

# NORTH WESTERN UNIVERSITY



## Report

**Course Code :** CSE-2104

**Course Title :** Data Structures Sessional

Special Thanks to : Md. Shymon Islam

Lecturer

Department Of CSE

North Western University Khulna ,Bangladesh

**Developed By**

*Kaushik Ray*

**Student Id :20221040010**

*Majharul Islam Raj*

**Student Id:2022108010**

*Chayan Mondal*

**Student Id:20221017010**

**Department Of CSE**

**North Western University, Khulna, Bangladesh**

## Table Of Contents

1.Introduction .....	3
2.Objectives.....	3
3.Description.....	3
GUI Page.....	3
Array.....	4
Linked List .....	6
4.Dependencies.....	9

## 1.Introduction

Array is a special variable, which can hold more than one value at a time. It is a collection of elements of a similar data type. Arrays in data structures help solve some high-level problems like the "longest consecutive subsequence" program or some easy tasks like arranging the same things in ascending order. Linked List is an ordered collection of elements of the same type in which each element is connected to the next using pointers. A linked list is a collection of nodes. The first node is called the head , and it's used as the starting point for any iteration through the list. The last node must have its next reference pointing to None to determine the end of the list.

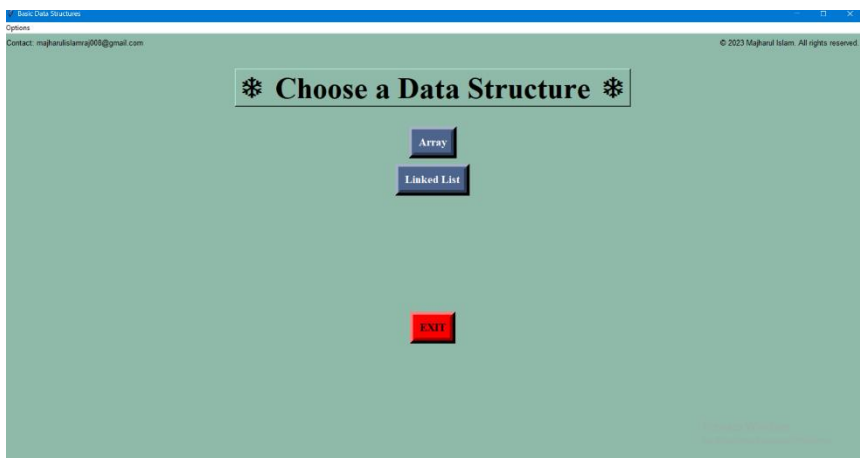
## 2.Objective

The purpose of this lab project was to create a GUI for array and link list. Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. In this lab project we used the tkinter method.

## 3.Description

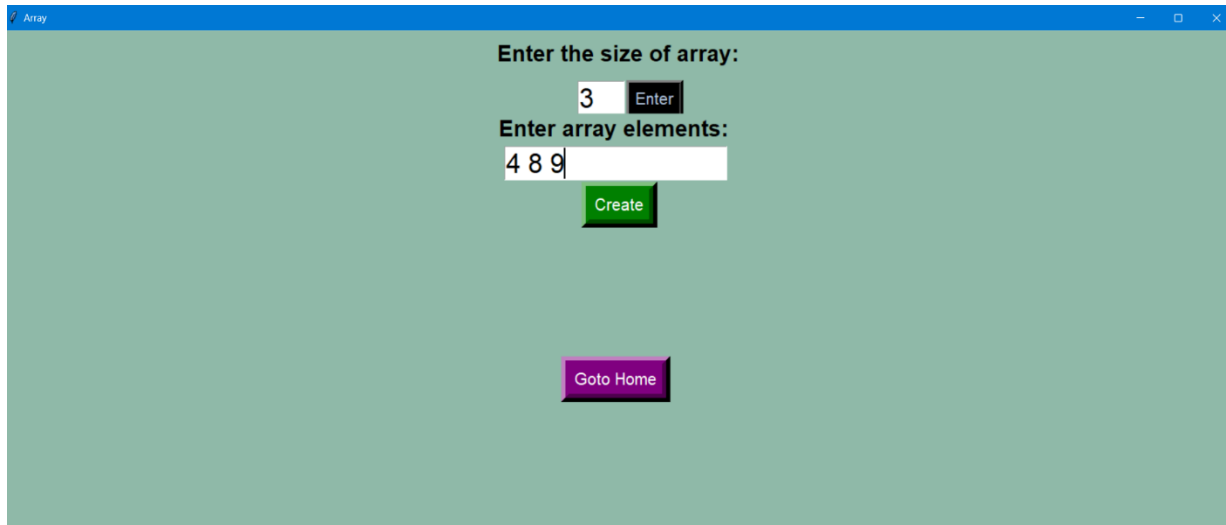
This is the user interface of python tkinter. It represent the array and link list.

GUI :



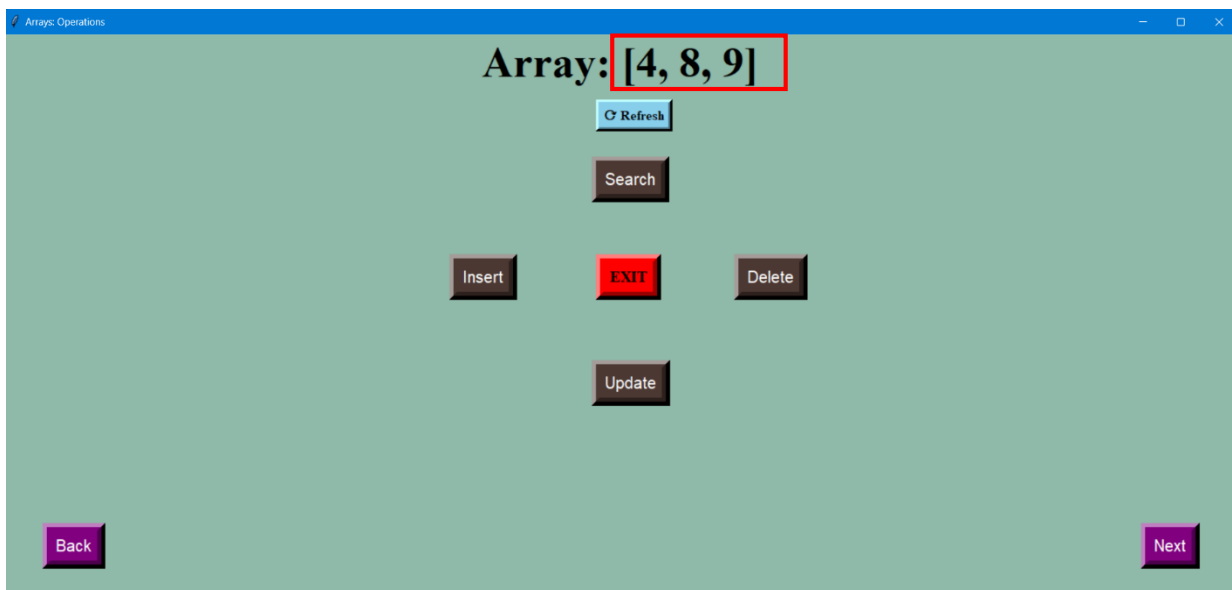
## Array :

➡ By pressing the Button “ARRAY” user are able to go the next page.



The screenshot shows a window titled "Array" with a light green background. It contains two input sections. The first section is labeled "Enter the size of array:" and has a text box with the number "3" and an "Enter" button. The second section is labeled "Enter array elements:" and has a text box containing "4 8 9" and a green "Create" button. At the bottom center, there is a purple "Goto Home" button.

User Input : User can input array elements here .



The screenshot shows a window titled "Arrays: Operations" with a light green background. At the top, it displays "Array: [4, 8, 9]" where the array is enclosed in a red box. Below this, there are several buttons: a light blue "Refresh" button, a dark grey "Search" button, a dark grey "Insert" button, a red "EXIT" button, a dark grey "Delete" button, and a dark grey "Update" button. At the bottom left is a purple "Back" button, and at the bottom right is a purple "Next" button.

➡ Press the CREATE Button for create the Array.

➡By Pressing INSERT ,SEARCH ,DELETE and UPDATE button user can Insert, search ,delete and update the array elements respectively .

★ Insert Operation ★

Enter the element you want to insert: [4, 8, 9]

Insert By Value:

Insert By Index No:

Insert

After inserting 6

Updated array: [4, 8, 9, 6]

Back Next

★ Insert Operation ★

Array: [4, 8, 9, 6]

Enter the Index No:

Enter the Value:

Insert

After inserting 7 at Position: 2 (including 0)

Updated array: [4, 8, 7, 9, 6]

Back Next

★ Search Operation ★

Enter the element you want to search: [4, 8, 9]

Search

4 Found at Position 1

Back Next

★ Search Operation ★

Enter the element you want to search: [4, 8, 9]

Search

4 Found at Position 1

Back Next

★ Delete Operation ★

Enter the value you want to delete from the Array: [4, 8, 7, 9, 6]

Delete By Value:

Delete By Index No:

Delete

After deleting: 4

Updated array: [8, 7, 9, 6]

Back Next

★ Delete Operation ★

Enter the index number you want to delete from the Array (including 0): [8, 7, 9, 6]

Delete

After deleting index No: 2 (including 0)

Updated array: [8, 7, 6]

Back Next

★ Update Operation ★

Array: [8, 7, 6]

Enter Existing Value:

Enter New Value:

Update

After Updating 7 by 33

Updated array: [8, 33, 6]

Back Next

★ Update Operation ★

Array: [8, 7, 6]

Enter Existing Value:

Enter New Value:

Update

After Updating 7 by 33

Updated array: [8, 33, 6]

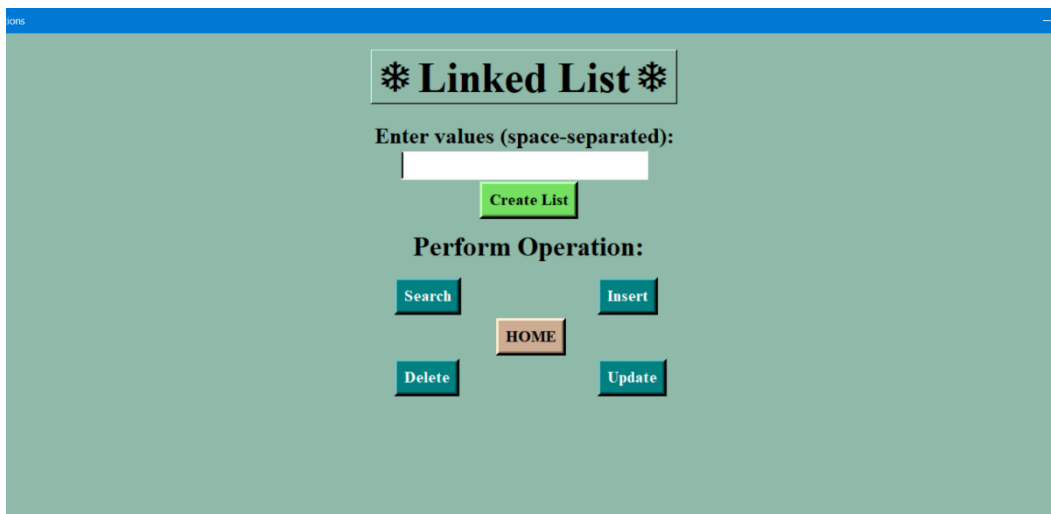
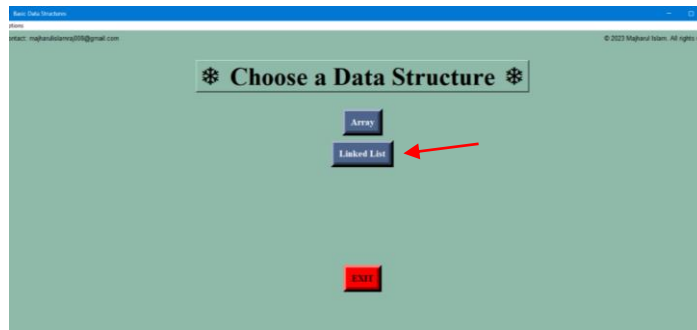
Back Next

➡ Press the back button for backwards .

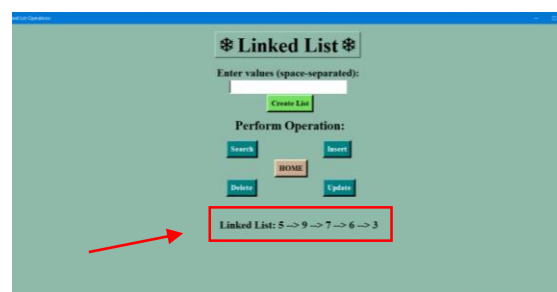
## Linked List



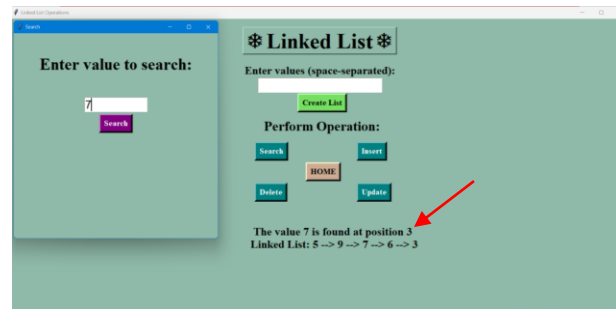
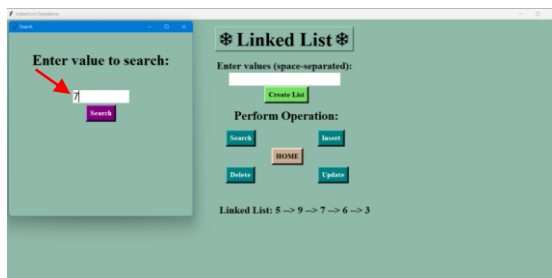
By pressing the button “LINKED LIST “ user are able to go the next page .



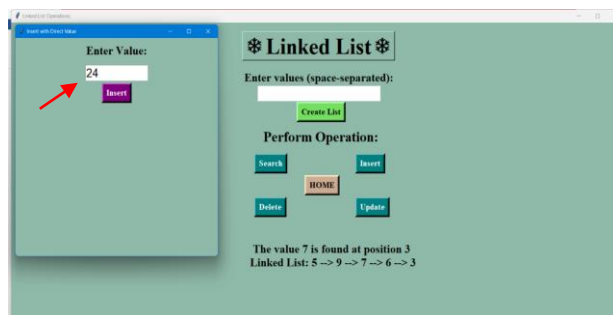
➡ User can Enter values and create list first.



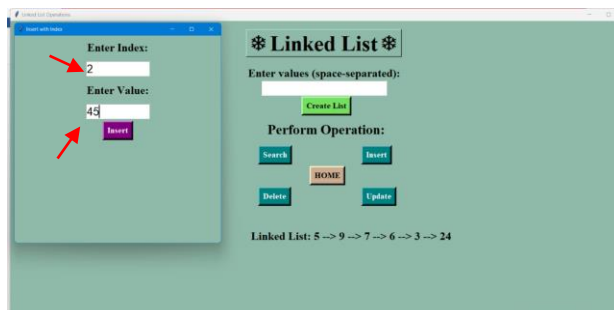
➡ User can search a number to find its position .



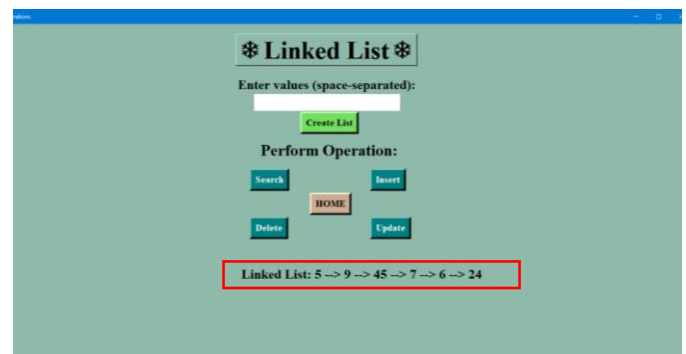
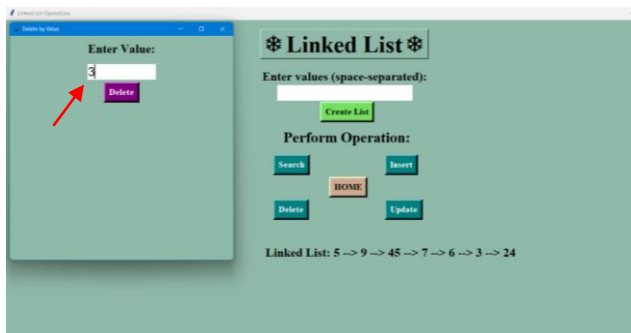
➡ For inserting a number user can insert any number and click the insert button . It will work.



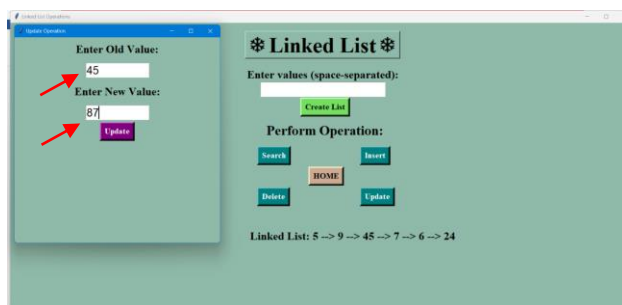
➡ For inserting a value in the 3<sup>rd</sup> position user can insert index number and enter the value .



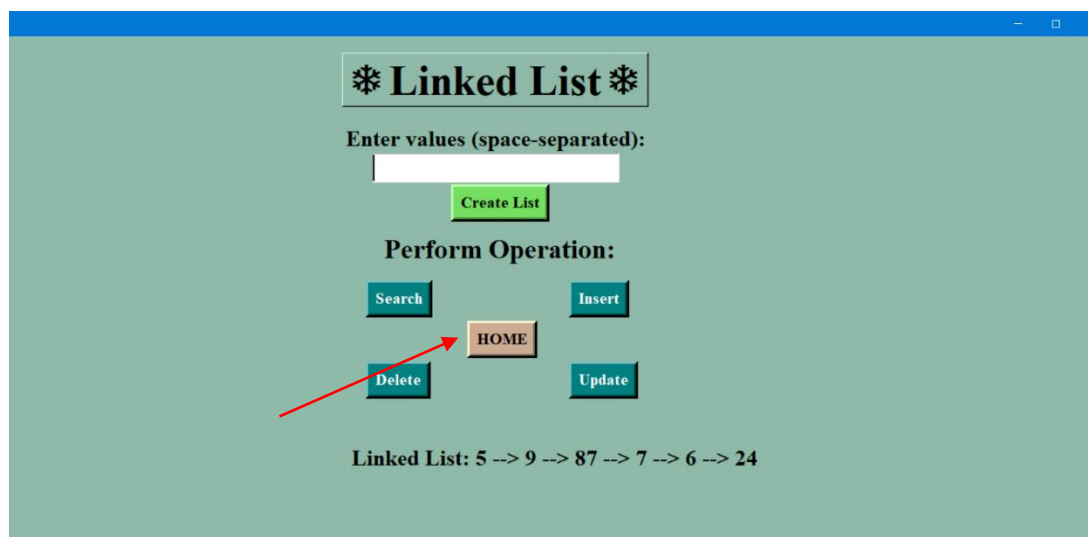
➡ For deleting the value user can take a value for delete .



➡ For updating the new value user can work like that .



➡ By Clicking the Home button it back to the home page .





#### **4.Dependencies**

**Pycharm Community Edition** : PyCharm is an integrated development environment (IDE) specifically designed for Python development. After using python language in pycharm the project run successfully .

22 June ,2023

North Western University

Khulna,Bangladesh