Merit-Quality-Excellence

Sukkur IBA University Khairpur Campus

Data Structures

LAB No: 07

Instructor: Marina Gul

Objective of Lab No. 7:
After performing lab 7, students will be able to:
- o Recursion

Exercise

Simple Recursion

1. Write a program to ask user input N and print numbers from 1 – N in ascending/descending order using recursion.

2. Print 1d character array values using recursion in forward/reverse direction.

Sorting Algorithm

3. Implement merge sort and quick sort using recursion.

Fibonacci Series

4. Write a program to generate Fibonacci series till N. N is any user input.

   a) Using iterative approach
   b) Using recursive approach
   c) Calculate and compare time, whether a or b takes less time **(using code).**

Factorial

5. Design a method to calculate factorial of N number where N is any user input.

   a) Using iterative approach
   b) Using recursive approach
   c) Calculate and compare time, whether a or b takes less time **(using code)**.

Printing Linked list

6. Write a program to print all nodes from linked list

   a) Using iterative approach
   b) Using recursive approach
   c) Calculate and compare time, whether a or b takes less time **(using code).**

Search using recursion

7. Write a program to store random values in array of integers and ask user any input Search, find out whether Search value is present in array or not. If present, then return 1 otherwise 0.

   a) Using iterative approach
   b) Using recursive approach
   c) Calculate and compare time, whether a or b takes less time **(using code).**