Shared Mutexes Exercises

Shared Mutex

- Explain briefly what a shared mutex is

Single writer, multiple readers

- What is meant by "single writer, multiple readers"?
- Explain briefly how this can be implemented without data races using a shared mutex

Shared Mutex Example

- Write a program which uses a shared mutex and has two task functions
  - The first task function acquires an exclusive lock on the shared mutex and sleeps for two seconds
  - The second task function acquires a shared lock on the shared mutex and does not sleep
- The program creates five threads with the shared lock, then two threads with the exclusive lock, then another five threads with the shared lock
- Add suitable print statements. Explain the results
  - (Note: you may have to force your compiler into C++17 mode)

Shared Mutex Example

- Rewrite your program so that it uses std::mutex instead of a shared mutex. Explain the results.