

Operating Systems

Project #0

What is Xv6?

- A simple Unix-like teaching operating system developed by MIT
 - Port of the sixth edition Unix (v6) in ANSI C
 - Runs on multi-core x86 systems

Project Plan

- 5 projects
 0. Install xv6
 1. System call
 2. Scheduling
 3. Virtual memory
 4. Concurrency
 5. File system
- Each project should be individual

Setting Up Xv6

1. Setting up environments

1. Install Ubuntu 16.04.2 LTS
2. `sudo apt-get upgrade`
3. `sudo apt-get install build-essential`
4. `sudo apt-get install gcc-multilib`
5. `sudo apt-get install git`

2. Install xv6

1. `cd`
2. `git clone git://github.com/mit-pdos/xv6-public.git`
3. `cd xv6-public`
4. `make`

Setting Up Xv6 (Cont'd)

3. Install qemu (patched version)

1. `cd`
2. `git clone https://github.com/geofft/qemu.git -b 6.828-1.7.0`
3. `sudo apt-get install libsdl1.2-dev`
4. `sudo apt-get install autoconf`
5. `sudo apt-get install libtool`
6. `cd qemu`
7. `git submodule update --init pixman`
8. `./configure --disable-kvm --target-list="i386-softmmu x86_64-softmmu" --disable-werror`
9. `make`
10. `sudo make install`

4. Run xv6

1. `cd`
2. `cd xv6-public`
3. `make qemu-nox`

5. Stop xv6

1. `ctrl A + X`

Project #0 – Install Xv6

- Follow the instructions above
- Print your id & name in the xv6 boot message

```
kisik@kisik-VirtualBox: ~/xv6-public
kisik@kisik-VirtualBox:~/xv6-public$ make qemu-nox
dd if=/dev/zero of=xv6.img count=10000
10000+0 records in
10000+0 records out
5120000 bytes (5.1 MB, 4.9 MiB) copied, 0.0589581 s, 86.8 MB/s
dd if=bootblock of=xv6.img conv=notrunc
1+0 records in
1+0 records out
512 bytes copied, 0.00633147 s, 80.9 kB/s
dd if=kernel of=xv6.img seek=1 conv=notrunc
342+1 records in
342+1 records out
175156 bytes (175 kB, 171 KiB) copied, 0.0016314 s, 107 MB/s
qemu-system-i386 -nographic -drive file=fs.img,index=1,media=disk,format=raw -drive file=xv6.img,index=0,media=disk,format=raw -smp 2 -m 512

(process:2733): GLib-WARNING **: /build/glib2.0-prJhLS/glib2.0-2.48.2/./glib/gmem.c:483: custom memory allocation vtable not supported
xv6...
cpu1: starting
cpu0: starting
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
ID: 2015711168
Name: Jeong Kisik
$
```

Project #0 – Install Xv6 (Cont'd)

- Submit a screenshot of qemu emulator
- Send email with title of “[SWE3004]Project-0-YOURID-YOURNAME”
 - E.g. “[SWE3004]Project-0-2011311671-정기식”
 - **Wrong title is not allowed**
 - Email address: kisik.jeong@csl.skku.edu
- Due date
 - 2016-03-19 23:59
- **Every one day delay, -25% penalty of the project score**
 - You can use up to 5 *slip days*

Later Project Submission Procedure

- <http://sys.skku.edu>
- Register an account
 - You must type your real name & student ID
 - Other parts are free
- Wait for an enrollment