

# Nhập Môn CNTT – Thực Hành

Introduction to Linux

# AGENDA

- Learning Objectives
  - A collection of tools and topics that all CS students should know
- Topics
  - Operating system
  - Linux distribution
  - Bash shell / Powershell/ Command line
  - Work with directories & files
  - Editors (Vim, Emacs, ...)
  - Shell script
  - Programing environment

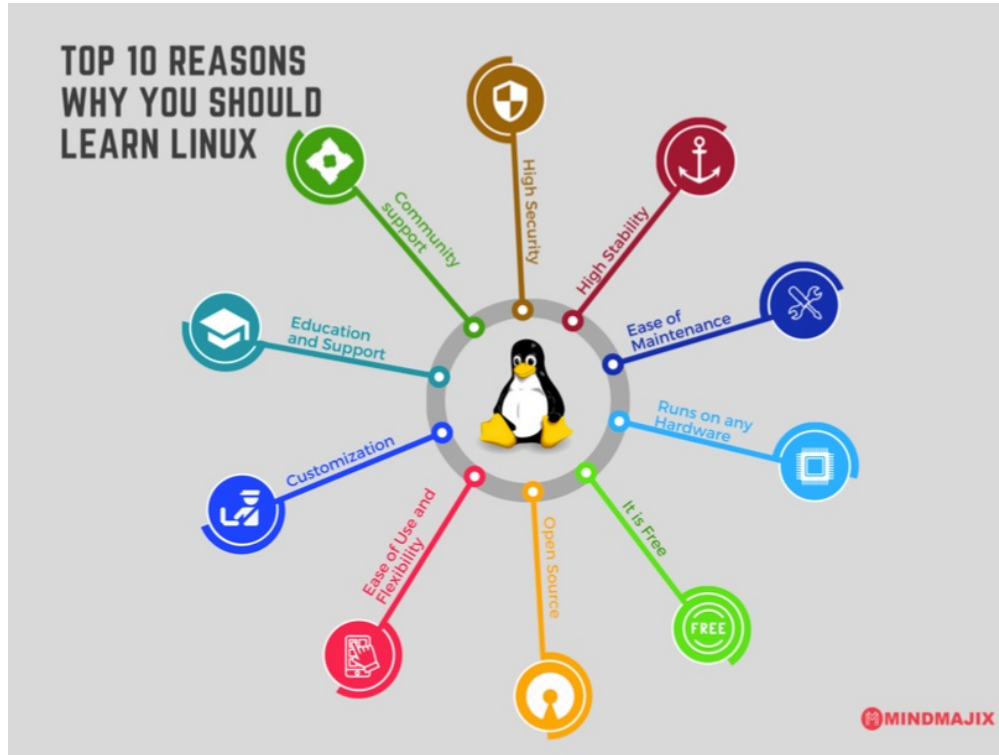
# Warming Up

- How to type properly
  - <https://www.typingclub.com/sportal/program-3.game>
- How fast can you type?
  - Let's try: <https://play.typeracer.com/>

# Operating System



# Why Linux



Read more: <https://mindmajix.com/reasons-why-you-should-learn-linux>

# A BRIEF HISTORY OF LINUX AND UNIX

- Unix

- First developed in 1969 at Bell Labs by Dennis Ritchie and Ken Thompson
- Many key ideas still used today
  - “Everything is a file”
  - Multiple users, hierarchical file system
  - “Glueing” together lots of smaller files
  - Documentation included
- macOS is a unix operating system in disguise!

- Linux

- Developed in 1992 by Linus Torvalds, who also developed git!

# Linux Distributions

- Debian
  - Ubuntu (and its derivatives)
  - Linux Mint
  - Kali Linux
  - Linux lite
  - Raspbian
  - Tails OS
  - Knoppix, etc

Debian based OS use the Debian Package (dpkg) for managing software (.deb),  
-apt

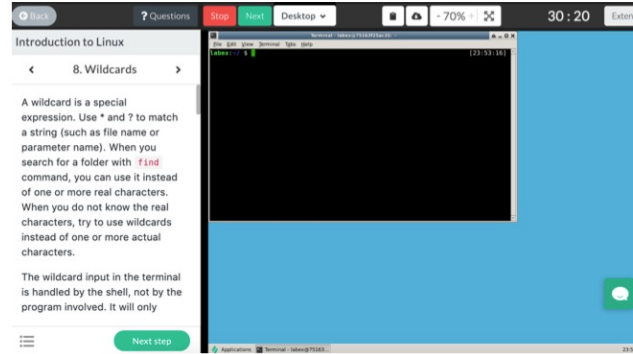
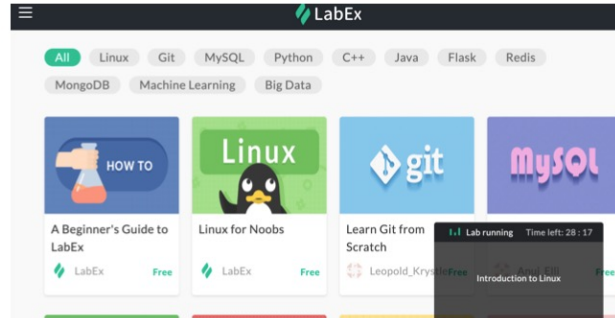
# Linux Distributions

- Red Hat Linux
  - Red Hat Enterprise Linux (RHEL)
  - Fedora
  - CentOS
  - Linux lite
  - EduLinux
  - Scientific Linux
  - Knoppix, etc

These distros utilize the Redhat Package Manager (.rpm), yum for managing software.



# Where to learn



Link: <https://labex.io/courses/linux-basic-commands-practice-online>

# Where to learn

## **Linux Fundamentals**

Paul Cobbaut

Publication date 2015-05-24 CEST

### **Abstract**

This book is meant to be used in an instructor-led training. For self-study, the intent is to read this book next to a working Linux computer so you can immediately do every subject, practicing each command.

This book is aimed at novice Linux system administrators (and might be interesting and useful for home users that want to know a bit more about their Linux system). However, this book is not meant as an introduction to Linux desktop applications like text editors, browsers, mail clients, multimedia or office applications.

More information and free .pdf available at **<http://linux-training.be>** .

Link: <http://linux-training.be/>

# Where to learn



Nhập từ khóa tìm kiếm tài liệu, khóa học,... 

 KHÓA HỌC ONLINE

 LỚP 3 LỚP 4 LỚP 5 LỚP 6 LỚP 7 LỚP 8 LỚP 9 LỚP 10 LỚP 11 LỚP 12 IT

**Học Unix/Linux cơ bản**  
Giới thiệu Unix/Linux  
Unix/Linux là gì ?  
Quản lý File  
Thư mục  
Quyền truy cập File  
Cài đặt Unix/Linux

[< Trang trước](#)  Thích  Chia sẻ 6 [Trang sau >](#)

## Học Unix/Linux cơ bản và nâng cao

Unix là một hệ điều hành máy tính mà có khả năng thực hiện nhiều hoạt động bởi nhiều người trong cùng một thời gian.

Hệ điều hành Unix là tập hợp các chương trình mà thực hiện vai trò như một đường link giữa máy tính và người sử dụng.

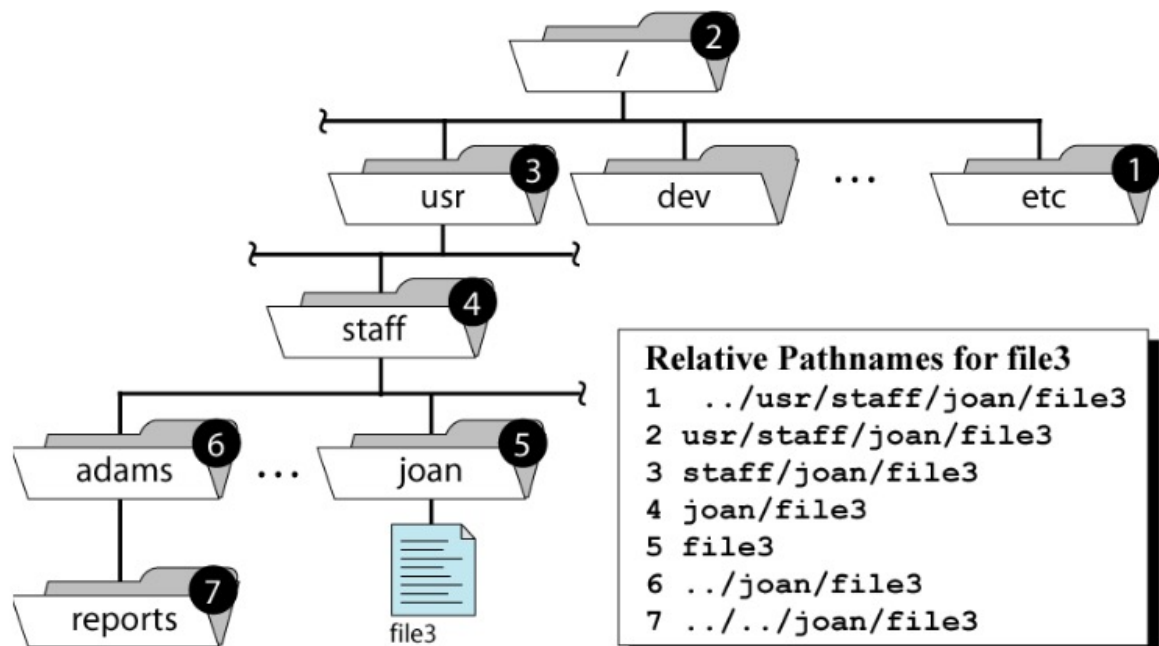
**Học tiếng Anh tại vietjack.com:**  
160 bài học ngữ pháp tiếng Anh hay nhất  
160 bài tập ngữ pháp tiếng Anh hay nhất  
72 bài ngữ pháp thực hành  
50 tình huống tiếng Anh thông dụng  
120 bí kíp luyện phần V TOEIC

Link: <https://vietjack.com/>

# UNIX FILE SYSTEM

directory	description
/	Root directory that contains all directories
/bin	Applications/programs (i.e. binaries)
/dev	Hardware devices
/etc	Configuration files
/home	Contains user's home directories
/proc	Running programs (processes)
/tmp, /var	Temporary files
/usr	Universal system resources

# Linux Pathname

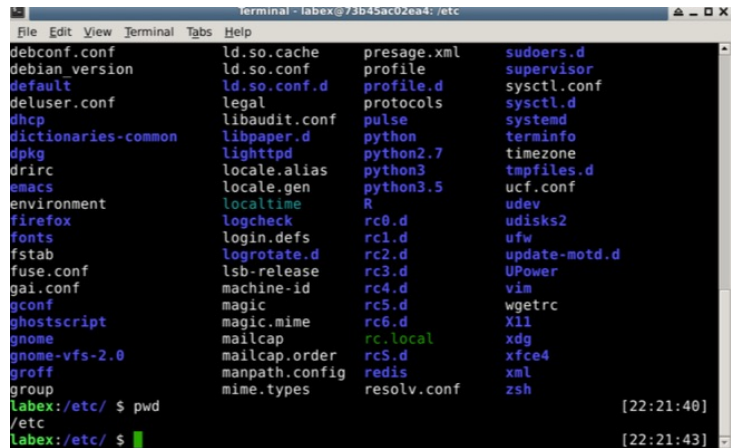


# RELATIVE DIRECTORIES

directory	description
.	References the working directory
..	References the parent of working directory
~username	username's <b>home</b> directory
~/Desktop	Your desktop

# THE SHELL

- Shell: an interactive program that allows the user to interact with the operating system and its applications
- Why use a shell vs. the GUI (Graphical User Interface)?
  - Many complicated tasks are easier to do on the command line
  - Useful for working on remote servers
  - Programmable
  - Customizable



The screenshot shows a terminal window titled 'terminal - labex@73b45ac02ea4: /etc'. The window has a menu bar with 'File', 'Edit', 'View', 'Terminal', 'Tabs', and 'Help'. The main area displays a file explorer view of the /etc directory, showing a list of files and folders in three columns. The files include configuration files like debconf.conf, default, deluser.conf, dhcp, dictionaries-common, dpkg, drirc, emacs, environment, firefox, fonts, fstab, fuse.conf, gai.conf, gconf, ghostscript, gnome, gnome-vfs-2.0, groff, group, and /etc. The terminal shows the command 'labex:/etc/ \$ pwd' and the output '/etc'. The terminal also shows the command 'labex:/etc/ \$' and the output 'labex:/etc/ \$'.

- Linux terminal emulator
- Gnome-terminal
- Kconsole
- xTerm
- Powershell (in windows)

# BASIC SHELL COMMANDS

command	description
pwd	<b><u>P</u></b> rint current <b><u>w</u></b> orking <b><u>d</u></b> irectory
cd	<b><u>C</u></b> hange working <b><u>d</u></b> irectory
ls	List files in working directory
man	Bring up manual for a command
exit	Log out of shell



# SYSTEM COMMANDS

command	description
<code>clear</code>	Clears all output from console
<code>date</code>	Output the system date
<code>cal</code>	Output a text calendar
<code>uname</code>	Print information about the current system

# DIRECTORY COMMANDS

directory	description
ls	List files in working directory
pwd	<b>P</b> rint current <b>w</b> orking <b>d</b> irectory
cd	<b>C</b> hange working <b>d</b> irectory
mkdir	Make a new directory
rmdir	Remove the given directory (must be empty)

# COMMAND LINE ARGUMENTS

- There aren't any consistent definitions when it comes to command line arguments, but for this class we will use the following way to describe the anatomy of a command



# COMMAND LINE ARGUMENTS

- Much like methods in Java take arguments, so do commands on the command line
- Flags are modifiers which change a programs behavior slightly, and they are usually prepended with a -
- For example, to list all files in long-list format, run the following
  - `$ ls -l`
- Flags can be combined, to list all files in long-list format and list hidden files
  - `$ ls -la`
- Commands also take arguments, such as file names
- To view all files , in long-listing format, inside of dir1
  - `$ ls -l dir1`

# FILE COMMANDS

directory	description
cp	Copy a file
mv	Move a file (also used to rename files)
rm	Remove the given file
touch	Create empty file, or change time-modified

- *Warning:* The above commands do **not** ask for confirmation. Be careful moving or copying files, as you might overwrite existing files!
- Check the man pages for flags to prevent this behavior

# SHORTCUTS

- Auto-complete pathname: `tab`
- Force to terminate a command: `Ctrl + c`
- End or exit the terminal: `Ctrl + d`
- Put Current program to background: `Ctrl + z`
- Move to beginning of a line: `Ctrl + a`
- Move to the end of a line: `Ctrl + e`
- Remove current line: `Ctrl + k`
- Move up: `Ctrl + p`
- Move down: `Ctrl + n`

# WILDCARDS

**ls a\***

**mv a\* dir\_name/**

**ls a?bc.sh**

**ls a[abcdnio]st.sh**

**ls ??st\***

**ls [clst]\***

**ls [clst][io]?t\***

**ls \*abc\***

**ls users-[0-9][a-zA-Z0-9][0-9]\***

**ls users-[0-9][a-zA-Z0-9][a-zA-Z]\***

**ls users-[0-9][a-zA-Z0-9][a-zA-Z]\***

**ls users-[0-9][!0-9][a-zA-Z]\***