**Bahria University, Lahore Campus**

Department of Computer Science

Lab Journal 07

**(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 Recursive function and recursive calls
* Implement different problems using recursion

## Lab Tasks:

**Task 1**

Write a recursive function to calculate a factorial of a given number.

**Task 2**

Write a recursive function to find nth number of the following series:

**0 1 1 2 3 5 8 13 21 …**

**Task 3**

Write a recursive function to reverse any given input string. Also display original and reversed string.

**Input:** Hello

**Output:** olleH

**Note: Don’t use any built-in functions.**

**Task 4**

Write a recursive function to check whether a given string is palindrome or not. A string will be palindrome if it is same even if it is read backwards. An examples of palindrome and non-palindrome sequences are given below:

**Input:** madam

Yes it is a palindrome

**Input:** Pulp

No! It is not a palindrome

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

**Lab Grading Sheet :**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Max Marks** | **Obtained Marks** | **Comments(*if any*)** |
| 1. | 2.5 |  |  |
| 2. | 2.5 |  |  |
| 3 | 2.5 |  |  |
| 4 | 2.5 |  |  |
| **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.**