

CS2211 Midterm Review

(Topic 1 – Unix Basics)

Definitions/Commands:

- `cd` = change directory
- `more` = show the content of a file in pages.
- `cp` = copy a file from x to y. must put `-r` after `cp` if you are copying a directory.
- `rm -i FileName` = remove a file.
- `mkdir` = make a directory.
- `rmdir` = remove a directory.
- `mv` = move a file or directory to...

Concepts:

- How to log in: `ssh UserName@cs2211.gaul.csd.uwo.ca`

(Topic 2 – Unix Editors)

Definitions/Commands:

- Modal editors = have an input and command mode.
- Modeless editors = have only one mode.
- `vi` commands:
 - `x` = delete the current character
 - `dd` = delete the current line.
 - `/` = search for the text following `/`.

(Topic 3 – What's an Operating System)

Definitions/Commands:

- Operating System (OS) = is a control program, that allocates resources, schedules tasks, and provides an interface.

Concepts:

- Before OS all programs ran directly off the hardware. And as hardware changed, software had to change.
- After OS only the OS changed with hardware, not the software, making software cheaper and easier to develop.
- CPU splits the programs running into time shares, where they all take turns using the hardware by itself.

(Topic 4 – Unix Background)

Definitions/Commands:

- BSD = Berkeley Software Distribution.
- Kernel = manages processes, resources, and controls/hides the hardware.
- Shell = an interface between users and the kernel. Command Line interpreter (CLI).
- Utilities and Standard Tools/Applications = (such as vi) so common it's a part of Unix.

Concepts:

- Unix was developed in 1969 by Ken Thompson. In 1974 it was rewritten in C.
- UCB put the internet protocols (IP) into Unix.
- Unix was meant to be user helpful, not user friendly.
- Unix tools kept simple, efficient and protected from others.

- Linux and Mac OS are Unix based.
- Android is based on Linux.

(Topic 5 – Files and Directories)

Definitions/Commands:

- Directory = a file containing pointers to other files.
- Link = a pointer to another file, like a shortcut.
- Devices = device files for peripherals.
- pwd = print working directory.
- ls = display the contents of a directory.
 - ls -a = used to see hidden files (beginning with a “.”).
- df = displays different disks and space used.
- cd .. = goes to the parent directory.
- mv directory/file = moves a file to another directory.
- ln = creates a hard link pointer of a file (2 name links for the same file).
- Find .-name “x” = finds all files/directories named x from the current directory.
 - You can use “*.c” to find all files/directories with the extension .c .
 - .-type f = is for files only.
 - .-type d = for directories only.
- -i = if put after a command, says to ask if the user is sure.
- tail = displays the bottom lines of a file. head = top.
- -- = is used to say there are no more options.

- Double quotes “ ” = can be used to stop misinterpretation of whitespace characters.
- Backslash \ = can be used to escape to a newline connecting the previous line.
- SFTP = secure file transfer protocol.
 - Sftp > get remotefile localfile = used to get a file.

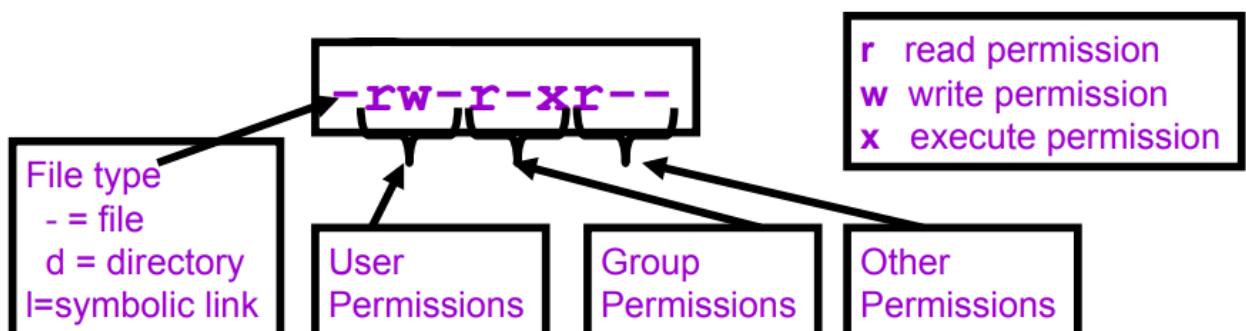
Concepts:

- Unix file's are organized as an upside down tree starting at root (represented by “ / ”).
- Unix files are located on a disk in a server in a machine room, not your current computer.
- cd goes to the home directory automatically if followed by nothing.
- “more” goes forward, but less can go forward and backwards.
- Wildcard Characters (can be combined with other commands like ls or mv):
 - a*.c* = looks for any sequence of characters starting with a and ending with .c .
 - a?.c* = looks for any sequence of characters starting with a and a single character before .c .
 - a[123].c* = looks for any sequence of characters containing one matching character between a and ending with .c .
 - can't cross “/” boundaries in names.

(Topic 6 – File Security and Permissions)

Definitions/Commands:

- ls -l = view permissions.



- `chmod DDD file` where each D represents the 3 binary digits for user then group then other permissions. (ex $100 = 4$, $110 = 6$).
- `bind/` = files accessible to the user, and by name but not others.

Concepts:

- unmask format is backwards to `chmod`. Unmask `077` means only let the user do anything to the files.
- Symbolically for example `chmod a+rw dir` gives everyone read and right permission to all files in `dir`.

(Topic 7 – Unix I/O Commands and Redirection)

Definitions/Commands:

- `stdin` = default place programs are read from.
- `stdout` = default place for programs to write to.
- `stderr` = default place where errors are reported to.
- `cat file1 file 2 > file3` = used to concatenate files together into another file.
 - `>|` = used to overwrite a previous file3.
 - `>>` = gives a warning if file3 isn't there.
 - `&>` = copies into another file.
- `grep focus` = writes all lines containing the focus to `stdout`, or if specified, a file.
- `tee` = replicates standard output into another file.

Concepts:

- Anything copied or moved to `/dev/null` disappears.

(Topic 8 – Processes and Job Control)

Definitions/Commands:

- d
- d

Concepts:

- d
- d

(Topic 9 – Regular Expressions)

Definitions/Commands:

- d
- d

Concepts:

- d
- d

(Topic 10 – Introduction to C)

Definitions/Commands:

- d
- d

Concepts:

- d
- d

_____ (Topic 11 – C Fundamentals) _____

Definitions/Commands:

- d
- d

Concepts:

- d
- d

_____ (Topic 12 – Basic C types and I/O Format) _____

Definitions/Commands:

- d
- d

Concepts:

- d
- d

_____ (Topic 13 – Flow of Control in C) _____

Definitions/Commands:

- d
- d

Concepts:

- d
- d

(Topic 14 – Expressions and Operations in C)

Definitions/Commands:

- d
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Concepts:

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- d

(Topic 15 – Functions in C)

Definitions/Commands:

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Concepts:

- d

- d

(Topic 16 – Arrays + Strings in C)

Definitions/Commands:

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Concepts:

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- d

(Topic 17 – Pointers in C)

Definitions/Commands:

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- d

Concepts:

- d
- d