Internally Synchronized Class Solutions

Internal Synchronization

- Explain the terms "internal synchronization" and "external synchronization"
  - Internal synchronization means a class protects its data against races
  - Callers of its member functions do not need to provide any synchronization
  - External synchronization means that a class does not protect its data against races
  - Callers of its member functions may need to synchronize their accesses

Wrapper for std::vector

- Is std::vector an internally synchronized class?
  - No
  - All the container classes in the C++ standard library require external synchronization
- How can we provide internal synchronization for std::vector?
  - Write a class which
  - Has an std::vector data member
  - Has an std::mutex data member
  - Member functions which lock the mutex before accessing the std::vector
  - Then unlock the mutex after accessing it

Wrapper for std::vector

- Implement your proposed solution and test it