

Computer Systems Org

Recitation 009

Arahant Ashok Kumar

Notes

- Git workshop today
- Hands-on
 - Unix/Linux commands
 - Git
 - Makefile
 - C programs
 - Linserv1

Basic Unix/Linux commands

- **man** - manual
- ls - list
- cd - change dir
- pwd - current dir
- mkdir - make an empty dir
- cp - copy
- mv - move
- rm - remove
- echo - write arguments to the standard output
- cat - output content of a file
- wc - word count
- grep - pattern matching
- touch - create a file

- Google/ man
- <https://github.com/jlevy/the-art-of-command-line>

Git

- Git config
 - <https://stackoverflow.com/questions/35942754/how-to-save-username-and-password-in-git-gitextension>
 - `git config -- global credential.helper store`
 - `git pull`
- Git commands
 - `git clone <url>`
 - `git status`
 - `git add`
 - `git commit -m "<your message>"`
 - `git push origin <branch>`
 - `git pull origin <branch>`

Linserv1 - copy

- Secure copy
 - `scp -r /full/path/to/folder netid@access.cims.nyu.edu:/home/<netid>`
 - `scp /full/path/to/file netid@access.cims.nyu.edu:/home/<netid>`
- Git - copying from local machine to linserv1 (I'd recommend this)
 - local machine > `Git add` > `Git commit` > `Git push` > repo
 - repo > `git clone` > `git pull origin <branch> (master)` > cims
- Git - for each new assignment
 - `git clone <url>`
 - `git add file1.c file2.c`
 - `git commit`
 - `git push`

Makefile

A good Makefile:

```
myprogram: main.o util.o
    gcc main.o util.o -o myprogram
main.o: main.c
    gcc -c main.c -o main.o
util.o: util.c
    gcc -c util.c -o util.o
clean:
    rm -f main.o util.o myprogram
```

- Make supports pattern matching with the %
 - %.c means all .c files
- Make has “automatic variables”
 - The meaning of variables within a rule is contextual
 - \$@ is the name of the rule
 - \$^ is the list of dependencies
- Example:

```
%.o: %.c
    gcc -c $^ -o $@
```

C basics

- Basic Data types
 - integer - signed, unsigned
 - char
 - float
- Functions
- Loops
 - for
 - while
- Conditions
- Pointers
- Data structures
 - Array
 - Stack

Exercise...

- Create a dummy repo on GitHub
 - Clone it onto your system
 - Coding: create C files, makefile
 - Execution: compile and execute them
 - Commit and Push
-
- Copy into linserv1
 - Execute on linserv1