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**School Of Information Technology**

**IT2553 DS & Algo**

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| **PEM Group:** | SF2102 |
| **Module:** | IT2553-02 |
| **Assignment:** | Tutorial 8 |

1. 1A ) 4,7,1,8,3,2,6,5 In Ascending order , first element is the pivot

Diagram

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1B) 5,2,7,8,1,4,6,3 In Descending order, first element is the pivot

Text

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1. Quicksort is not a stable algorithm, while bubble sort, insertion sort and merge sort is stable. The reason why they maintain stability is because the element A[j] comes before A[i] if and only if a[j] < a[i].

Some sorts depend on other sorting algorithm to ensure stability in the sorting. The reason why quicksort and selection sort is unstable is because we do swapping of elements without considering their original positions

Similarities:

Both are sorting algorithms based on the divide and-conquer strategy.

Both are sorting algorithms bused on recursion.

Differences:

Merge Sort is a stable algorithm, whereas the standard Quick Sort

implementation is not.

Quick Sort is an in-place algorithm, whereas the standard Merge Sort

implementation is not

Quick Sort uses a pivot value for partitioning the elements, whereas Merge Sort

does not

Quick Sort partition the list in any ratio, depending on the pivot value. Merge

Sort partition the list into 2 halves. Le. n/ 2