

Objective

The goal with the hello.c program is to use Open MP to achieve ordered deterministic output from results from multiple threads. Each thread will produce its own "Hello from thread x of y" message, where x is the thread id, and y is the total number of threads. We are restricted to using only the OMP parallel, OMP single and OMP for pragmas in the code for this program and must use all of these pragmas at least once.

Procedure

First was to establish communication between the threads. As Open MP is a shared memory parallelisation extension for C, this was simple. Simply create an array of strings that is globally accessible to all threads. After asking a thread to output its message to the global array, omp single was used as a barrier to stop the thread and make it wait for all threads to finish outputting their message. This ensures when printing the messages from the array, all threads have indeed finished putting their message in so we aren't printing garbage text from an uninitialized string. Finally, a single thread, using omp single, prints out the messages in order from the global string array using omp for.