

## CS 102: Quiz #5, October 14, 2009

Name: .....

1. Consider the array of ints given by

3 5 12 0 13 -1 6

- (a) Trace through the selection sort algorithm on this array to sort it into increasing order.

**Solution:**

3 5 12 0 13 -1 6	(initial array)
-1 5 12 0 13 3 6	(first pass: now 0th element sorted)
-1 0 12 5 13 3 6	(now 0-1 sorted)
-1 0 3 5 13 12 6	(now 0-2 sorted)
-1 0 3 5 13 12 6	(now 0-3 sorted)
-1 0 3 5 6 12 13	(now 0-4 sorted)
-1 0 3 5 6 12 13	(now know 0-5 sorted and thus whole array 0-6)

- (b) Trace through the same initial array in the previous problem using the insertion sort algorithm.

**Solution:**

3 5 12 0 13 -1 6	(initial array: 0th element sorted)
3 5 12 0 13 -1 6	(insert 5 in position 1: now know 0-1 sorted)
3 5 12 0 13 -1 6	(now know 0-2 sorted)
0 3 5 12 13 -1 6	(now know 0-3 sorted)
0 3 5 12 13 -1 6	(now know 0-4 sorted)
-1 0 3 5 12 13 6	(now know 0-5 sorted)
-1 0 3 5 6 12 13	(whole array sorted)