National University of Computer and Emerging Sciences



# Lab Manual 07

*for*

# Data Structure

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| Section | BDS-3A |
| Semester | FALL 2022 |

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**Objectives:**

After performing this lab, students shall be able to revise:

✔ Recursion

## **Task 1:**

Implement a **Class Node** that has following data members. Node\*data, int data

Implement a stack class that has data members Node\* top and also make function according to your need.

Perform this functionality

* sort stack using recursion
* reverse stack using recursion

## **Task 2:**

A palindrome is a string that reads the same both forward and backward. For example, the string "madam" is a palindrome. Write a program that uses a recursive function to check whether a string in linked list is a palindrome. Your program must contain a value-returning recursive function that returns true if the string is a palindrome and false otherwise. Do not use any global variables; use the appropriate parameters.

## **Task 3:**

Write a recursive method that for a positive integer returns a string with commas in the appropriate places, for example, putCommas(1234567) returns the string “1,234,567.”

## **Task 4:**

Write a recursive method void print01(int k); that prints all 0/1 strings of length k. For example, if k=1, the program should print 0 and 1. If k=2, it should print 00, 01, 10 and 11, etc