Assignment 3

The best-case time complexity for quicksort is, if partition splits the array of size n into:
(a) \( \frac{n}{2} \) and \( \frac{n}{2} \)
(b) \( n \) and 0
(c) 0 and \( n \)
(d) \( \frac{n}{3} \) and \( \frac{2n}{3} \)

3. Consider the quick sort algorithm which sorts elements in ascending order using the first element as a pivot. Then, which of the following may not be the case?
(a) The balanced property
(b) The best-case time complexity
(c) The average-case time complexity
(d) The worst-case time complexity

4. Which of the following represents the rank heap property?
(a) Value of child node > Value of parent node
(b) Value of child node < Value of parent node
(c) Value of child node = Value of parent node
(d) Value of child node ≠ Value of parent node

5. While sorting the numbers 70, 80, 90, 100, 110, 120, 130 using quicksort, in the best case (i.e. optimal heap), what will be the top permutation of the elements after the first partitioning from the heap?
(a) 100, 80, 70, 90, 110, 120, 130
(b) 100, 110, 120, 130, 70, 80, 90
(c) 100, 70, 80, 90, 110, 120, 130
(d) 100, 120, 130, 110, 70, 80, 90

1. Assignment 4

Unit 5 - Week 3