Høgskolen i Østfold

Lab 1: Introduction to Linux and GitHub

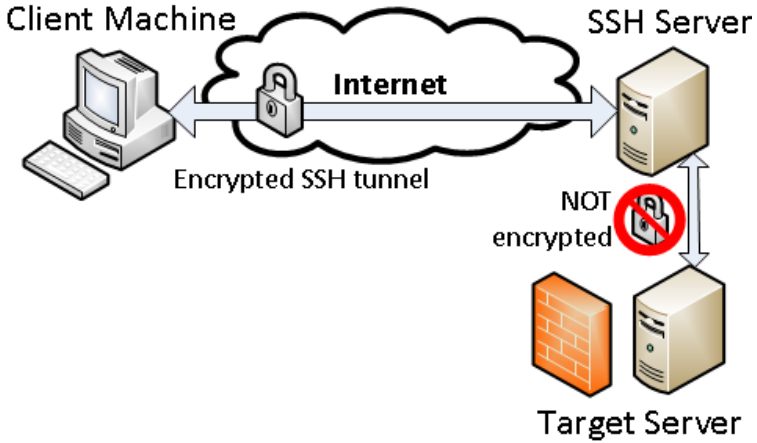
Contents

Høgskolen i Østfold

Linux

Remote login using SSH

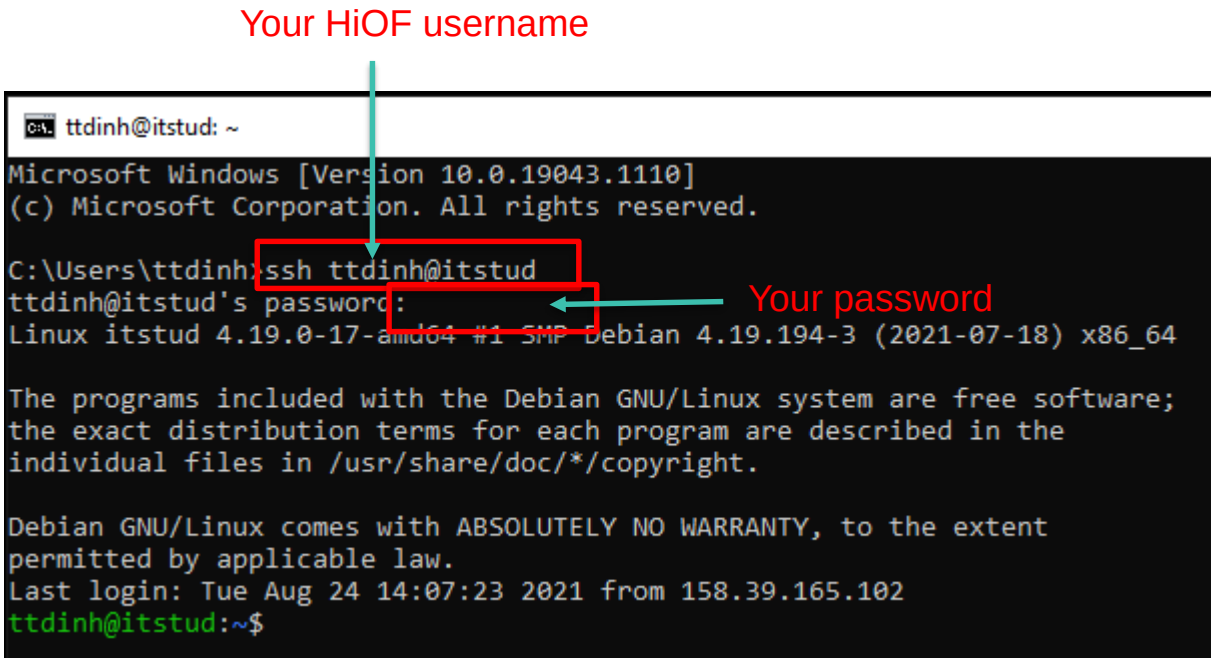
- Secure Shell (SSH) is a protocol for secure remote access to a machine over untrusted networks
- Use encryptions



(*) Pictures taken from the Internet

Høgskolen i Østfold

Remote login using SSH



Command Line

- Command line in Linux is called a shell
- Shell
  - OS user interface
  - Text-based command
  - Allows users to control their computers using text-based commands
- Most Linux distributions use bash as default shell – bash shell

(*) Pictures taken from the Internet

Høgskolen i Østfold

Basic Linux command line: Files/folders

- ls: list files in the current folder
  - $ ls
  - $ ls -a
- mkdir: create a new folder
  - $ mkdir <foldername>
- rmdir: remove a directory
  - $ rmdir <foldername>
- pwd: show name of current directory
  - $ pwd
- rm: remove a file or a folder
  - $ rm <filename>
- cd: change directory
  - $ cd <foldername>
  - $ cd ~: move to the home folder
- mv: move/rename a file/directory
  - $ mv <filename> <destinationFolder>
- cp: copy a file
  - $ mv <file1> <file2>
- cat: print content of a file
  - $ cat <filename>
  - $ cat <directory/filename>

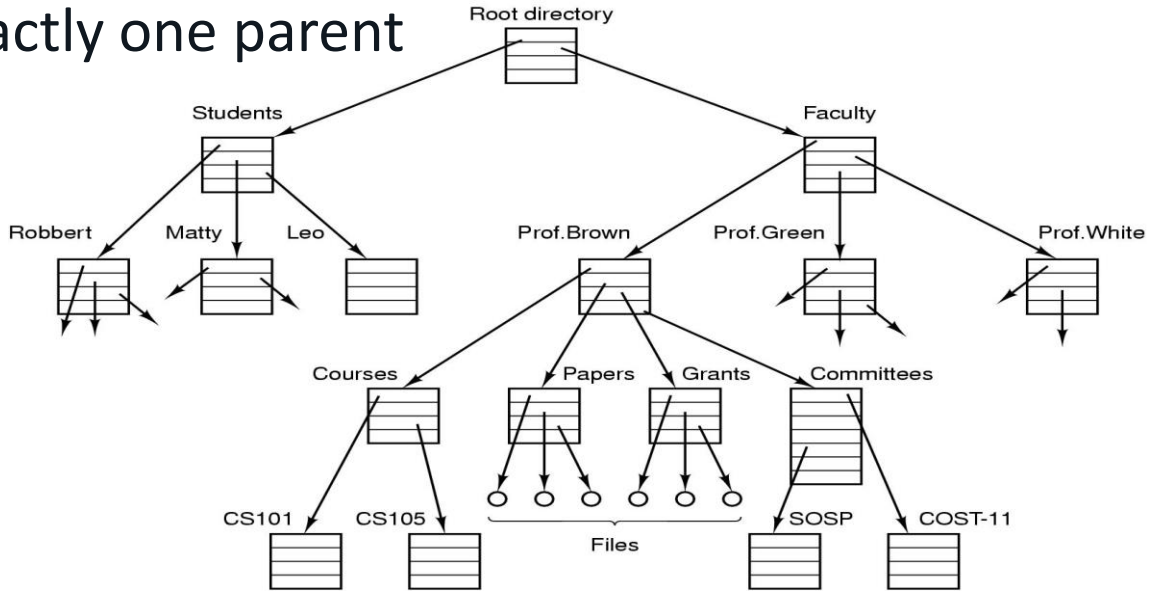
Høgskolen i Østfold

Basic Linux command line: Search

- which: locate a command
  - $ which ls
- whereis: locate the binary, source, and manual page files for a command
  - $ whereis ls
- locate: list files in databases that match a parten
  - $ locate stdlib.h
- find: search for a file in a directory hierarchy
  - $find / | grep stdio.h

Directory

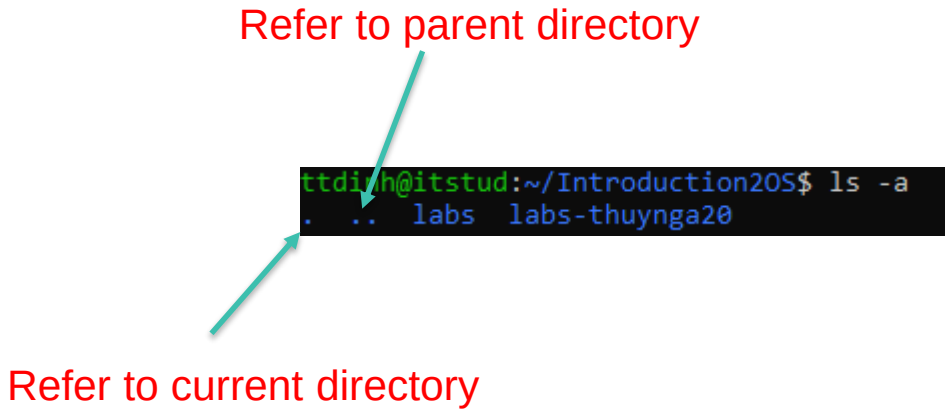
- Each user is given with a directory under home directory
- Example: /home/ttdinh/Introduction2OS
- Each directory has exactly one parent



Høgskolen i Østfold

Current directory and parent directory

- Current directory is presented by single dot (.)
  - “..” : means “this directory”
- Parent directory is presented by double dot (..)
  - “..” : means “ directory above this one ”



Absolute path and relative path

- Path: a position in a directory tree
- Absolute path:
  - Start from the root directory “/" or “ ~“
  - Example: /home/ttdinh/Introduction2OS
  - Unique
- Relative path:
  - Start from current working directory
  - Example: ./Introduction2OS/labs
  - Depend on current path

Høgskolen i Østfold

Manual pages

Man page

- A documentation manual of different commands available in Unix or Unix-like OS
- Example:
  - $ man ls
  - Display manual for “ls” command

NAME
ls - list directory contents

SYNOPSIS
ls [OPTION]... [FILE]...

DESCRIPTION
List information about the FILEs (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

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

-a, --all
do not ignore entries starting with .

-A, --almost-all
do not list implied . and ..

--author
with -l, print the author of each file

-b, --escape
print C-style escapes for nongraphic characters

--block-size=SIZE
with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below

Høgskolen i Østfold

GitHub

GitHub

- Kind of distributed version control system (VCS)

- Clone an existing Git repository from another server:
- $ git clone

```
$ git clone git@github.com:Introduction2OS/labs.git
$ cd labs
```

- Working with remote:
- $ git pull
- $ git push

Høgskolen i Østfold

Requirements

Requirements for Lab1

- Practices
  - Be familiar with some basic commands in Linux
  - Know how to clone, pull a repository from git repository
  - Know how to upload a file to git repository
- Exercises
  - Do ≥ 2/3 exercises


Q&A