

Indian Institute of Technology Mandi
February-June 2015 Semester
CS202: Advanced Data Structure and Algorithms
Programming Assignment 2

Last date of submission: 23rd March, 2015

1. Implement the following non-comparison sorting algorithms using C++ programming language and sort the input sequence in **ascending order**.
 - a) Count sort
 - b) Bucket/Bin sort
 - c) Radix sort

Program should be written in object-oriented programming using the objects of the class Linear List ADT with appropriate representations. Program should take n inputs given from the user and display the sorted sequence.

2. Datasets with different input sizes are given. Use the same unsorted datasets from Assignment-1. Implement the above mentioned sorting algorithms by reading the inputs from the file. Observe the running time for the above mentioned sorting algorithms for each of the data with different input sizes. Note down the running time for each dataset. and compare the running time for each of the algorithms by plotting the recorded running times for each dataset for each algorithms. Also plot the graph showing the asymptotic running time for the different algorithms as a function of input size (use the different input sizes provided to you). Also compare these plots with that of merge sort and quick sort.

Submit the report in PDF form on the observations and reasoning behind the obtained results on or before 23rd March 2015.

Note: The report should be neat and clear. Use the uniform fonts for the different sections and main body of the report. **Prepare the report using word document or equivalent. (No hand written report is accepted). Convert the report to PDF format before submitting. Reports not in PDF form will not be accepted/evaluated.**