

SWE3004: Operating Systems
prof. Euseong Seo

Project 0. Install and boot xv6

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TAs

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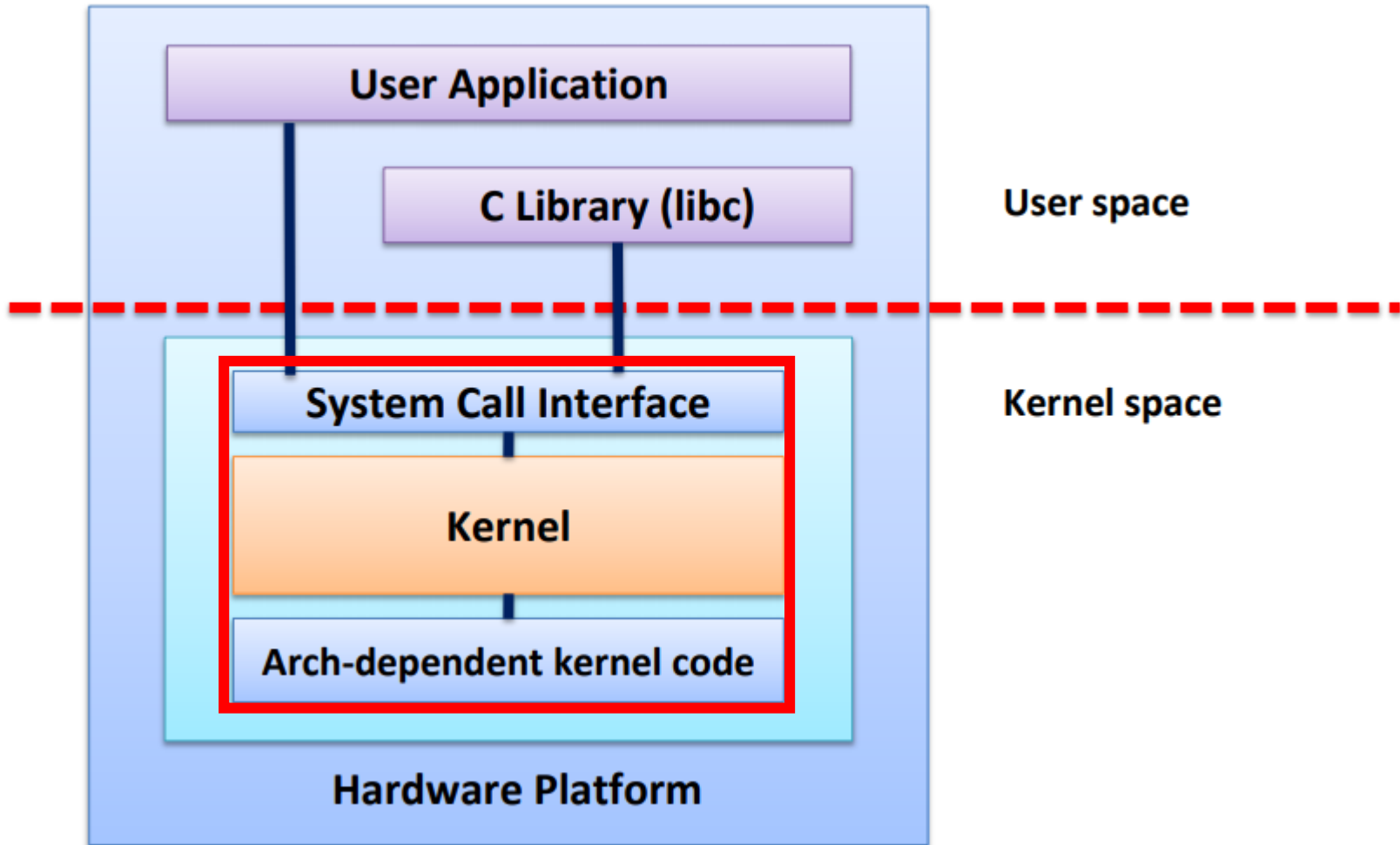
Project plan

- Total 7 projects

- 0) Starting xv6 operating system (5%)
- 1) System call (10%)
- 2) Thread (15%)
- 3) Synchronization (15%)
- 4) Scheduling (15%)
- 5) Page fault handler (20%)
- 6) Copy on Write (20%)

- It is not yet confirmed. When confirmed, we will update it at the following address.
 - <http://csl.skku.edu/SWE3004S19/Overview>

Operating system



Operating system



xv6 operating system

- Unix-like teaching operating system developed by MIT
- Based on multiprocessor x86 system

```
cpu1: starting 1
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
$ ls
.          1 1 512
..         1 1 512
README    2 2 2290
cat        2 3 13332
echo      2 4 12404
forktest  2 5 8120
grep       2 6 15152
init       2 7 12992
kill       2 8 12452
ln         2 9 12352
ls         2 10 14576
mkdir      2 11 12476
rm         2 12 12452
sh         2 13 23092
stressfs  2 14 13132
usertests  2 15 56004
wc         2 16 13980
zombie    2 17 12184
console   3 18 0
$ █
```

Boot message with ls command

How to install and run

* Install and build xv6

- 1) (Move to directory where to install xv6)
- 2) \$wget <http://csl.skku.edu/uploads/SWE3004S19/xv6-skku.tar.gz>
- 3) \$tar -xvf xv6-skku.tar.gz

* Install qemu emulator

- 1) \$sudo apt install qemu

* Run xv6

- 1) \$cd xv6-public
- 2) \$make qemu-nox
 - Or \$make qemu

* Terminate xv6

- 1) ctrl + 'a' + 'x' (keep press all keys)
 - Or \$halt

Project 0. Install and boot xv6

- Follow the instructions on slides
- Print your student id, name(mandatory), and any message(optional) (There is no format)

```
cpu1: starting 1
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
Student ID: 201xxxxxxx
Name: Gildong Hong
=====Any Message=====
$ █
```

Submission

```
239 # SKKU operating system
240 PROJECTNUM=1
241 STUDENTID=2011311671 # enter your ID
242
243 # DO NOT EDIT
244 tarball:
245     make clean
246     tar cvzf ../xv6-project-$(PROJECTNUM)-$(STUDENTID).tar.gz .
```

- You should enter your ID & project no. (this time is 0) on **Makefile**
- `$make tarball`
- Then, `xv6-project-0-studentID.tar.gz` will be created in the parent folder.

Submission

- Send your file (xv6-project-0-studentID.tar.gz) to ks77sj@gmail.com
- **PLEASE DO NOT COPY**
 - **YOU WILL GET F GRADE IF YOU COPIED**
- Due date: 3/19(Tue.), 23:59:59 PM
 - Every one day delay, -25% penalty of the project score

Tips

- Reading xv6 commentary will help you a lot
 - <http://csl.skku.edu/SWE3004S19/Resources>

Questions

- If you have questions, please email to TA
- You can also visit #85533. Please email TA before visiting

Appendix. ctags & grep

- Install ctags
 - `$sudo apt install ctags`
- Vim setting for ctags
 - `$ctags -R` (where you will use)
 - `$vi ~/.vimrc`
 - Add “set tags=[Location of tag file]/tags”
 - `$source ~/.vimrc`
- Ctags usage
 - `ctrl +]` : follow tag
 - `ctrl + t` : back to last tag
- Grep Usage
 - `grep -nR “[string to search]”`

Appendix. vi instructions

** \$sudo apt install vim

- ① vi [filename] -> Open file
- ② i -> keyboard typing mode
- ③ esc + :w -> save file
- ④ esc + :q -> exit file (esc + :wq -> save and exit)
- ⑤ /[string] -> search [string]
- ⑥ u -> back to last command
- ⑦ :vs -> open additional file on same session
- ⑧ dd -> erase one line
- ⑨ :set mouse=a -> activate mouse
 - ① Drag and y -> copy multi-line
 - ② p -> paste

* Reference: http://www.antsys.co.kr/data/vi_editor.htm