List of Experiment

Sr. No.	Name of Experiment	CO Mapped
1	Consider a student database of SY COMP class (at least 10 records). Database contains different fields of every student like Roll No, Name and SGPA.(array of objects of class) a) Design a roll call list, arrange list of students according to roll numbers in ascending order (Use Bubble Sort) b) Arrange list of students alphabetically. (Use Insertion sort) c) Arrange list of students to find out first ten toppers from a class. (Use Quick sort) d) Search students according to SGPA. If more than one student having same SGPA, then print list of all students having same SGPA. e) Search a particular student according to name using binary search without recursion.	CO1,CO3
2	Department of Computer Engineering has student's club named 'COMET'. Students of Second, third and final year of department can be granted membership on request. Similarly one may cancel the membership of club. First node is reserved for president of club and last node is reserved for secretary of club. Write program to maintain club member's information using singly linked list. Store student MIS registration no. and Name. Write functions to a) Add and delete the members as well as president or even secretary. b) Compute total number of members of club c) Display members d) Display list in reverse order using recursion e) Two linked lists exists for two divisions. Concatenate two lists	CO1, CO3
3	Implement Stack using a linked list. Use this stack to perform evaluation of a postfix expression.	CO3,CO5
4	Queues are frequently used in computer programming, and a typical example is the creation of a job queue by an operating system. If the operating system does not use priorities, then the jobs are processed in the order they enter the system.	CO3,CO5

	Write C++ program for simulating job queue. Write functions to add job and delete job from queue.	
5	A double-ended queue (deque) is a linear list in which additions and deletions may be made at either end. Obtain a data representation mapping a deque into a one-dimensional array. Write C++ program to simulate deque with functions to add and delete elements from either end of the deque.	CO3,CO5
6	A book consists of chapters, chapters consist of sections and sections consist of subsections. Construct a tree and print the nodes. Find the time and space requirements of your method.	CO3,CO4
7	Implement binary tree using linked list and perform recursive traversals.	CO3,CO4
8	Beginning with an empty binary search tree, Construct binary search tree by inserting the values in the order given. After constructing a binary tree i. Insert new node ii. Find number of nodes in longest path iii. Minimum data value found in the tree iv. Change a tree so that the roles of the left and right pointers are swapped at every node v. Search a value	CO3,CO4
9	Implement graph using adjacency list or matrix and perform DFS or BFS.	CO3, CO4
10	You have a business with several offices; you want to lease phone lines to connect them up with each other; and the phone company charges different amounts of money to connect different pairs of cities. You want a set of lines that connects all your offices with a minimum total cost. Solve the problem by suggesting appropriate data structures.	CO3, CO4
Content Beyond Syllabus		
11	A classic problem that can be solved by backtracking is called the Eight Queens problem, which comes from the game of chess. The chess board consists of 64 square arranged in an 8 by 8 grid. The board normally alternates between black and white square, but this is not relevant for the present problem. The queen can move as far as she wants in any direction, as long as she follows a straight line, Vertically, horizontally, or diagonally. Write C++ program for generating all possible configurations for 4-queen's problem	CO1,CO5
12	A Dictionary stores keywords & its meanings. Provide facility for adding new keywords, deleting keywords, updating values of any entry. Provide facility to display whole data sorted in ascending/ Descending order. Also find how many maximum comparisons may require for finding any keyword. Use Binary tree and find the complexity for finding a keyword.	CO3,CO4