UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Data Structure and Algorithm

Laboratory Activity No. 6

Singly Linked Lists

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I. Objectives

Introduction

A linked list is an organization of a list where each item in the list is in a separate node. Linked lists look like the links in a chain. Each link is attached to the next link by a reference that points to the next link in the chain. When working with a linked list, each link in the chain is called a Node. Each node consists of two pieces of information, an item, which is the data associated with the node, and a link to the next node in the linked list, often called next.

This laboratory activity aims to implement the principles and techniques in:

- Writing algorithms using Linked list
- Writing a python program that will perform the common operations in a singly linked list

II. Methods

- Write a Python program to create a singly linked list of prime numbers less than 20. By iterating through the list, display all the prime numbers, the head, and the tail of the list. (using Google Colab)
- Save your source codes to GitHub

III. Results

```
Enter a number: 20
Prime numbers less than 20 in the linked list:
2 -> 3 -> 5 -> 7 -> 11 -> 13 -> 17 -> 19 -> None
Head of the list: 2
Tail of the list: 19
```

Figure 1.0 Singly Linked list

In this program, it demonstrates the usage of singly linked list. You'll must start at creating a node and assigning the next = None. The program also allows user input to manage finding the prime number and displaying it. Singly linked list is a linear data structure where Nodes are connected to one after another using pointers (e.g. head, tail, next).

IV. Conclusion

In conclusion, singly Linked list use to organize the data as it is a linear data structure that use pointers. Data is the actual value, while next is the pointers, head is the first node, and tail is the last (end of the list).

References

[1] Co Arthur O.. “University of Caloocan City Computer Engineering Department Honor Code,” UCC-CpE Departmental Policies, 2020.