

Assignment 2 (Total mark 20) Due date is on Nov 4th

Part A: Implementing a DoublySortedLinkedList (60% of the marks)

The class declarations has been created in the a1.py starter file.

```
def insert(self,data)
```

this function inserts data into the list such that the list stays sorted.

```
def remove(self,data)
```

This function finds and removes node containing data from the list. If a node containing data was found and removed, function returns True. If no such node was found (data was not in list), function returns False

```
def is_present(self,data)
```

This function returns true, if data is in the list, false otherwise

```
def __len__(self)
```

This function returns the number of values stored in the list.

Complete main function. Write a main program that initiates the sorted linked lists and uses all the above methods so that you can test your code (Won't be marked). At least it should have 5 nodes.

Part B: Drawings (25% of the mark)

For a sample test case that you use in main function illustrate how your program will run by diagrams. Illustrate the state of linked list, where for each operation like insert and remove show how the state of linked list will change (Word/ paint/manually drawing all accepted).

Part C Analysis: (15% of the marks)

Perform an analysis of the 4 functions you wrote with respect to the number of nodes in your list. Find the $O(f(n))$ functions and give reasons for your results.