

In this assignment you are to write a Python program that:

- takes a value  $n$  as a user input,
- creates a singly linked list of  $n$  nodes containing random values in a range from 0 to 100, and
- sorts the list using selection sort algorithm.

Inputs	Outputs
-number of nodes in the linked list $n$ .	-data in list before sorting, head node data, tail node data; -data in list after sorting, head node data, tail node data.

Following are few runs of the program for your reference:

Please, enter the number of nodes: 5

Unsorted list: 94 72 21 3 34

Head data: 94

Tail data: 34

Sorted list: 3 21 34 72 94

Head data: 3

Tail data: 94

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Please, enter the number of nodes: 10

Unsorted list: 89 40 94 29 83 30 46 6 99 47

Head data: 89

Tail data: 47

Sorted list: 6 29 30 40 46 47 83 89 94 99

Head data: 6

Tail data: 99

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Please, enter the number of nodes: -5

Please, enter correct value for number of nodes: five

Please, enter correct value for number of nodes: 3

Unsorted list: 29 7 74

Head data: 29

Tail data: 74

Sorted list: 7 29 74

Head data: 7

Tail data: 74

Few important things to consider:

- You must implement your own **linked list abstract data structure**, including methods for **iterating through items**, **appending items**, etc.
- You must implement your own **selection sort algorithm** and apply it on the linked list. **Hint:** you only need to swap **data part** of the nodes.
- Follow proper **object-oriented approach**: use classes, objects, constructors, accessors, mutators, methods.
- Follow **good coding style**: include a proper header, give meaningful names to variables/classes/methods, comment your code thoroughly.
- Implement proper **input validation**. E.g., your code should not crash if user provides a negative value or a character.

\*\*\*You must properly cite the sources if you use **any help** from peers or **any code/ideas** from online resources. **Failure to do so will be treated as a plagiarism.** Properly citing the sources should be done as a **comment** in your code. Some examples:

```
# found this code at: <source url>
# used idea from: <source url>
# <peer name> helped me with this part
```