

Shared Pointer Solutions

std::shared_ptr

- Briefly describe std::shared_ptr

std::shared_ptr Structure

- Briefly describe the structure of the shared_ptr class

std::shared_ptr Initialization

- Give two ways to create an initialized std::shared_ptr object
- Is there any reason to prefer one approach over the other?

Copying `std::shared_ptr`

- Describe what happens when a `shared_ptr` object is created as a copy of another object

std::shared_ptr Operations

- Write a simple program which creates and initializes shared_ptr object and performs some operations on it

Threads and `std::shared_ptr`

- What issues arise when `shared_ptr` is used in a multithreaded program?
- What impact do these issues have on the performance of `shared_ptr`?

Threads and `std::shared_ptr`

- Write a program which creates an `std::shared_ptr` object, then starts two threads
 - The threads copy the `std::shared_ptr` object concurrently
 - Make sure your program is thread-safe
- Write a program which creates an `std::shared_ptr` object, then starts two threads
 - The threads modify the data in the `std::shared_ptr` object concurrently
 - Make sure your program is thread-safe

Shared Pointer Applications

- Give an example where `std::shared_ptr` could be useful