Memory Mapping Emulation Implementation

Implementation challenges:

- The emulation is all in the user space, we can't modify the paging structures.

- The program should continue execution normally after a seL4 mapping invocation.

- The emulation of lazy mapping should also work.

  - Need to emulate the virtual memory fault.

Use **signal** to solve the challenges:

- **Software interrupts** emulate hardware interrupts such as seL4 VM fault.

- Signal handlers **implicitly** do mapping jobs.

- The program execution **continues normally** after returning from signal handlers.

- Emulating both explicit mapping calls and lazy page mapping will work.