Thread Pools Solutions

Thread Pool

- Briefly explain what is meant by a thread pool
  - A thread pool is a container of thread objects with a queue
  - Users of the pool push tasks onto the queue
  - The thread objects pop tasks off the queue and execute them
- What are the two main features you would expect to see in a thread pool implementation?
  - A fixed-size container of thread objects
  - A concurrent queue whose element type is a task function

Thread Pool

- What are the advantages of using a thread pool?
    - A thread pool reduces overhead by reusing existing threads to perform tasks instead of creating a new thread for each task
    - The threads in a thread pool are always doing useful work (unless there is no work available for them)
    - By making the size of the thread pool equal to the number of processor cores, we can ensure that all the processor cores are doing useful work all the time
    - A thread pool automatically scales to the hardware. It will always make use of all the available processors on the machine it is running on