**Bahria University, Lahore Campus**

Department of Computer Science

Lab Journal 05

**(Spring 2023)**

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| Course: | **Data Structures and Algorithm - Lab** | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Course Code: | CSL-221 | Max Marks: 10 |
| Faculty’s Name: | Fatima Zulfiqar |  |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enroll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Objective(s):

Upon completion of this lab session, learners will be able to:

* Implement Singly Linked List and its helping functions (insertion from start, insert from end, insert from any point, delete from start, delete from end, delete from any point, and display)
* Count number of nodes present in a Linked List.

## Lab Tasks:

**Task 1**

Implement singly linked list data structure and perform following operations.

* Insert from start ()
* Insert from end ()
* Insert at any point ()
* Delete from start ()
* Delete from end ()
* Delete from any point ()
* Display ()

**Note:** The program should contain main-menu in such a way that the user can select either of the options until desires. Additionally the input to the node should be taken from the user.

**Task 2**

Add additional function **count\_nodes ()** in Task 1. The function should count and display total nodes present in a linked list.

**Lab Grading Sheet :**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Max Marks** | **Obtained Marks** | **Comments(*if any*)** |
| 1. | 07 |  |  |
| 2. | 03 |  |  |
| **Total** | **10** |  | **Signature** |

**Note : Attempt all tasks and get them checked by your Lab Instructor. Also for each task, attach a screenshot of the output.**