

# 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 "writer" task function acquires an exclusive lock on the shared mutex and sleeps for two seconds
  - The "reader" task function acquires a shared lock on the shared mutex and sleeps for two milliseconds
- The program creates 50 "reader" threads, then two "writer" threads, then another 100 "reader" threads
- Check that your program compiles and runs correctly

# Shared Mutex Example

- Modify your program to use `std::mutex`
- Do you notice any difference in performance?