26 Lecture - CS410

Important Mcqs

Question 1: What is a thread in the context of programming?

- a) A function call
- b) A sequence of instructions
- c) A graphical user interface element
- d) An input/output operation

Solution: b) A sequence of instructions

Question 2: What is the purpose of thread synchronization?

- a) To increase the number of threads
- b) To reduce the number of threads
- c) To coordinate thread execution and data access
- d) To stop all threads simultaneously

Solution: c) To coordinate thread execution and data access

Question 3: What is a race condition in multithreading?

- a) A competition between threads for system resources
- b) A condition where two or more threads access shared data concurrently, leading to unexpected results
- c) A condition where a thread fails to start
- d) A synchronization mechanism

Solution: b) A condition where two or more threads access shared data concurrently, leading to unexpected results

| **Question 4: Which of the following is a thread synchronization primitive?** |
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| a) Thread.sleep() |
| b) Thread.start() |
| c) Thread.join() |
| d) Thread.run() |
| **Solution: c) Thread.join()** |
| **Question 5: What is the purpose of the "synchronized" keyword in Java?** |
| a) It creates a new thread |
| b) It marks a method as deprecated |
| c) It prevents a method from being overridden |
| d) It ensures exclusive access to a block of code by only one thread at a time |
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| **Solution: d) It ensures exclusive access to a block of code by only one thread at a time** |
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| **Question 6: What can be used to prevent deadlock in multithreaded programs?** |
| a) Increasing the number of threads |
| b) Decreasing the number of threads |
| c) Using thread.sleep() |
| d) Implementing a proper order for acquiring locks |
| **Solution: d) Implementing a proper order for acquiring locks** |
| **Question 7: Which synchronization primitive allows multiple threads to read a shared resource simultaneously, but only one thread to write?** |
| a) Semaphore |
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| b) Mutex |

| d) CountDownLatch |
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| **Solution: c) ReadWriteLock** |
| **Question 8: What is a critical section in the context of synchronization?** |
| a) A section of code that only runs on a single thread |
| b) A section of code that must be executed by multiple threads concurrently |
| c) A section of code that is ignored by all threads |
| d) A section of code where errors are expected |
| **Solution: b) A section of code that must be executed by multiple threads concurrently** |
| **Question 9: Which of the following is a potential drawback of excessive thread synchronization?** |
| a) Deadlocks |
| b) Race conditions |
| c) Improved performance |
| d) Concurrent execution |
| **Solution: a) Deadlocks** |
| **Question 10: What is a mutex?** |
| a) A type of thread |
| b) A synchronization primitive that allows multiple threads to access a resource simultaneously |
| c) A synchronization primitive that ensures only one thread can access a resource at a time |
| d) A thread scheduler |
| **Solution: c) A synchronization primitive that ensures only one thread can access a resource at a time** |