

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam - 603 110
(An Autonomous Institution, Affiliated to Anna University, Chennai)

UCS2403: DESIGN & ANALYSIS OF ALGORITHMS

Assignment 1

- Write a Python code that takes as input a value n , and generates a list of n unique random values. You may use this code to generate the numbers to be given as input for the searching and sorting code for the questions below. [5 points]
- Implement insertion sort, shell sort and radix exchange sort, and test the code for arrays of the following size: [5 points]
 - 10
 - 100
 - 1000
 - 10000
 - 100000
- Implement insertion sort, shell sort and radix exchange sort for an array of size 10000 when the input array is: [5 points]
 - Sorted in ascending order
 - Sorted in descending order
 - Not sorted
- Plot the graphs for both the above implementations with n on the x -axis and time of execution in milliseconds on the y -axis. You may use standard Python packages for plotting the graph. [5 points]
- Implement recursive and non-recursive algorithms for binary search. Compare the performance of both versions using an array of size 10000. [5 points]