Data Structure and Algorithm

Laboratory Activity No. 6

Singly Linked Lists

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# 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

# 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

# Results

Present the visualized procedures done. Also present the results with corresponding data visualizations such as graphs, charts, tables, or image . Please provide insights, commentaries, or explanations regarding the data. If an explanation requires the support of literature such as academic journals, books, magazines, reports, or web articles please cite and reference them using the IEEE format.

Please take note of the styles on the style ribbon as these would serve as the style format of this laboratory report. The body style is Times New Roman size 12, line spacing: 1.5. Body text should be in Justified alignment, while captions should be center-aligned. Images should be readable and include captions. Please refer to the sample below:

A screen shot of a computer program

AI-generated content may be incorrect.

Figure 1 Screenshot of program

The Node class is defined in order to generate additional nodes for a single linked list. Each prime number will then be added to the linked list once numbers two through nineteen have been checked. The tail is updated by adding each new prime number at the end, with the initial prime number serving as the head. The values of the list's head and tail are then displayed once the code has built the list and printed all the prime integers in sequence.

A screenshot of a computer

AI-generated content may be incorrect.

Figure 1 Screenshot of program

This is the result of the code in the google collab

# Conclusion

In this code I learned does the node command will create the node for the singly linked list, since we know what are the commands of the head and tails this make this activity a little bit easier for us, after the first prime of the head a new prime will be added at the end, and will update the tail, so it will display the head and the tails.

**References**

**Paul E. Black. (2022, January 24).** *singly linked list*. In *Dictionary of Algorithms and Data Structures* [Online]. In *linked list* entry. National Institute of Standards and Technology. Accessed August 23, 2025.