Multiple Threads Solutions

Multiple Threads

- Write a program which starts three threads

- The thread function prints a message with a number related to the thread

- Each thread should sleep for a different amount of time before printing the message
  - What purpose does this sleeping achieve?
  - It ensures that the concurrently executing threads do not interfere with each other

Multiple Threads

- What is meant by the following, in the context of C++ threads?
  - Interleaved execution
    - A thread can be suspended, allowing another thread to run
    - This gives the appearance that the threads execute in between each other
  - Memory location
    - A scalar object, such as a variable, pointer or a scalar member of a class or struct.
    - Also a compound object which does not perform internal synchronization, such as a Standard Library container

Multiple Threads

- What is meant by the following, in the context of C++ threads?
  - Data race
    - Multiple threads access the same memory location
    - With at least one thread modifying it
    - Without any synchronization between the threads
  - Race condition
    - The result of a program execution depends on the order in which threads are scheduled