

S. V. National Institute of Technology Surat
Computer Engineering Department
Data Structure Lab
Assignment-1

- 1) Create five arrays of integers for five different cities of India. Each array stores the temperature data of a city for 365 days varying from 20 degrees celsius to 40 degrees celsius. You can generate temperature values randomly using an inbuilt function in C. Write a program to display the average temperature of each city and the overall average temperature combining data from all cities over a period of five years.
- 2) Write a program to create Fibonacci series of length 10.
Hint: Fibonacci series: next number is the sum of the previous two numbers, for example, 0, 1, 1, 2, 3, 5, 8, 13, 21, etc.
- 3) Write the program for given problem statements:
 - a) To merge two arrays of the same size sorted in descending order
 - b) To print all unique elements in an array.
 - c) To separate odd and even integers in separate arrays
 - d) To accept two matrices and check whether they are equal.
 - e) An array contains both positive and negative numbers in random order. Rearrange the array elements so that all negative numbers appear before all positive numbers.
 - f) Two sorted arrays, such that the arrays may have some common elements. Find the sum of the maximum sum path to reach from the beginning of any array to the end of any of the two arrays. We can switch from one array to another array only at common elements.
 - g) For given two sorted arrays and a number x, find the pair whose sum is closest to x and the pair has an element from each array.