

Lab Assignment 5 : Data Structuring

Q1. Create a structure/class for a group of 50 students holding data for their Enrollment no., Name, Branch, CGPA

- a) Call linear search function to display data of student with a particular Enrollment no..
- b) Call bubble sort function to arrange data of students according to Enrollment No.
- c) Apply binary search on the above output (part b) to display data of a student with a particular Enrollment no.
- d) Use and modify Insertion sort logic to arrange data of students in descending order of CGPA.

Q2. Write a program that, given an array of integers finds the largest and the second largest elements of the array.

You may refer to the *max_nextmax.c* and the *tournament.c* code provided on the course website.

- i. Mention the running time of *max_nextmax.c*
- ii. Use *tournament.c* to obtain the largest and the second largest elements of the array.

Q3. Write a program that prints all sets of six positive integers a_1, a_2, a_3, a_4, a_5 and a_6 such that $a_1 \leq a_2 \leq a_3 \leq 20$ and $a_1 \leq a_4 \leq a_5 \leq a_6 \leq 20$ and the sum of the squares of a_1, a_2 and a_3 equals sum of the squares of a_4, a_5 and a_6 .

[Hint : Generate all possible sums of three squares and use a sorting procedure to find duplicates]
