

## **Assignment for Design & Analysis of Algorithms**

**Submission last date: 15/04/2025**

**Viva date is 21 & 23 April 2025**

1. Write a recursive program for insertion sort. (Note: loop is not allowed)
2. Write a program for the 4-way merge sort.
3. Write a program to create a binary search tree using randomized quicksort.
4. Write a program to sort elements using heap sort (as discussed in class).
5. Write a program for radix sort.
6. Write a program for binary search to search for an element in a sorted array. Where for every mid value, the elements in the left sub-array should be 25%, and the right sub-array should have 75% elements.
7. Write a program to multiply the two very large numbers using the divide and conquer method (as discussed in class).
8. Write an iterative and recursive program for an activity selection problem where starting and finishing times are given (as discussed in class).
9. Write a recursive program to solve the weighted activity selection problem using dynamic programming (as discussed in class).
10. Write a program to find the sum of subsets using (as discussed in class)
  - (a) Recursive method
  - (b) Dynamic programming (Tabular method)
  - (c) Backtracking

***Note that submit the assignment to [yogendra@cs.du.ac.in](mailto:yogendra@cs.du.ac.in) by the given deadline.  
Prepare the course for viva voce till cover by 15 April 2025.***