



C++ Assignment Solutions | Quick Sort | Week 12

1. Which of the following sorting algorithms is used along quicksort to sort the sub arrays?

- a) Merge Sort
- b) Selection Sort
- c) Insertion Sort
- d) Bubble Sort

Answer: Insertion Sort as in quick sort we have a pivot and separate the array into two subarrays and in insertion sort we have the left subarray as sorted one and keep on inserting the elements at the right place from right subarray.

2. How many subarrays does the partitioning step of the quick sort algorithm divide the entire array into?

- a) one
- b) two
- c) depends on the elements of the array
- d) depends on the size of the array

Answer: Two

3. Given an array where all its elements are sorted in increasing order except two swapped elements, sort it in linear time. Assume there are no duplicates in the array.

Input: A[] = [3, 8, 6, 7, 5, 9, 10]

Output: A[] = [3, 5, 6, 7, 8, 9, 10]

Answer:

Code:

```
#include<iostream>
using namespace std;

int main() {
    int n;
    cin >> n;
    int a[n];
    for (int i = 0; i < n; i++) {
        cin >> a[i];
    }

    int idx1 = -1, idx2 = -1;

    for (int i = 0; i < n - 1; i++) {
        if (a[i] > a[i + 1]) {
            if (idx1 == -1) {
                idx1 = i;
                idx2 = i + 1;
            }
            else {
                idx2 = i + 1;
            }
        }
    }
}
```

Note:- Please try to invest time doing the assignments which are necessary to build a strong foundation. Do not directly Copy Paste using Google or ChatGPT. Please use your brain 😊.
