CS 112: Fall 2016

Sep 22

Sequential/Binary Search Review

1. Consider sequential search on an unsorted list of length n. The worst case number of target-to-list item comparisons for failure is:

A. n-1

B. n+1

C. n

D. None of the above

2. Consider sequential search on an unsorted list of length n. The average number of target-to-list item comparisons for failure is:

A. n/2

B. (n+1)/2

C. n

D. None of the above

3. Consider sequential search on an unsorted list of length n. The average number of target-to-list item comparisons for success is:

A. n/2, if matches with all positions in list are equally likely

B. (n+1)/2, if matches with all positions in list are equally likely

C. n/2 always

D. (n+1)/2 always

4. Consider sequential search on the following list:

10 , 5, 8, -9, 16, 25, 88

Suppose the first 4 items are searched with a probability of 0.1 each, and the last three items are searched with a probability of 0.2 each. The average number of target-to-item comparisons for success is:

A. 4.0

B. 4.6

C. 3.5

D. None of the above

5. Consider sequential search on the following list:

10 , 5, 8, -9, 16, 25, 88

Suppose the first 4 items are searched with a probability of 0.1 each, and the last three items are searched with a probability of 0.2 each. Which of the following rearrangements of the list will result in the LEAST number of comparisons on average for success?:

A. 16,25,88,10,5,8,-9

B. 16,10,25,8,88,5,-9

C. 5,8,10,-9,16,88,25

D. None of the above

7. Consider binary search on a sorted (ascending order) integer array of length 7. The worst case number of target-to-item comparisons for success is:

A. 3

B. 4

C. 6

D. 5

8. What is the average number of comparisons for success of binary search on an integer array of length 7?

A. 2

B. 3

C. Some value between 3 and 4

D. Some value between 4 and 5

9. The worst case number of comparisons for success made by binary search on a sorted array of length 100 is 15. For the same array, what would the worst case comparisons be for failure?

A. 16

B. 15

C. 17

D. 18