Assignment 10 - Searching, sorting and performance

Graded

Student

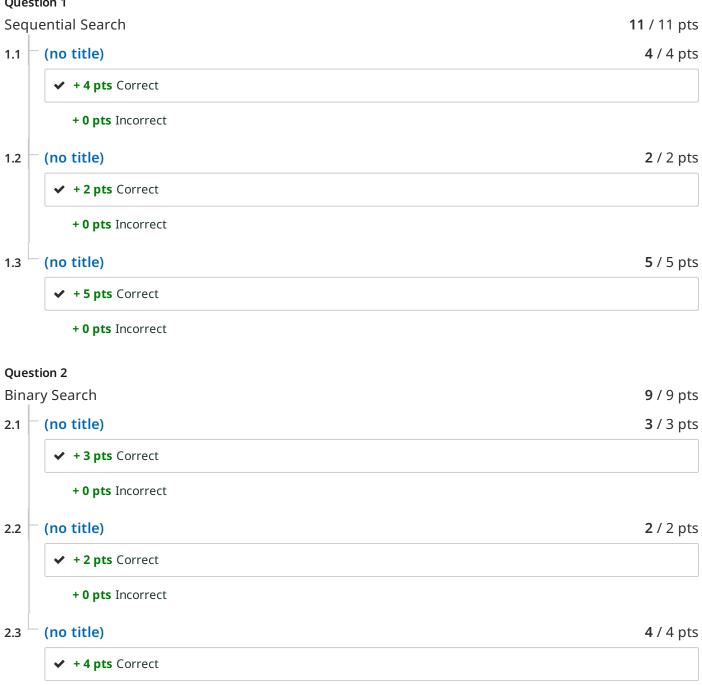
AKSHAJ KAMMARI

+ 0 pts Incorrect

Total Points

65 / 65 pts

Question 1



Question 3 Selection Sort **5** / 5 pts 3.1 (no title) 2 / 2 pts + 0 pts Incorrect **3** / 3 pts 3.2 (no title) + 0 pts Incorrect Question 4 Insertion Sort **5** / 5 pts (no title) **2** / 2 pts 4.1 + 0 pts Incorrect (no title) **3** / 3 pts 4.2 + 0 pts Incorrect Question 5 Mergesort **5** / 5 pts (no title) **2** / 2 pts 5.1 → + 2 pts Correct + 0 pts Incorrect 5.2 (no title) **3** / 3 pts + 0 pts Incorrect

Question 6



Q1 Sequential Search 11 Points Q1.1 4 Points

In what situation we CAN use sequential search? (chose all that apply)

when the array is sorted and the target is in the array.

when the array is sorted and the target is not in the array.

when the array is not sorted and the target is in the array.

when the array is not sorted and the target is not in the array

Q1.2 2 Points

What is the big O of sequential search? (n is the length of the array)

□ O(1)
 □ O(log n)
 □ O(n)
 □ O(n log n)
 □ O(n2)
 □ O(!n)

Q1.3 5 Points

Using the array 11, 30, 34, 90, 99 as the input for sequential search, how many array elements are accessed in order to find the target element 34?

☐ 1 element
2 elements
✓ 3 elements
4 elements
5 elements
sequential search does not work here

Q2 Binary Search 9 Points

Q	2.1
3	Points

In what situation we CAN use binary search? (chose all that apply)

when the array is sorted and the target is in the array

when the array is sorted and the target is not in the array

when the array is not sorted and the target is in the array

when the array is not sorted and the target is not in the array

Q2.2 2 Points

What is the big O of binary search? (n is the length of the array)

- O(1)
- O(log n)
- O(n)
- O(nlog n)
- O(n2)
- O(!n)

Q2.3 4 Points

Which of the following statements about binary search is NOT true?

- it is the fastest searching algorithm we have learned in CS111
- it does not work if the target is not in the array
- it does need extra array space for it to run
- the best case scenario is when the target is in the middle of the array

Q3.1 2 Points What is the big O of selection sort? (n is the length of the array) O(log n) O(n log n) O(n) O(n^2) O(n^3) O(!n) Q3.2 3 Points What is the best case for selection sort? • when the array is already sorted when the array is already sorted backward • when the array is sorted by pairs • there are no best case for selection sort

Q3 Selection Sort

5 Points

5 Points Q4.1 2 Points **4.1 (points)** What is the big O of insertion sort? (n is the length of the array) \bigcirc O(n log n) O(n) O(n^2) O(n^3) O(!n) Q4.2 3 Points What is the best case for insertion sort? • when the array is already sorted • when the array is already sorted backward

Q4 Insertion Sort

• when the array is sorted by pairs

O there are no best case for insertion sort

5 Points
Q5.1
2 Points
What is the big O of mergesort? (n is the length of the array)
O(log n)
O(n log n)
O(n)
O(n^2)
O(n^3)
O(!n)
Q5.2 3 Points
What is the best case for merge sort?
 when the array is already sorted
when the array is already sorted backward
O when the array is sorted by pairs
there are no best case for merge sort

Q5 Mergesort

Q6 Sort Detective 30 Points

Identify Algorithms given to you in the <i>SortDetective</i> program.
Q6.1 10 Points
Which sorting algorithm is Algorithm 1? Insertion sort Selection sort Merge sort
Q6.2 10 Points
 Which sorting algorithm is Algorithm 2? Insertion sort Selection sort Merge sort
Q6.3 10 Points
Which sorting algorithm is Algorithm 3? Insertion sort Selection sort Merge sort