



國立陽明交通大學

NATIONAL YANG MING CHIAO TUNG UNIVERSITY

Institute of Artificial Intelligence Innovation

Department of Computer Science

# *Introduction to Operating System*

## **Homework Environment Introduction**

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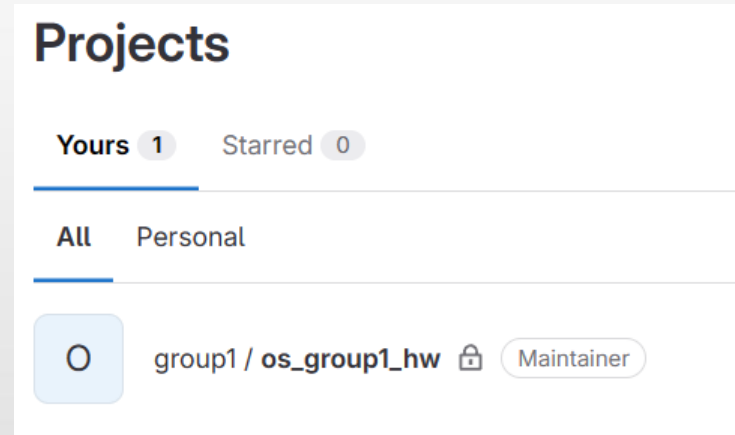
Wed. 10:10 - 12:00 EC115 +

Fri. 11:10 – 12:00 Online



# Gitlab Nachos Repository

- Gitlab Link: <https://css-nachos.hopto.org/gitlab/>
  - Account : studentID
  - Password : TBD
  - You should modify your default password
- After finishing group registration
  - After logging into your Gitlab account, you should see your group project
  - Your Nachos file will already be inside the project



# Jenkins Job

- Jenkins Link: <https://css-nachos.hopto.org/jenkins/>
  - Account : studentID
  - Password : TBD
  - You should modify your default password
- After finishing group registration
  - you should see your group jobs in Jenkins after you login

os_hw		os_ta	全部				
S	W	名稱 ↓	上次成功	上次失敗	上次費時		
✓	☁	os_group1_hw	2 小時 44 分 #18	11 小時 #15	5.8 秒	▶	
✓	☁☀	os_group1_ta	2 小時 41 分 #38	11 小時 #34	5.9 秒	▶	

# How to run Nachos? (Recommended method)



1. clone the project
2. modify nachos
3. commit & push to gitlab

4. push event will trigger Jenkins



5. trigger os\_group\_hw job first

## os\_group\_hw job

1. clone the **branch you pushed**
2. compile your nachos
  1. go to code/build.linux
  2. make depend
  3. make clean
  4. make
3. run students custom shell
  1. go to code/test

```
os_students.sh 235 B
1 make clean
2 make
3 ../build.linux/nachos -e halt
```

// you can only customize your scripts inside this .sh file

6. after finished hw job, it will trigger os\_group\_ta job

## os\_group\_ta job

1. clone the **main branch**
2. compile your nachos
3. run secret test case to evaluate your implementation

# Jenkins Description

- You can view the output of your os\_students.sh in the Jenkins os\_group\_hw console

1. click your job

S	W	名稱 ↓	上次成功	上次失敗	上次費時
✓	☁	os_group1_hw	3 小時 6 分 #18	11 小時 #15	5.8 秒
✓	☁	os_group1_ta	3 小時 4 分 #38	11 小時 #34	5.9 秒

2. click specific build you want to see

建置歷程 趨勢 ▾

篩選建置...

✓ #18  
2023年10月3日 上午11:13  
Started by GitLab push by 廖永誠

✓ #17  
2023年10月3日 上午9:11  
Started by GitLab push by 廖永誠

✓ #16  
2023年10月3日 上午8:37

3. click console output

狀態 ✓ #18 (2023年10月3日 上午11:13)

</> 變更 Started by GitLab push by 廖永誠

主控台輸出 </> Changes

4. scroll down to bottom you should see the output

```
    ".bss", filepos 0x0, mempos 0x3a0, size 0x0
    ../../usr/local/nachos/bin/decstation-ultrix-gcc -G 0 -c -I../use
lib/decstation-ultrix/2.95.2/ -B../usr/local/nachos/decstation
../../usr/local/nachos/bin/decstation-ultrix-ld -T script -N star
../../coff2nooff/coff2nooff.x86Linux fileIO_test2.coff fileIO_test2
numsections 4
Loading 4 sections:
    ".text", filepos 0xf0, mempos 0x0, size 0x320
    ".rdata", filepos 0x410, mempos 0x320, size 0xa0
    ".data", filepos 0x4b0, mempos 0x3c0, size 0x0
    ".bss", filepos 0x0, mempos 0x3e0, size 0x0

halt
Machine halting!

This is halt
Ticks: total 52, idle 0, system 40, user 12
Disk I/O: reads 0, writes 0
Console I/O: reads 0, writes 0
Paging: faults 0
Network I/O: packets received 0, sent 0
```

// output from "../build.linux/nachos -e halt"

# Run Locally

- If you want run nachos locally, please follow the steps below

1. install new virtual machine  
(Only well-tested on Ubuntu 22.04 LTS 64bits)
2. git clone your group project
3. install compile dependency
  - 1) `sudo dpkg --add-architecture i386`
  - 2) `sudo apt install build-essential`
  - 3) `sudo apt install gcc-multilib g++-multilib`

# Run Locally (cont'd)

- modify code/build.linux/Makefile
- compile nachos
  - cd code/build.linux/
  - make depend
  - make clean
  - make
- compile test case
  - cd code/test/
  - make clean
  - make
- test output
  - ../build.linux/nachos -e halt

```
Makefile
// the other line ...

CPP=/lib/cpp

CC = g++ -m32 -Wno-deprecated
LD = g++ -m32 -Wno-deprecated
AS = as --32

RM = /bin/rm

// the other line ...
```

- **Solution for error message**  
**“make : ../usr/local/nachos/bin/decstation-ultrix-gcc: Permission denied”**
  - cd NachOS-4.0/
  - chmod -R 777 ./usr ./coff2noff

# Reminder

- The homework is considered passed **only if the TA job** passes
- Feel free to ask TA questions
  - The TA will only assist you with GitLab, Jenkins environment problems, or any issues related to homework requirements.
  - **The TA will not help you debug your code.**
- Teams Message(Recommended): 簡子茸、徐翊安
- Email:
  - [tzerongjian.cs13@nycu.edu.tw](mailto:tzerongjian.cs13@nycu.edu.tw)
  - [vm6u40.cs13@nycu.edu.tw](mailto:vm6u40.cs13@nycu.edu.tw)

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Q & A

*Thank you for your attention*

