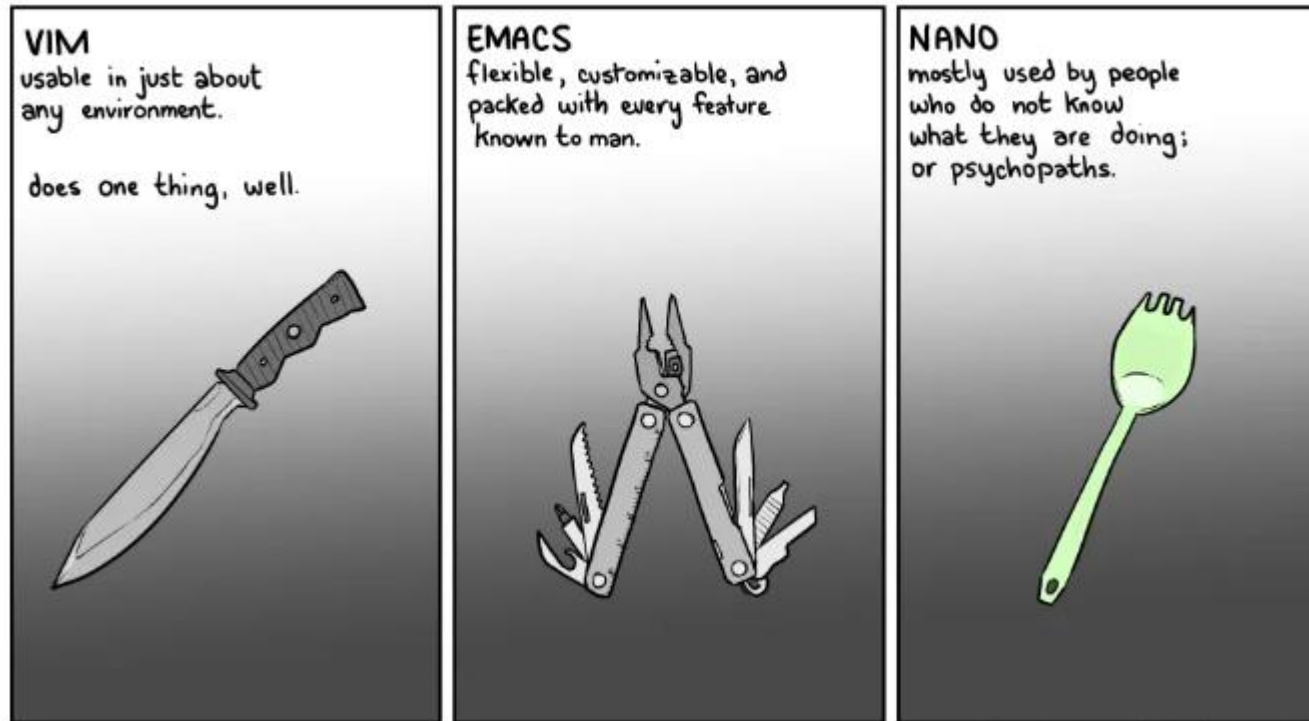mkdir -option {directory_name}

- Nested directory

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VI(M)

Unix/Linux 자체에 내장된 문서 편집기 프로그램.
강력한 문서 편집과 Customization을 통한 사용확장성을 보여준다.

VI(M): Operation Mode

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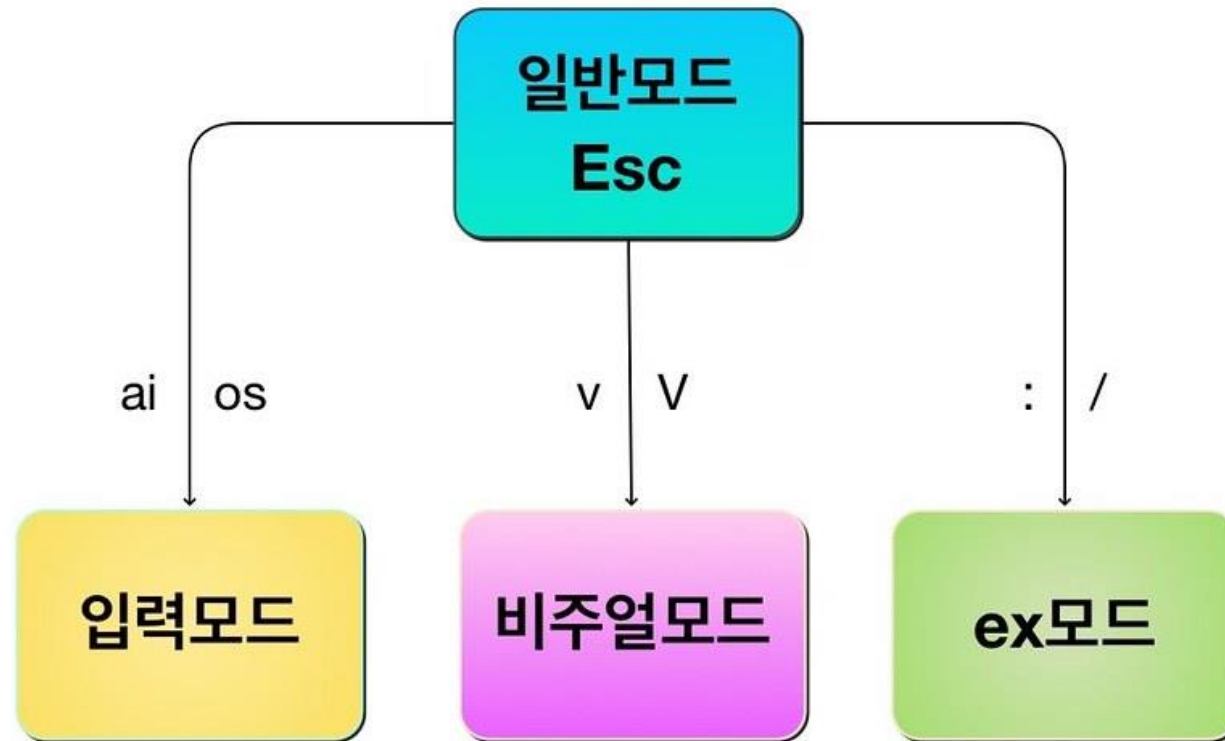
VI(M): insert mode

입력모드는 텍스트를 입력(편집)하는 모드이다

- a : 커서위치 다음 칸에 입력
- i : 커서의 위치에 입력
- o : 커서의 다음 행에 입력
- s : 커서 위치의 한글자를 삭제 후 입력

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VI(M): visual mode

비쥬얼 모드는 블록 단위를 선택하여 작업하는 모드이다.

- v : Normal Visual Mode
- V : Visual Line Mode
- d: 선택된 내용 삭제 -> Normal Mode
- c: 선택된 내용 삭제 -> Insert Mode
- y: 선택된 내용의 복사 -> Normal Mode
- J: 선택된 모든 라인을 순서대로 결합 -> Normal Mode
- ~ : 선택된 내용의 case를 변경 -> Normal Mode
- u : 선택된 내용을 소문자로 변경 -> Normal Mode
- U : 선택된 내용을 대문자로 변경 -> Normal Mode

VI(M): ex mode

ex 모드는 작업을 명령하는 모드이다

- :w - 저장
- :w file.txt – file.txt로 저장
- :w >> file.txt – file.txt에 append하여 저장
- :q – VIM 종료
- :q! – 강제 종료
- :wq! – 저장하고 강제 종료
- :e file.txt – file.txt 를 불러옴

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VI(M) 단축키

- [VIM 연습](#)

Copy and Paste

```
cp –option {src} {dst}
rm –option {src} {dst}
```

- Directory
- Recursive Operation

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Duplicity of "mv" command

mv [src] [dst]
mv [src1] [src2]

- Moving directory
- Change directory's name

```
dr-xr-xr-x.  17 root root    4096 Aug 13 10:31 .
dr-xr-xr-x.  17 root root    4096 Aug 13 10:31 ..
-rw-r--r--.   1 root root  439505 Aug  9 16:36 .readahead
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drwxr-xr-x.  13 root root     207 Aug  9 16:20 usr
drwxr-xr-x.  20 root root    4096 Aug  9 16:34 var
```

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Printing the contents in the file

cat {file}
more / less {file}

- Quitting printed page
- Move back and forth through pages

head {file}
tail {file}

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2. Intermediate Linux Operation

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Shell(1)

Shell은 리눅스 커널과 사용자를 연결해 주는 인터페이스
명령어(프로그래밍 언어)이다

echo $0
: 현재 사용 중인 사용자의 Shell을 출력한다

- Bash Shell
- C-Shell for EDA

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Shell(2)

source {shell_file}
: Shell 파일의 내용을 적용한다

- Shell 적용의 우선순위

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Alias

alias {shorten_customized_cmd} = "original_long_cmd"

- 단축 명령어를 설정하는 방법
- 즐겨찾기

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Link

- Hard Link: ln [src] [dst]
- Soft Link: ln –s [src] [dst]

- 복사와 링크의 다른점
- 원본 파일 변경/삭제
- Hard Link보다 Soft(Symbolic) Link가
  선호되는 이유

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grep

- grep –option {serach_pattern} {file or path}

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Compress using tar

- tar –xzvf {compressed_file}
- tar –czvf {compressed file} {src_directory}

- Process of Compressing
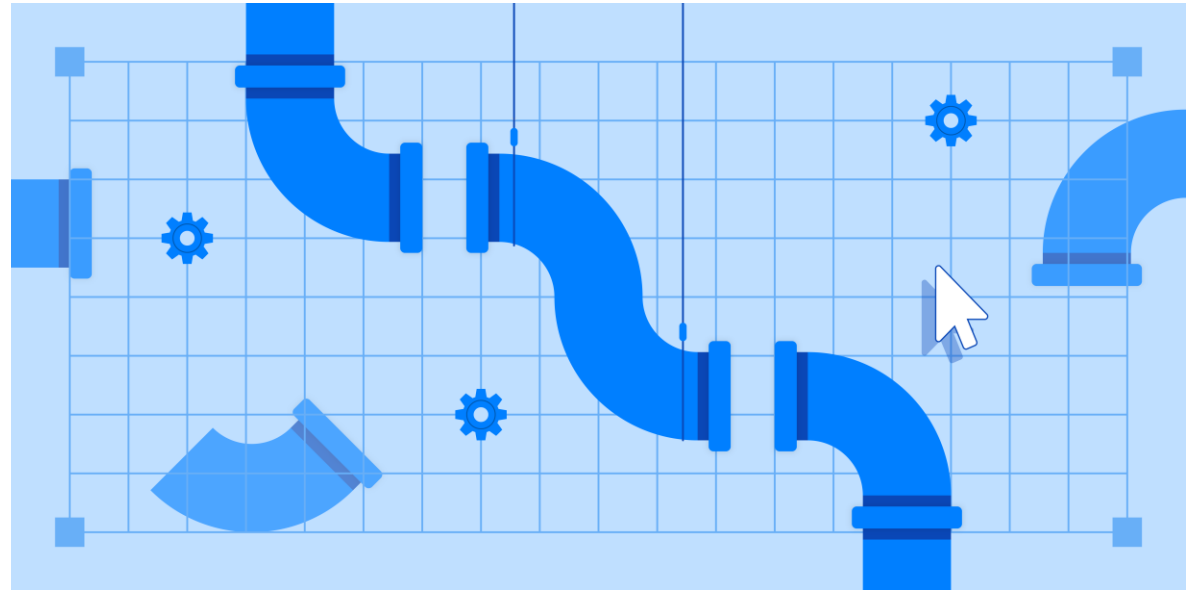- Extension name of compressed file

Logical Concatenation of commands

- command1 ; command2
- command1 && command2
- command1 || command2

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Command Pipelining

command1 | command2

- Pipeline 개념의 공학적 응용

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Redirection IO

command > file
command >> file

- Standard Input / Output

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Control Process

ps : prints user's whole process
kill : terminate user's PID

- Process란?
- PID(Process ID)

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Permission

rwx: read, write, execution
ugo: user, group, other[s]

chmod –option permission_masking_bits {file or directory}

- Octal 사용법
- +/- rwx 사용법
- Recursive Operation

LAB

1. Configure user account
2. Practice Command
3. Vi Editor: VIM 연습

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Homework

- Chapter3: Gate Level Modeling(Preview)

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