SOFE 3950U: Tutorial 9

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Group 1

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Conceptual Questions

1. **OpenMP** (Open Multi-Processing) is an API used that is used to support parallel programming in C, C++ and Fortran. Some of the benefits of using OpenMP is that it is easy to used and easy to understand as well as it still allows users to run their code in series.

2. The `#pragma` definitions is used to tell the compiler that the portion of code below will be using additional threads to run.

3. The OpenMP definition used to execute a loop in parallel is:

   `#pragma omp parallel for`

4. Reductions are used to take care of the critical section when the amount of serialization is large. Reduction will make a copy of the reduction variable for each thread, manipulate them separately and then join the results together to the global variable at the end of the critical loop in an elegant way.

5. The `omp critical` directive identifies a section of code that must be executed by atomically. Each thread have to wait before the critical directive until its open to execute further.

   In `private(var)` is used to specify that the variable `var` is not to be shared by thread. Every thread should have its own copy if this variable. `for`, `parallel`, `sections` and `single` are the directives to which private applies.