

National University of Computer and Emerging Sciences

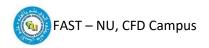


## **Laboratory Exercise**

# Data Structures Lab

(CL 2001)

**Department of Computer Science** 



### **DS Lab Mini Project**

#### **Objectives**

- Understanding Doubly linked list
- Understanding Circular linked list
- Understanding Singly linked list

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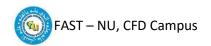
#### Note: Carefully read the following instructions.

- 1. You have to do all tasks on Microsoft Visual Studio.
- 2. Screenshot the solution to each problem and paste it in a word file with the naming convention F20xxxx\_Section\_lab number.

## **Project**

Write a program to create a **Note Pad using 4D linkedlist.** The program should contain following attributes. Each node includes four links left, right, top and bottom.

- Add text (Insert text at any particular position)
  - User will input x and y position. Then input a string. You may use nodes of characters or nodes for string for insertion.
- Delete text
  - User will input a string. If the input string matches, delete all nodes which contains the input string.
- Search Words
  - User will input a string. If the input string matches, a message will be displayed that string found with all positions if string exists multiple times.
- Copy text
  - User will give the starting position x and y of string and end position of string and then save the string into a string variable or character array with all special characters.
- Past text
  - After copy string, user will give the initial x and y position and then paste the copied string at that position. If text already exists at the position where user want to paste the copied text, then display a message "Text already found" with a confirmation message that "Do you still want to paste the text". If yes, then paste the text from that particular position.
- Find a word and replace it
  - Input a word. If word is found, then replace it. Choice will be given for first word replacement or replace the word on whole file.



- Undo text
  - After performing any operation, it will be saved into a stack using a specific key.
- Count the total words

•	You are done. Submit 😊	•