



**K.R. MANGALAM UNIVERSITY**  
THE COMPLETE WORLD OF EDUCATION

## **ACADEMIC SESSION 2025-26**

### **Odd Semester**



## **SINGLY LINK LIST OPERATION**

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```
# Singly Linked List Implementation (Insert, Delete, Search,  
Display)
```

```
class Node:  
    def __init__(self, data):  
        self.data = data  
        self.next = None  
  
class SinglyLinkedList:  
    def __init__(self):  
        self.head = None  
  
    # INSERT at end  
    def insert(self, data):  
        new_node = Node(data)  
  
        if self.head is None:  
            self.head = new_node  
            return  
  
        temp = self.head  
        while temp.next:  
            temp = temp.next  
  
        temp.next = new_node  
  
    # DELETE a node by value
```

```
def delete(self, key):
    temp = self.head

    # Case 1: head node to delete
    if temp and temp.data == key:
        self.head = temp.next
        print(f"{key} deleted.")
        return

    # Case 2: search for the key
    prev = None
    while temp and temp.data != key:
        prev = temp
        temp = temp.next

    if temp is None:
        print(f"{key} not found.")
        return

    prev.next = temp.next
    print(f"{key} deleted.")

# SEARCH a value
def search(self, key):
    temp = self.head
    pos = 1
    while temp:
```

```
if temp.data == key:  
    print(f"{key} found at position {pos}.")  
    return  
temp = temp.next  
pos += 1  
print(f"{key} not found.")  
  
# DISPLAY the list  
def display(self):  
    if self.head is None:  
        print("List is empty.")  
        return  
  
    temp = self.head  
    while temp:  
        print(temp.data, end=" -> ")  
        temp = temp.next  
    print("NULL")  
  
# ----- MAIN PROGRAM ----- #  
  
ll = SinglyLinkedList()  
  
while True:  
    print("\n--- Singly Linked List Menu ---")  
    print("1. Insert")
```

```
print("2. Delete")
print("3. Search")
print("4. Display")
print("5. Exit")

choice = int(input("Enter your choice: "))

if choice == 1:
    val = int(input("Enter value to insert: "))
    ll.insert(val)

elif choice == 2:
    val = int(input("Enter value to delete: "))
    ll.delete(val)

elif choice == 3:
    val = int(input("Enter value to search: "))
    ll.search(val)

elif choice == 4:
    ll.display()

elif choice == 5:
    print("Exiting...")
    break

else:
```

```
print("Invalid choice! Try again.")
```