

CS 4414/5416: Systems Programming

Lab 6: Memory-Mapped File I/O

2026-10-02

Primary goal: Work together on something

- Fine to have small groups (up to 4)
- Work on the lab assignment during the hour

This week is about memory-mapped file manipulation in Rust.

Success Condition

```
cargo run mine.dat init      # Create database mine.dat
cargo run mine.dat add 1 3    # Add the edge (1,3) to mine.dat
cargo run mine.dat add 6 7    # Add the edge (6,7) to mine.dat
cargo run mine.dat show      # Show the contents of mine.dat
```

This should produce

1,3

6,7

There are two crates that you'll need to understand:

- `memmap2`: Uses virtual memory to map a file into memory
- `zerocopy`: Utilities to reinterpret raw bytes (e.g. from a mapped file) as Rust data types, and to go the other way.

Repo: <https://github.coecis.cornell.edu/cs4414-f26/lab-06>

At the end of the hour run **cargo package** and submit the **crate** file as a group on Gradescope (I will grade based on whether the crate builds and the “hello world” test from the first slide works).