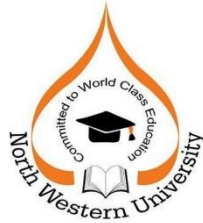


NORTH WESTERN UNIVERSITY



Report

Course Code: CSE-2104

Course Title: Data Structures Sessional

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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.

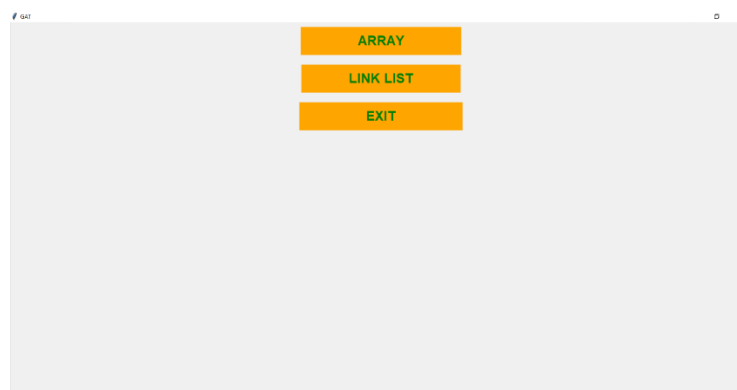
2.Objective

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

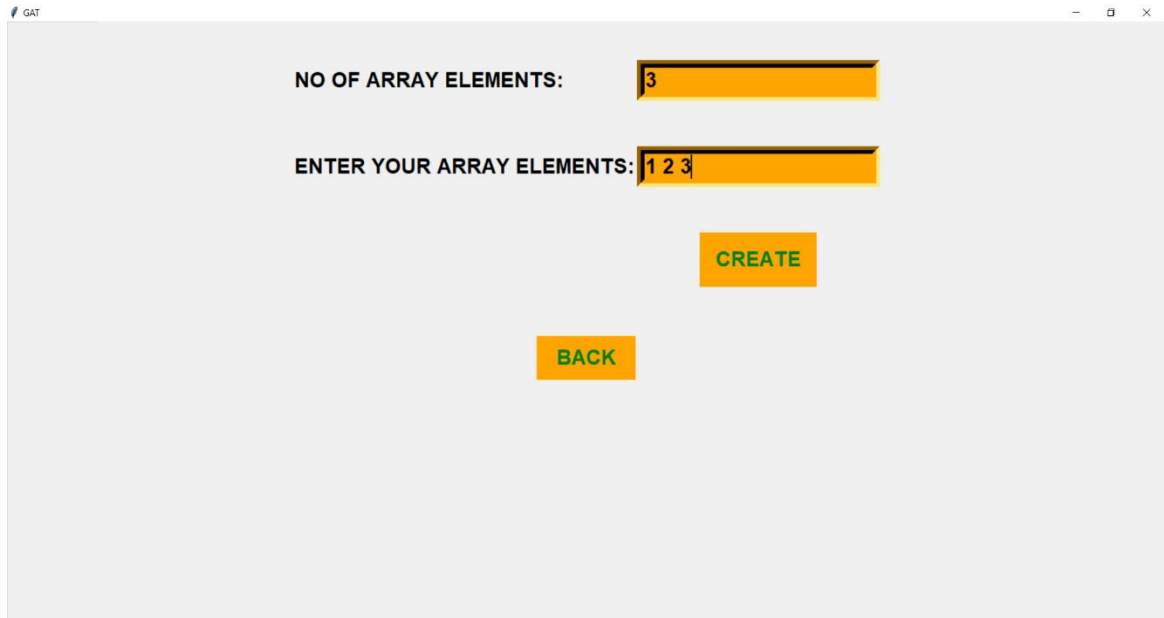
➡ This is the user interface of python tkinter. It represents the array and link list.

GUI:



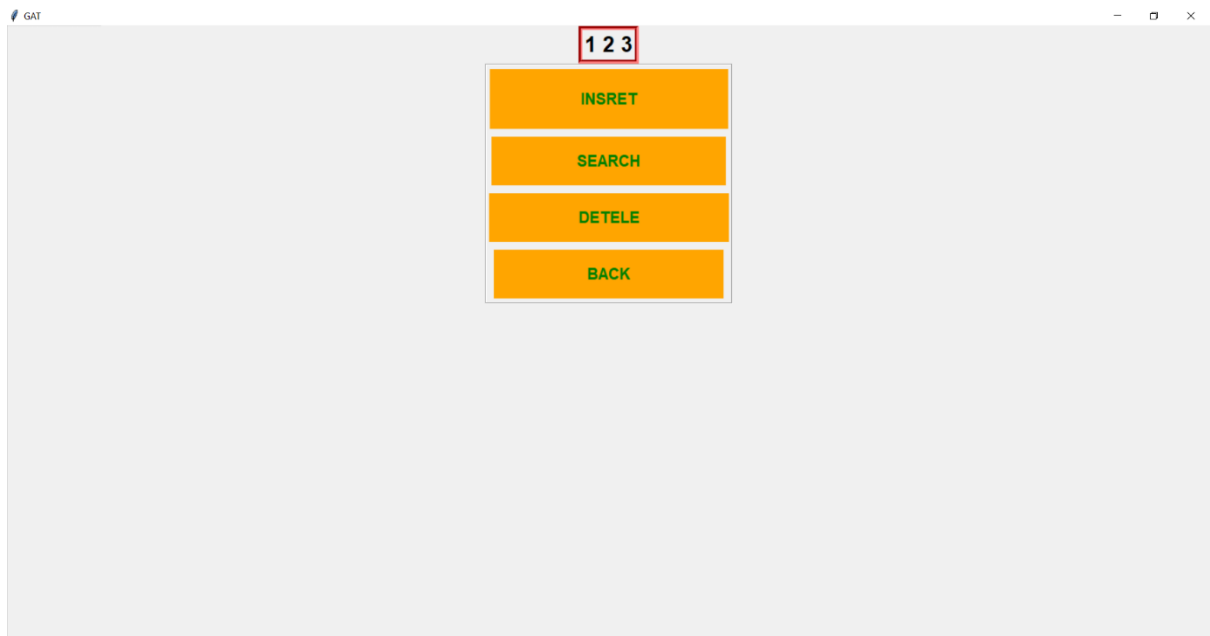
Array:

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



A screenshot of a web application window titled "GAT". The interface has a light gray background. It contains two text input fields with orange borders. The first field is labeled "NO OF ARRAY ELEMENTS:" and contains the number "3". The second field is labeled "ENTER YOUR ARRAY ELEMENTS:" and contains the numbers "1 2 3". Below these fields are two orange buttons: "CREATE" and "BACK".

User Input: User can input array elements here.



A screenshot of a web application window titled "GAT". The interface has a light gray background. At the top, there is a text input field with the numbers "1 2 3" inside, which is highlighted with a red border. Below this field is a vertical stack of four orange buttons: "INSRET", "SEARCH", "DETELE", and "BACK".

➡ Press the CREATE Button for create the Array.

➡ By pressing INSERT,SEARCH and DELETE button user can Insert,search and delete the array elements respectively

A screenshot of a web application window titled "GAT". It features three orange buttons stacked vertically: "INDEX", "VALUE", and "BACK".

A screenshot of the application window showing an update operation. At the top, a text input contains "1 2 3". Below it, "INDEX NO:" is followed by a text input with "4". "VALUE:" is followed by a text input with "4". At the bottom are two orange buttons: "UPDATE" and "BACK".

A screenshot of the application window showing a create operation. At the top, a text input contains "1 2 3 4". Below it, a text input contains "2". At the bottom are three orange buttons: "CREATE", "BACK", and "DELETE".

A screenshot of the application window showing a search operation. At the top, a text input contains "2 Found With Index2". Below it are four orange buttons stacked vertically: "INSRET", "SEARCH", "DETELE", and "BACK".

A screenshot of the application window showing a delete operation. At the top, a text input contains "1 2 3". Below it, "INDEX NO:" is followed by a text input with "1". At the bottom are two orange buttons: "ENTER" and "BACK".

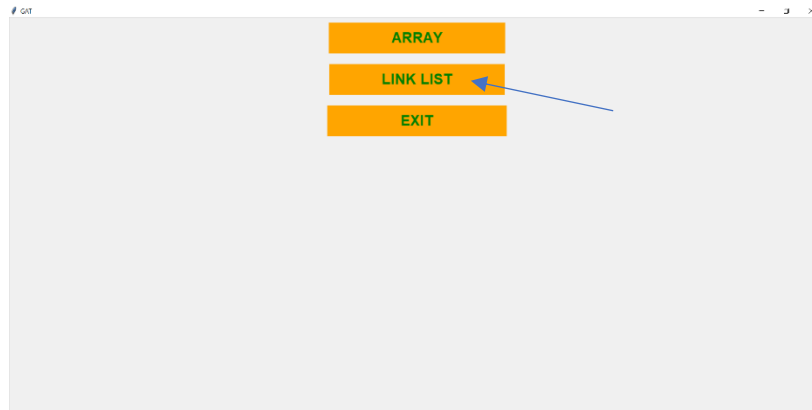
A screenshot of the application window showing an insert operation. At the top, a text input contains "1 2 3". Below it, a text input contains "1 3". At the bottom are four orange buttons stacked vertically: "INSRET", "SEARCH", "DETELE", and "BACK".

➡ Press the back button for backwards.

A screenshot of the application window showing the search screen. The text input at the top contains "1 2 3", and the input below it contains "1 3". The four orange buttons ("INSRET", "SEARCH", "DETELE", "BACK") are at the bottom. A blue arrow points to the "BACK" button.

Link List:

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



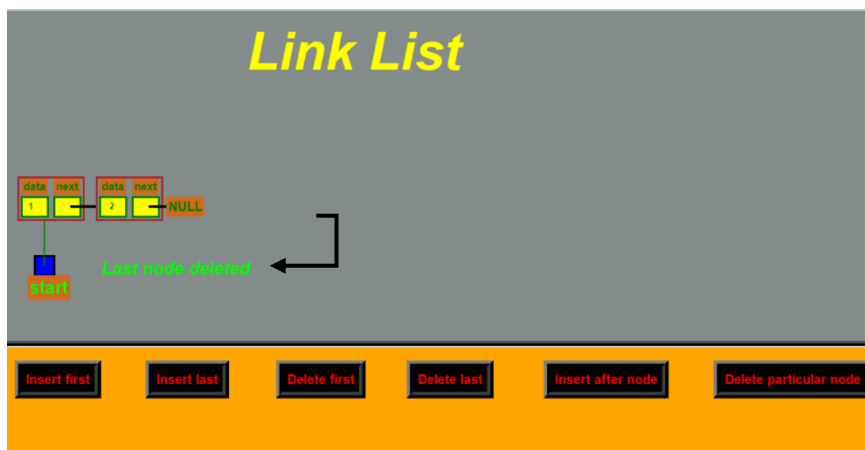
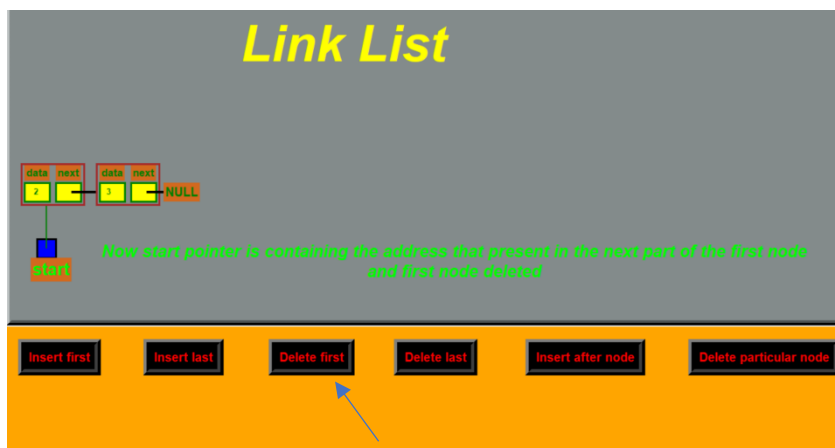
➡ User can insert a null by pressing the button Insert first.



➡ User can insert a null after the first node by pressing the button “Insert last”



➡ For deleting a node user can use “Delete first” or “Delete last button”.It works first and last node delete respectively.



➡ “Insert after node” button use for insert a null after a particular node and “Delete particular node” button use for delete a particular node only.



4.Dependencies

Visual Studio Code IDE: Visual Studio Code IDE quickly and easily run the python code. For built the project we use python language. After install all the extension for python language in visual studio code the project run successfully.

20 June, 2023

North Western University

Khulna, Bangladesh