

Quiz 8 Thread

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1. Which of the following statements best describe a *thread*?
 - a) They are independent units of execution.
 - b) Threads communicate by message passing.
 - c) Threads usually share memory.
 - d) A sequential program has one thread.

2. Give two reasons for writing multi-threaded code:
 - a) It always runs faster than sequential code.
 - b) It is used to improve the performance of long-running algorithms.
 - c) It leads to code that is easier to maintain than sequential code.
 - d) It can make GUI applications appear to be more responsive.

3. The possible disadvantages of multi-threaded code are:
 - a) The output may not be the same as in the serial/sequential case.
 - b) Unpredictable spurious results may be produced in running code.
 - c) A multi-threaded application may perform less well than the equivalent sequential code.
 - d) A thread can cause another thread to abort.

4. Which of the following statements concerning C++11 threads are true:
 - a) A thread has a *thread function* that can be created using any *callable object*.
 - b) A thread starts executing as soon as it is created.
 - c) The return type of a thread is the same as that of its thread function.
 - d) A thread is deemed to have run its course when its thread function has completed its processing.

5. What is *thread synchronisation* and how is it implemented in C++11?
 - a) It is a mechanism to allow thread to notify each other of changes in thread state.
 - b) It is needed in order to avoid non-deterministic *race conditions*.
 - c) C++11 uses *mutexes* to realise thread synchronisation.
 - d) C++11 uses *condition variables* to effect thread synchronisation.

6. Which of the following features are supported by C++ threads?
 - a) It is possible to transfer ownership of a thread to another thread (using *move semantics*).
 - b) Threads are copyable.
 - c) In order to destroy a thread, it must be detached or joined.
 - d) C++ supports joinable threads; a *joinable thread* is one that has finished executing code, but has not yet been joined (it is still active).