

Indian Institute of Technology Kharagpur
Course:MA29005 Design and Analysis of Algorithms Lab
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Lab Assignment -02 (Aug 01, 2017)

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Problems

1. (a) Implement Quick Sort algorithm and display the array after every partition (use first number as pivot).
(b) Implement Quick Sort, but this time use the last number as the pivot always.
2. Implement Merge Sort algorithm to sort a set of given numbers.
3. Modify the Merge Sort algorithm to count inversion in an array. For example, the sequence 2, 4, 1, 3, 5 has three inversions (2, 1), (4, 1), (4, 3).
4. Write an efficient program for printing k largest elements in an array. Here assume that the elements in an array can be in any order. For example, if a given array is [1, 23, 12, 9, 30, 2, 50] and you are asked for the largest 3 elements i.e., $k = 3$ then your program should print 50, 30 and 23.
Implement this by modifying Quick Sort's partition algorithm (Quick Select).

All The Best!