Quiz No. 1 Skill Test	
Course Code: CPE 201L	**Program: BSCpE**
Course Title: Data Structure and Algorthms(Lab)	**Date Performed: 30/08/25**
Section: 2-A	**Date Submitted:30/08/25**
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1.Objectives

1. Choose only one(1) Data Structure (Array, Linked-List(Singly, Double), Stock, Queue)
2. Create a python program that appends each character of your Fullname and and traverse each character.
3. Save your Python program as Skill-Test in your Colab and Github.

2. Discussion

In this Skill-Test exam, I use Stack as my data structure to create a python program that appends each character of my fullname "STEVEN JADE PAGAL BARBAS" and traverse each character. A stack is a data structure that follows the Last-In-First-Out (LIFO) principle, where the last element added is the first one to be removed. It uses two main operations: push to add elements and pop to remove them.

3. Materials and Equipment

- Python
- Google Colab
- Github

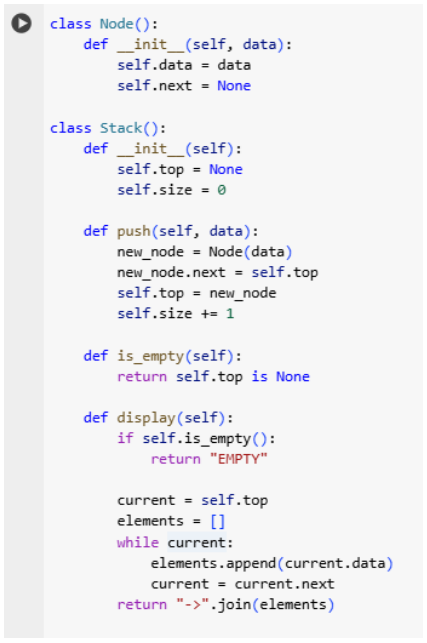
4. Procedure

1. I create a Node class to save each character and point to the next one
2. I create a Stack class with these operations:
- push() - add character to top
- display() - show all characters in stack
- traverse() – read all characters in satck

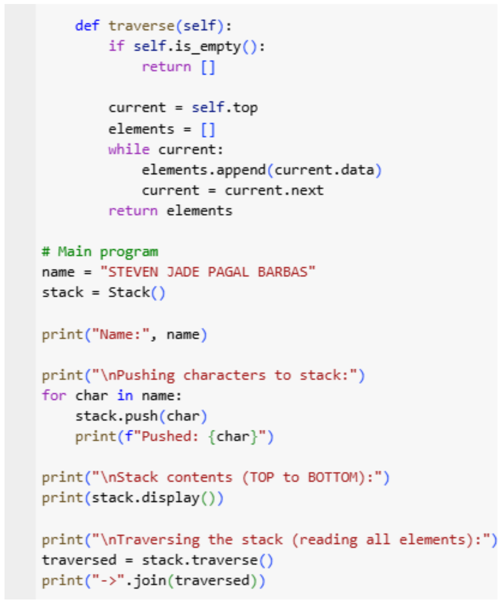
3. Input name "STEVEN JADE PAGAL BARBAS"
4. Push each character into the stack one by one
- Push 'S' → Push 'T' → Push 'E' → ... until last 'S'

5. Display the stack contents
- Shows: S->A->B->R->A->B-> ->L->A->G->A->P-> ->E->D->A->J-> ->N->E->V->E->T->S

6. Traverse the stack by reading from top to bottom
- The display shows the same order because we're just reading, not removing.

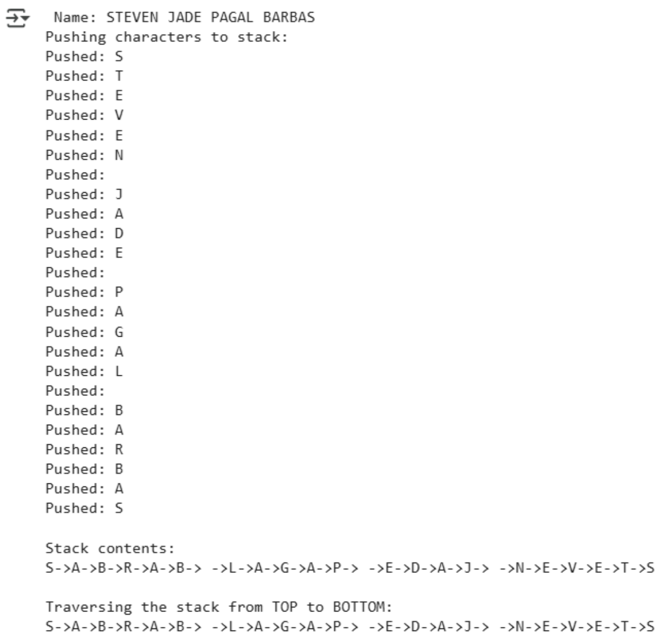


```python
class Node():
    def __init__(self, data):
        self.data = data
        self.next = None

class Stack():
    def __init__(self):
        self.top = None
        self.size = 0

    def push(self, data):
        new_node = Node(data)
        new_node.next = self.top
        self.top = new_node
        self.size += 1

    def is_empty(self):
        return self.top is None

    def display(self):
        if self.is_empty():
            return "EMPTY"

        current = self.top
        elements = []
        while current:
            elements.append(current.data)
            current = current.next
        return "->".join(elements)
```



```python
    def traverse(self):
        if self.is_empty():
            return []

        current = self.top
        elements = []
        while current:
            elements.append(current.data)
            current = current.next
        return elements

# Main program
name = "STEVEN JADE PAGAL BARBAS"
stack = Stack()

print("Name:", name)

print("\nPushing characters to stack:")
for char in name:
    stack.push(char)
    print(f"Pushed: {char}")

print("\nStack contents (TOP to BOTTOM):")
print(stack.display())

print("\nTraversing the stack (reading all elements):")
traversed = stack.traverse()
print("->".join(traversed))
```

5. Output

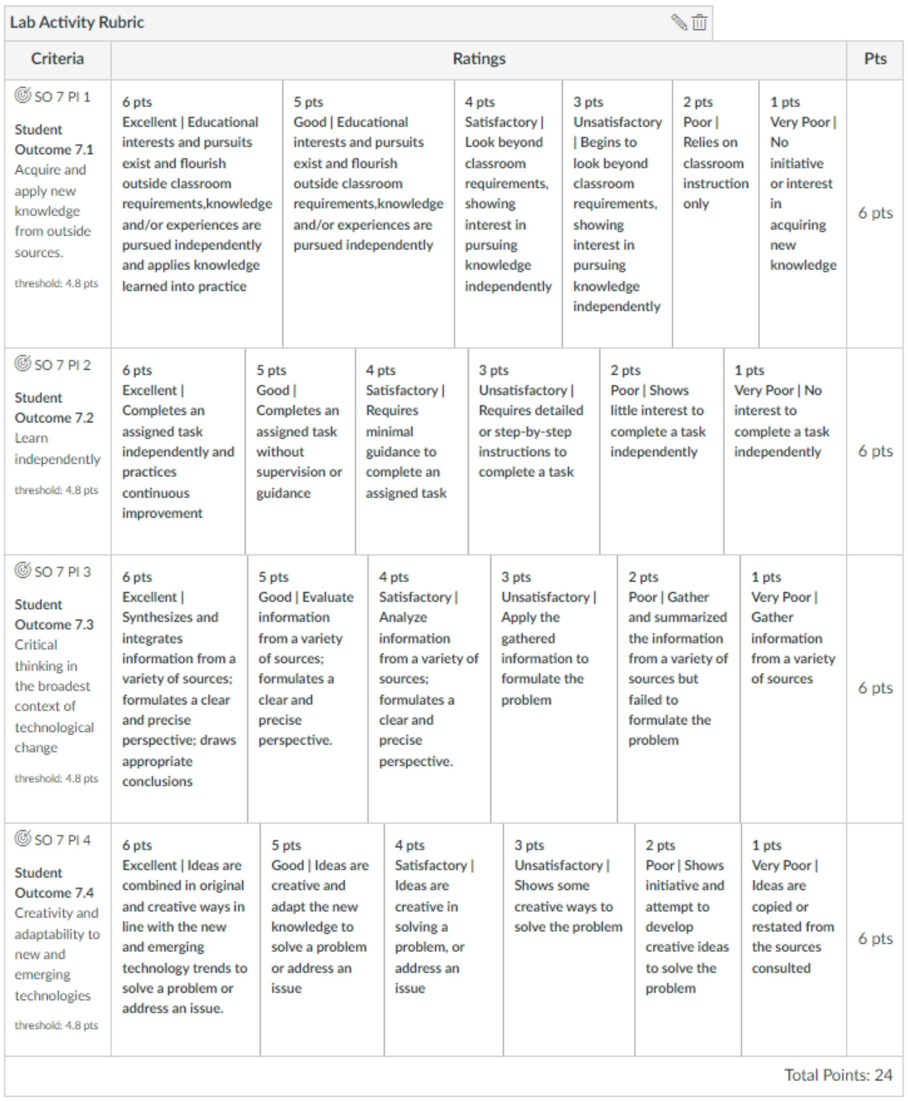


```
Name: STEVEN JADE PAGAL BARBAS
Pushing characters to stack:
Pushed: S
Pushed: T
Pushed: E
Pushed: V
Pushed: E
Pushed: N
Pushed: 
Pushed: J
Pushed: A
Pushed: D
Pushed: E
Pushed: 
Pushed: P
Pushed: A
Pushed: G
Pushed: A
Pushed: L
Pushed: 
Pushed: B
Pushed: A
Pushed: R
Pushed: B
Pushed: A
Pushed: S

Stack contents:
S->A->B->R->A->B-> ->L->A->G->A->P-> ->E->D->A->J-> ->N->E->V->E->T->S

Traversing the stack from TOP to BOTTOM:
S->A->B->R->A->B-> ->L->A->G->A->P-> ->E->D->A->J-> ->N->E->V->E->T->S
```

In this output, it display the name "STEVEN JADE PAGAL BARBAS" and apply pushing each characters in stack. And it also display the stack contents and traversing the stacks from top to bottom and display it again.

7. Conclusion

In conclusion, I'm able to execute the data structure stack in this Skill-Test Exam. I successfully apply Last-In-First-Out principle and stored each character of my name in the stack and traverse each character. The program showed how pushing add items to the top and traverse the items to read each characters. This activity helped me understand how the stack's Last-In-First-Out principle works in practice.



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