Lab Assignment 2
Subject:Data Structure Lab
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Input:

```python
print("--- MENU ---")
print("1. Linear search")
print("2. Binary search")
print("3. Exit")

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

if choice == 1:
    print("\n--- Linear Search ---")
    li = []
    n = int(input("Enter the total number of customers: "))

    for i in range(1, n + 1):
        y = int(input(f"Enter customer ID of {i}: "))
        li.append(y)

    search = int(input("Enter a customer ID to find: "))

    if search in li:
        print("Customer ID is Found")
    else:
        print("Customer ID not found")

elif choice == 2:
    print("\n--- Binary Search ---")
    li = []
    n = int(input("Enter the total number of customers: "))

    for i in range(1, n + 1):
        y = int(input(f"Enter customer ID of {i}: "))
        li.append(y)

    li.sort()
    target = int(input("Enter the customer ID to find: "))

    def binary(li, target):
        low = 0
        high = len(li) - 1

        while low <= high:
            mid = (low + high) // 2
            if li[mid] == target:
                return mid
            elif li[mid] < target:
```

```python
                low = mid + 1
            else:
                high = mid - 1
        return -1

    search = binary(li, target)

    if search != -1:
        print(f"Customer is found: {target} at position {search+1}")
    else:
        print("ID is Not found")


elif choice == 3:
    print("Exiting...")

else:
    print("Invalid choice")
```

Output:

```
--- MENU ---
1. Linear search
2. Binary search
3. Exit
Enter your choice: 1

--- Linear Search ---
Enter the total number of customers: 3
Enter customer ID of 1: 1
Enter customer ID of 2: 2
Enter customer ID of 3: 3
Enter a customer ID to find: 2
Customer ID is Found
PS C:\Users\ADMIN\Desktop\python folder> ^C
PS C:\Users\ADMIN\Desktop\python folder>
PS C:\Users\ADMIN\Desktop\python folder>  c:; cd 'c:\Users\ADMIN\Desktop\python folder'; & 'c:\Users\ADMIN\AppData\Local\Microsoft\Wi
ps\python3.11.exe' 'c:\Users\ADMIN\.vscode\extensions\ms-python.debugpy-2025.10.0-win32-x64\bundled\libs\debugpy\launcher' '62768' '-
Users\ADMIN\Desktop\python folder\Assignment 2'
--- MENU ---
1. Linear search
2. Binary search
3. Exit
Enter your choice: 2

--- Binary Search ---
Enter the total number of customers: 3
Enter customer ID of 1: 1
Enter customer ID of 2: 2
Enter customer ID of 3: 3
Enter the customer ID to find: 3
Customer is found: 3 at position 3
```