

# Basics of Linux

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- On linux machine:
  - Login
  - at your home directory
  - Open a “shell” or “terminal” or “xterm”
  - workspace (4)
- On windows machine
  - Intall linux terminals (xmanager, putty, cygwin)
  - Login

# Basic commands of Linux I

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- Command format: [command] [arguments]
- Search information on a command: man [command]
  - e.g., man pwd
- Print current directory: pwd
- List files and directories in a directory: ls
  - ls -l
  - Only list directories: ls -ld
  - Current directory: .
  - upper-level directory: ..

# Basics Commands of Linux II

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- File/directory operations:
  - Copy file x to y: `cp x y`
  - Remove file x: `rm x`
    - be very careful, `rm -i x`
  - Move file x to y (rename): `mv x y`
  - Create new directory x: `mkdir x`
  - Change directory:
    - Go to upper level: `cd ..`
    - Go to directory x: `cd x`
  - Remove directory: `rm -r x`
  - Rename directory x to y: `mv x y`

# Basics Commands of Linux III

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- State of processes:
  - ps (process state)
    - ps -aux
    - ps -aux | grep bing
  - Kill
    - First use ps to find the ID of a process
    - kill -9 -1 pid
- Pipeline command:
  - e.g., ps -aux | more

# Basics Commands of Linux IV

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- Mode of a program:
  - list mode of f: `ls -l f`
  - 3 components: for owner, group member, others
    - 3 bits in each component: r, w, x
    - e.g., mode of 755 means?
  - Change the mode of a file: `chmod`
    - E.g., `chmod 755 f`
- Change owner of a program: `chown`

# Programming on Linux

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- Write your code (using e.g., emacs, xemacs, vi, or eclipse)
- Compile: e.g.,
  - `g++ -g -o hello hello.cpp`
- Run: e.g.,  
hello or `./hello`
- Debug:
  - print messages
  - using `gdb`( locate segmentation fault) or `xxgdb` (better interface)