Assn 2 - Q2 - Solution

- From Q1: Stack is implemented using a DHSL list as its data structure, and push() occurs at the tail of the linked list.
  - This signifies that the **top** of the Stack is at the **end** of the linked list.
- Considering the worst case scenario: \( n \gg 1 \)
  - Pushing one element -> \( O(1) \) since we can use the pointer **tail** to do the pushing (we do not need to traverse the linked list to add an element to the end of it).
  - Pushing \( n \) elements -> \( n \times O(1) \rightarrow O(n) \)
  - Popping one element -> \( O(n) \) since we must traverse the linked list to reach the penultimate node in order to pop the topmost element (i.e., in order to set the attribute **next** of the penultimate node to NULL).
  - Popping \( n \) elements -> \( n \times O(n) \rightarrow O(n^2) \)