Lab Assignment 12

Objective:

To work with Linked List and Searching using Python

Assignment:

Create a linear linked list and implement a search algorithm to search through its values. Write a menu-driven program that has the option to create a linked list by accepting user input integer values, display the list and search for an element from the list.

Menu:

1. **Add to the list**
2. **Display the list**
3. **Search from the list**
4. **Exit**

For option 1, the program should accept any number of integer values from the user and continue to prompt the user for values until they are done. For option 2, all the elements in the linked list should be displayed. For option 3, the program should ask the user to enter a value to be searched from the list. If the value is in the list, then it should display as "Element found", otherwise "Element not found" messages. The only option to exit from the program is through option 4.

Note: *You need to define a linked list data structure with nodes having data and a pointer to the next node.*

Sample output:

```
student@CSCILab21:~/Desktop$ python3 test12.py

----Menu----

1. Add to list
2. Display List
3. Search List
4. Exit

What would you like to do? 1

Enter a number for your list: 15

Would you like to add another? (Y or N)?Y

Enter a number for your list: 16

Would you like to add another? (Y or N)?Y

Enter a number for your list: 23

Would you like to add another? (Y or N)?Y

Enter a number for your list: 1

Would you like to add another? (Y or N)?N
```

```
----Menu----

1. Add to list
2. Display List
3. Search List
4. Exit

What would you like to do? 2

The linked list is:
15
16
23
1

Would you like to go back to menu? (Y or N)? Y
```

```
----Menu----

1. Add to list
2. Display List
3. Search List
4. Exit

What would you like to do? 3

What would you like to search for?: 23

Element is in list

Would you like to search again? (Y or N)? Y

What would you like to search for?: 13

Element not Found

Would you like to search again? (Y or N)? N
```

```
----Menu----

1. Add to list
2. Display List
3. Search List
4. Exit

What would you like to do? 4

Goodbye.
student@CSCILab21:~/Desktop$
```

Instructions:

- Preferred programming environment:
    - OS : Linux (Mint)
    - Interpreter : Python 3 (not Python 2)
    - Editor : gedit or editor of your choice
- The program is saved as a file with .py extension.

- The program should include a comment block at the top with your name, course number, and course section, assignment number

  For example:

  ```
  # Your name
  # CSCI II 161 L01/L02
  # Assignment 12
  ```

- Upload your file as your ***lastname_firstname_assignmentnumber.py***

For example:

lastname_firstname_12.py