CS 537 Discussion

1 February, 2023

Agenda

- Introduction to Xv6
- Project 2 discussion
- Reminder: Project 1 is due tonight at 11:59 pm

Xv6

Xv6 is a teaching operating system inspired by Unix V6.

Objectives:

- Learn to look through more substantial code bases written by others in which you do not need to understand every line
- Obtain familiarity with the xv6 code base in particular
- Learn how to add a system call to xv6
- Add a user-level application that can be used within xv6
- Become familiar with a few of the data structures in xv6 (e.g., process table)
- Use the gdb debugger on xv6

Demo

Project-2 Overview

- Debugging
- Adding 2 system calls

Project-2 Submission

- A screenshot demonstrating your familiarity with QEMU and gdb to Canvas.
- Your modified version xv6 copied to *~cs537-1/handin/login/P2.*
- The xv6 system should compile successfully with your modified Makefile.
- Include a single README.md describing the implementation. This file should include your name, your cs login, you wisc ID and email, and the status of your implementation. It it all works then just say that. If there are things you know doesn't work let us know.
- Assignment is up, and is due on Feb 8th by 11:59pm.

Demo

What is a System Call?

- A system call is a routine that allows a user application to request actions that require special privileges.
- When executing a system call, the program switches to kernel mode.
- Some examples are open(), fork(), kill(), exit() etc.

QEMU

- QEMU is a machine emulator.
- It can run OSes and programs made for one machine (e.g. an ARM board) on a different machine (e.g. your own PC).
- Project 2 uses QEMU to boot Xv6 in the emulator.