SKILL TEST	
Course Code: CPE 201L	**Program:** BSCPE
Course Title: Data Structure and Algorithm	**Date Performed:** 08/30/25
Section: 2A	**Date Submitted:** 08/30/25
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1.Objectives

- To understand and implement the concept of singly linked lists in Python.
- To demonstrate how data can be stored and traversed using nodes and pointers.

2. Discussion

A linked list is a linear data structure where each element called a node contains data and a reference to the next node. Unlike arrays, linked lists don't require contiguous memory, which makes them more flexible for dynamic data storage. I created two classes, Node and LinkedList. The Node class holds the data and the pointer to the next node, while the LinkedList class manages the list itself. I used a string my full name as the data source and appended each character to the list. Then I traversed the list to print each character, showing how the data flows through the nodes.

3. Materials and Equipment

- Desktop Computer with Google Colab
- Window Operating System

4. Procedure

1. Defined a Node class with data and next attributes.
2. Created a LinkedList class with methods to append data and traverse the list.
3. Stored my full name in a variable called name.
4. Used a for loop to iterate through each character in the name and appended it to the linked list.
5. Call the traverse method to print each character from the list.

Source Code:

```
class Node:
    def __init__(self, data):
        self.data = data
        self.next = None

class LinkedList:
    def __init__(self):
        self.head = None

    def append(self, data):
        new_node = Node(data)
        if not self.head:
            self.head = new_node
            return
        current = self.head
        while current.next:
            current = current.next
        current.next = new_node
```

```
    def traverse(self):
        current = self.head
        while current:
            print(current.data)
            current = current.next

name = "BRYAN ONTUCA VILLANUEVA"
linked_list = LinkedList()

for char in name:
    linked_list.append(char)

linked_list.traverse()
```

5. Output

Screenshot of your output based on the procedures.

```
B
R
Y
A
N

O
N
T
U
C
A

V
I
L
L
A
N
U
E
V
A
```

6. Conclusion

This activity helped me understand how linked lists work and why they are useful in coding. I saw how each letter in my name could be saved in its own node and connected to the next one. Writing the code by myself made it easier to learn how pointers work and how to organize data step by step. I also learned that linked lists are good when you don't know how much data you'll have, or when the size changes often. Seeing how each part connects helped me understand how data moves in a program.

Lab Activity Rubric

Criteria	Ratings						Pts
SO 7 PI 1 **Student Outcome 7.1** Acquire and apply new knowledge from outside sources. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 **Student Outcome 7.2** Learn independently threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 **Student Outcome 7.3** Critical thinking in the broadest context of technological change threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 **Student Outcome 7.4** Creativity and adaptability to new and emerging technologies threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts
						Total Points: 24	