Stephen Levine

11/15/16

Quiz 3 Essential Algorithms

1. The difference between sequential search and binary search is that sequential goes through the list one by one until the element is found or the whole lost is searched and nothing is found while binary starts with the middle point of the list and if the element is the middle then the algorithm is done but if not then it sees if the element is higher or lower than the middle element and searches through the higher or lower section.
2. It would take 8 comparisons to find the 14 in the list because 14 was element 7 in the list and would take comparison eight to reach 14.
3. Well step 1 would be for the algorithm to find the middle point of the list and checks to see if the element is equal to 16 if not then it checks to see if it is higher or lower than the middle element which is 12 and will look through the upper half of the list. Step two will be to find the middle element of the upper half of the list to see if it is higher or lower than 16 since 15 is the middle and 14 and 15 are lower than 16 they are both eliminated. Then there is just 17 and 18 and since 17 is bigger than 16 the results would show that 16 is not in the list.
4. I could not figure out an answer for this problem.
5. Before sorting begins (19,1,9,7,3,10,13,15,8,12)

After 1st round of sorting (1,9,7,3,10,13,15,8,12,19)

After 2nd round of sorting (1,7,3,9,10,13,8,12,15,19)

After 3rd round of sorting (1,3,7,9,10,8,12,13,15,19)

After 4th round of sorting (1,3,7,9,8,10,12,13,15,19)

After 5th round of sorting and final result (1,3,7,8,9,10,12,13,15,19)

1. Before sorting begins(11,7,12,14,19,1,6,18,8,20)

After 1st round of sorting (11,7,12,14,19,1,6,18,8,20)

After 2nd round of sorting (11,7,12,14,1,6,18,8,19,20)

After 3rd round of sorting (11,7,12,14,1,6,8,18,19,20)

After 4th round of sorting(11,7,12,1,6,8,14,18,19,20)

After 5th round of sorting(11,7,1,6,8,12,14,18,19,20)

After 6th round of sorting(7,1,6,8,11,12,14,18,19,20)

After 7th round of sorting(7,1,6,8,11,12,14,18,19,20)

After 8th round of sorting(1,6,7,8,11,12,14,18,19,20)

Final Result (1,6,7,8,11,12,14,18,19,20)

1. I say between bubble and selection I prefer selection because it is much easier to go through over bubble because it is much easier to follow over bubble and it is a lot more stream line
2. It would go through the six comparison and would print out the list as it is due to all the numbers being the same value.
3. The insertion sort works by taking the first element of an unsorted list and adds it to a sorted list and then it runs through again and takes the 2nd element in the unsorted list and then gets sorted in the correct order in the sorted list. This goes on until there are no more elements left in the unsorted list and all the elements are sorted in the sorted list.
4. The list starts out with [1,3,4,5,9|2,0]

Then it would take number 9 and then sort it so the sorted list would be 9,2,0

And then the list would then take 5 and the sorted list would be 9,5,2,0

Then it would take 4 and the sorted list would be 9,5,4,2,0then it would take 3 which would make the sorted list 9,5,4,3,2,0

Then it would take the final element which is 1 and then add it to the sorted list so the list would look like 9,5,4,3,2,1,0

It would take a total of 8 swaps and 25 comparisons to get the list sorted