Computer Architecture (CS-211) Recitation 2

Siwei Mai

Oct. 5, 2021

TA Information

Name: Siwei Mai

E-mail: sm2470@scarletmail.rutgers.edu

please use [CS-211] as prefix in your Email Subject!

Section 10 Recitation: Wed 9:00 AM - 9:55 AM (SEC-118)

My office hour: Thursday, 4:00 PM – 5:00 PM
https://rutgers.webex.com/meet/sm2470

Topics

- Editors for C code
- Use of Makefile and Compile C programs
- Tar and Untar a file/directory
- Programming Assignment 1
  - - Autograder
    - - Submission on Sakai

* Some materials are collected and compiled from previous year's CS 211 lectures and TAs

Editors for C

Windows
- Notepad++

Linux/MAc
- Sublime, Geany, Emacs
- Vi, Vim, Nano

Windows SSH Client
- MobaXterm

How to Makefile!

Run a makefile
$ make
If you have several make files
$ make -f YourMakeFile
Clean a makefile
$ make clean

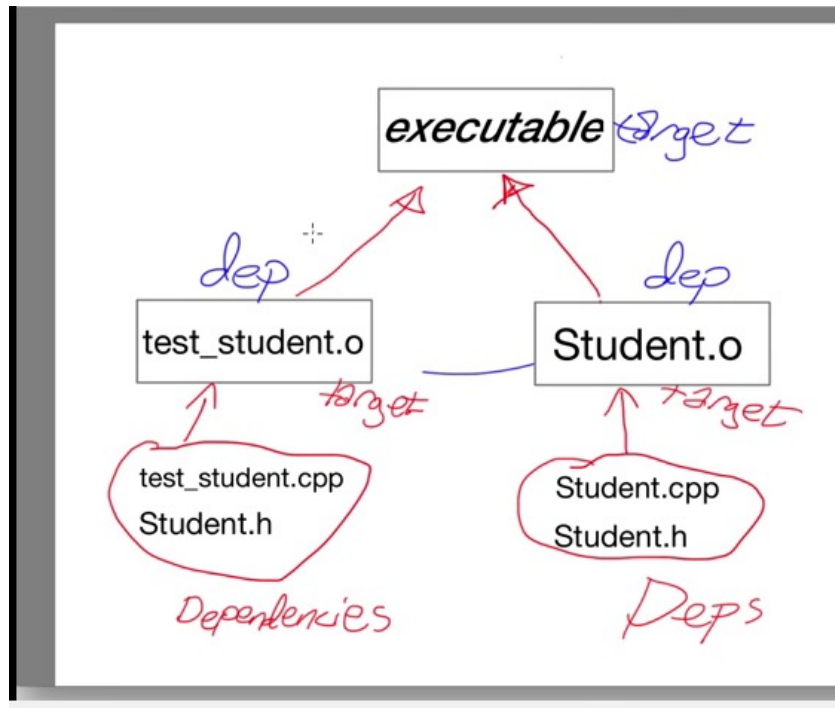Basics of Makefile
target: dependencies
[tab] system command

Example
all:
gcc -Wall -Werror -fsanitize=address hello.c -o hello

clean:
rm –rf hello

Help on Makefile

Youtube : https://www.youtube.com/watch?v=kGGE8mtrbrM
Blog : http://mrbook.org/blog/tutorials/make/

Please remember the following tips:
- Makefile has **no file extension**
- Default name of the Makefile for any project is **Makefile**
- **TAB** must be placed before each command written in Makefile
- If you do not place TAB correctly in your Makefile, you may encounter errors.
- You can check the TAB key in any editor.
  - - In Linux/Mac, open your Makefile in vim editor then press ESC then type "set list" and hit ENTER. It should show the TAB as "^I".
- - In Windows, open your file using Notepad++ editor. Then go to View --> Show Symbol --> Show All Characters. In place of TAB, you should see "---
- ----->". If you don't see this characters in place of TAB, then you should correct your make file.

6

Tar(tape archive)/Untar a File/Directory

How to tar:

       Go to the parent directory of pa1

           $ tar cvf pa1.tar(name of archive) pa1(directory)

       Another example

           $ tar cvf myfiles.tar dir1 dir2 file1 file2

How to check .tar

           $ tar vtf target.tar

How to untar:

       Go to the directory where you have .tar file

           $ tar xvf pa1.tar

c: Create archive

v: Verbose i.e display progress while creating archive

f: Archive File name i.e the name of the archive file

x: means extract files from the archive

z : Compress archive using gzip program

PA1 Directory structure

```
src                         src
    |- yell                     |- mexp
        |- Makefile                 |- Makefile
        |- yell.c                   |- mexp.c
    |- rle                      |- sudoku
        |- Makefile                 |- Makefile
        |- rle.c                    |- sudoku.c
    |- anagram                  |- bst
        |- Makefile                 |- Makefile
        |- anagram.c                |- bst.c
    |- list
        |- Makefile
        |- list.c
    |- table
        |- Makefile
        |- table.c
```

Using the Autograder

Untar pa1_grader.tar
        $ tar xf pa1_grader.tar (will create pa1 directory)

Copy src into pa1 directory
        $ cp -r src pa1

Go to pa1 and run autograder
        $ python grader.py
    $ python grader.py -v (print all outputs)
    $ python grader.py bst (grade only bst)
    $ python grader.py -a pa1.tar (grade archive file)

PA1 Makefile and Archive

Makefile Example for bst

bst: bst.c

gcc -Wall -Werror -fsanitize=address -o bst bst.c

clean:

rm -f bst

How to tar and verify:

Tar your source file

$ tar cvf pa1.tar src

Check the list of the file

$ tar tf pa1.tar

Q&A

Thanks!