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| **Subject Code:** CS2001-1 | **Subject Title:** Data Structures |
| **Chapter Number:** | **Chapter Title: Practical’s** |
| **PlannedHours:**02 per Experiments |  |

**Experiment List**

1. Design, Develop and Implement a menu driven Program in C for the following
2. To create an Array of N Integer Elements and store n values.

* Inserting an Element (ELEM) at a given valid Position (POS)
* Deleting an Element at a given valid Position POS)
* Display of Array Elements
* Exit.

Support the program with functions for each of the above operations.

1. To create student structure with fields Roll No, Name, Semester, marks in 3 subjects. And Write functions to

* Enter 5 students’ details and display the same using pointer to structure
* Find Student wise and subject wise total marks and display the same.

1. Design, Develop and Implement a menu driven Program in C for the following operations on

a) STACK of Integers (Array with structure Implementation of Stack with size MAX)

* Push an Element on to Stack.
* Pop an Element from Stack.
* Demonstrate Overflow and Underflow situations on Stack.
* Display the status of Stack .
* Exit

1. Queue of Integers (Array with structure Implementation of Queue with size MAX)

* Insert an Element in to Queue.
* Delete an Element from Queue.
* Demonstrate Overflow and Underflow situations on Queue.
* Display the status of Queue .
* Exit

Support the program with appropriate functions for each of the above operations

1. Design, Develop and Implement a Program in C for the following Stack Applications

* Evaluation of Suffix expression with single digit operands and operators: +, -, \*, /, %, ^ b

1. Design, Develop and Implement a Program in C for converting an Infix Expression to Postfix Expression. Program should support for both parenthesized and free parenthesized expressions with the operators: +, -, \*, /, % (Remainder), ^ (Power) and alphanumeric operands
2. Design, Develop and Implement a menu driven Program in C for the following operations on Circular QUEUE of Characters (Array Implementation of Queue with maximum size MAX)

* Insert an Element on to Circular QUEUE.
* Delete an Element from Circular QUEUE.
* Demonstrate Overflow and Underflow situations on Circular QUEUE d. Display the status of Circular QUEUE.
* Exit

Support the program with appropriate functions for each of the above operations

1. Design, Develop and Implement a menu driven Program in C for the following operations on Singly Linked List (SLL) for data of integers.

* Create a SLL of Data using front insertion.
* Display the status of SLL and count the number of nodes in it.
* Demonstration of stack
* Demonstration of Queue.
* Exit

1. Design, Develop and Implement a menu driven Program in C for the following operations on Circular Singly Linked List (CSLL) for data of integers.

* Create a CSLL of data using front insertion.
* Perform Insertion and Deletion to the right of the given node.
* Perform Insertion and Deletion at end of CSLL.
* Display the status of CSLL and count the number of nodes in it.
* Exit

1. Design, Develop and Implement a menu driven Program in C for the following operations on Doubly Linked List (DLL) for data of integers.

* Create a DLL of data .
* Perform Insertion and Deletion at End of DLL.
* Perform Insertion and Deletion at Front of DLL.
* Display the status of DLL and count the number of nodes in it.
* Exit

1. Design, Develop and Implement a menu driven Program in C for the following operations on Binary Search Tree (BST) of integers .

* Create a BST of N Integers: 6, 9, 5, 2, 8, 15, 24, 14, 7, 8, 5, 2.
* Traverse the BST in Inorder, Preorder and Post Order.
* Search the BST for a given element (KEY) and report the appropriate message.
* Exit