Quiz No. 1 Skill Test	
Course Code: CPE 201L	**Program: BSCpE**
Course Title: Data Structure and Algorithms(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
```

7. Conclusion

In conclusion, I'm able to execute the data structure stack in this Skill-Test Exam. I successfully stored each character of my name in the stack and traverse each character. 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	