**Q4. Provide two examples where multithreading does not provide better performance than single threaded.**

While multithreading can provide better performance in certain situations, there are also cases where it may not be the best solution. Here are two examples where multithreading may not provide better performance than a single-threaded solution:

1. Tasks with low parallelism: Some tasks do not have much parallelism and cannot be divided into smaller sub-tasks that can be executed concurrently. For example, if a program needs to read a single large file and perform some processing on its contents, multithreading may not provide any benefits because the file can only be read sequentially. In such cases, a single-threaded solution may be just as efficient as a multithreaded one, and may even be simpler to implement and maintain.

2. Synchronization overhead: Multithreading introduces additional overhead due to the need for synchronization and communication between threads. For example, if multiple threads need to access a shared resource, they may need to use locks or other synchronization mechanisms to prevent race conditions and ensure correct program behavior. This can introduce additional overhead and reduce performance, especially if the synchronization mechanisms are poorly designed or implemented. In some cases, the overhead of synchronization may outweigh the benefits of multithreading, making a single-threaded solution more efficient.

In both these examples, multithreading may not provide better performance than a single-threaded solution. It's important to carefully analyze the requirements and characteristics of the task at hand to determine whether multithreading is a viable solution or not.