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| **Data Structures using C Lab** |

**Subject Code : 18CSI301L**

**Credits : 01 L-T-P: 0-0-2**

**List of Experiments:**

1. **Demonstrating Pointers Usage**
   1. Printing Memory Addresses: Write C program to demonstrate the use of pointers by printing memory address 2.
   2. Writing a Swap Function: Write a C program to swap two numbers using pointers concept
   3. Allocating and Freeing Memory: Write a C program to demonstrate the use of allocating a memory and freeing
   4. Memory Leaks and Other Problems: Write a C program to demonstrate the memory leaks when pointers are not used properly.
2. **Demonstrate Strings, User defined data types and Files in C**
3. Reading and Writing Strings: Write a C program to demonstrate the input and output operations on strings
4. String operations / Manipulations: Write a C program to demonstrate the operations on strings – by writing user defined string functions.
5. Enumerations, Structures and Union: Write a C program to demonstrate Enumerations, Structures and Union data types. Write a program for following using recursive methods.
6. File operations: Write a C program to demonstrate the input and output operations on files
7. **Demonstrate the technique of recursion in C**
8. Recursion – Write recursive function for i) Sum of natural numbers ii) Factorial of a given number iii) Fibonacci sequence
9. **Stack ADT** Implement Stack using Arrays
10. **Queue ADT** Implement Queue using Arrays
11. **Singly Linked List** Write a C Program to perform following operations on Singly Linked List ADT: i. Create ii. Insert iii. Delete iv. Display
12. **Doubly Linked List** Write a C Program to perform following operations on Doubly Linked List ADT: i. Create ii. Insert iii. Delete iv. Display
13. **Circular Linked List** Write a C Program to perform following operations on Circular Linked List ADT: i. Create ii. Insert iii. Delete iv. Display
14. Implement Stack using List
15. Implement Queue using List
16. Implement Binary Search Tree – using List
17. i)Implement a simple heap ii) Implement Priority Queue using heap