

CS 311 Data Structures and Algorithms, Fall 2009  
**Quiz 8 Solutions**

Quiz 8 was given in class on Wednesday, November 4, 2009.

1. [2 pts] What is “exception neutrality”?

A function is *exception neutral* if, whenever it calls a client-provided function, and that function throws an exception, the exception is propagated unchanged to the client code.

2. [3 pts total] In each part below, **use big-O** to indicate the **order** of the given operation for a smart array and for a Linked List. *You should assume that good choices are made: data structures are designed and implemented well, and efficient algorithms are chosen.*

2a. [1 pt] Insert a given item at the beginning of the Sequence.

**Array:**  $O(n)$ .

**Linked List:**  $O(1)$ .

2b. [1 pt] Sort the entire Sequence.

**Array:**  $O(n \log n)$ .

**Linked List:**  $O(n \log n)$ .

2c. [1 pt] Search for a given value in a Sequence that is already sorted.

**Array:**  $O(\log n)$ .

**Linked List:**  $O(n)$ .