

Course code: CSL 201 Course Name : Data Structures Lab

Faculty In Charge: Dr Binu V P

L-T-P-Credits 0-0-3-2

Pre-requisite: CST 201 Data Structures, EST 102 C programming skills.

Operating System to Use in Lab : Linux

Compiler/Software to Use in Lab : gcc

Programming Language to Use in Lab : Ansi C

Preamble: The aim of the Course is to give hands-on experience for Learners on creating and using different Data Structures. Data Structures are used to process data and arrange data in different formats for many applications. The most commonly performed operations on data structures are traversing, searching, inserting, deleting and few special operations like merging and sorting.

Lab Cycle-2

Learning Outcome: Learn polynomial representation, sparse matrix representation using arrays and develop application programs.

Date of submission: on or before 10-12-2021

(write these programs in fair record-show the output in lab and get it signed by the staff in charge. There will be viva voce in every lab.)

1. Write a program to read two polynomials and store them in an array. Calculate the sum of the two polynomials and display the first polynomial, second polynomial and the resultant polynomial.

2. Read a polynomial of degree n and store it in an array. Evaluate this polynomial for a given value of x .

Eg: $3x^2 + 2x + 1$

$x = 2$

evaluation = $12 + 4 + 1 = 17$

3. Given a sparse matrix. Represent and store it using an efficient method. Also find the sparsity (The sparsity of a matrix can be quantified with a score, which is the number of zero values in the matrix divided by the total number of elements in the matrix.)

4. Input the representation of two sparse matrices. Obtain the representation of their sum.

5. Input the representation of a sparse matrix. Find the representation of its transpose.

6. Check whether the given matrix is sparse symmetric using the representation given.