

Introduction to Linux

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Development on Linux

- ▶ That is where we will be doing our C++ programming for this class
- ▶ Everything will be done through the command line interface
- ▶ Why use Linux:
 - ▶ Free licensing for the Operating System for all users
 - ▶ <http://www.whylinuxisbetter.net/>
 - ▶ <http://blog.edx.org/why-learn-linux>
 - ▶ Free development tools for C++ development
 - ▶ “Students in CS111 should not use any IDE or GUI based compiler (such as Microsoft Visual C++) because it will automatically do a lot of the things that our students need to learn and get used to.” - Dr. Ryba

Linux

- ▶ In order to function, let's learn some basic Linux commands

Note: All commands are **case-sensitive**

- ▶ Like all OS, Linux has a file system to organize and manage files.
- ▶ The use of directories is recommended to keep your files organized.

Directory Management

- To **make** a **directory**
 - `mkdir <name_of_directory>`
 - Example: `mkdir cs111`
- To **remove** a **directory** that is empty
 - `rmdir <name_of_directory>`
 - Example: `rmdir cs111`
- To **change** a **directory**
 - `cd <name_of_directory>`
 - Example: `cd cs111`

Directory Management (cont.)

- Go up one directory (to its parent)
 - `cd ..`
- To **p**rint **w**orking **d**irectory (i.e. Where am I?)
 - `pwd`
- To go back to home directory
 - `cd`

(Note: When you first login to your account you land in the home directory.)

File management

- ▶ Listing of your files and directories

- ▶ Simple **list**

- `ls`

- ▶ Detailed (**l**ong) list (gives a little more details including permission info)

- `ls -l`

- ▶ To **copy** a file

- ▶ `cp <old_filename> <new_filename>`

- Example: `cp prog1.cpp prog2.cpp`

- Example: `cp prog2.cpp ../`

File Management (cont.)

- ▶ To **move** a file (Useful technique to **rename** old filename to new filename)

- ▶ `mv <old_filename> <new_filename>`

- Example: `mv prog1.cpp hw1.cpp`

- Example: `mv hw1.cpp cs111/hw1.cpp`

- ▶ To **remove** (delete) a file

- ▶ `rm <filename>`

- Example: `rm hw1.cpp`

- ▶ You can also delete a directory along with all the files in it:

- ▶ `rm -r <name_of_directory>`

- Example: `rm -r lab01`

Important note: There is no undo for delete! If you delete it, it is gone!

Note About Filenames

- ▶ In general we try to stay away from the space character in file names.
- ▶ So in place of space we use the ‘_’ underscore character.
- ▶ However if you must use a space in the filename, use ‘\ ’ backslash character follow by a space.

File Operations Exercises

- ▶ Create a directory called lab02
- ▶ Change directory to lab02
- ▶ Perform the following:
 1. touch testfile.cpp
(This creates a blank file call testfile.cpp)
 2. cp testfile.cpp hello.cpp
 3. mv hello.cpp helloworld.cpp
 4. rm testfile.cpp
 5. ls
 6. ls -lrt (long listing in reverse timestamp)