CPP Programming

Noureddine Hamid - Redone Mahjoubi

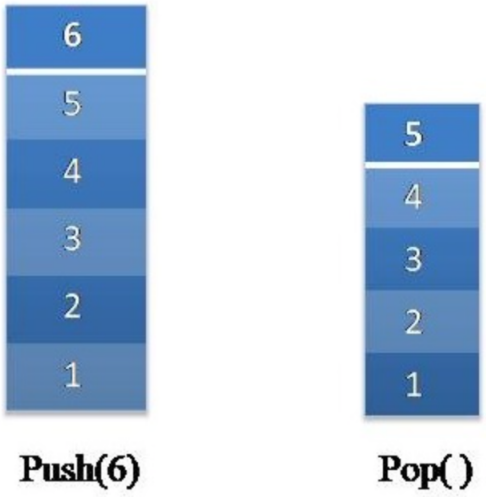
TP 00

Exercice 1:

Implement stack using linked list.
To implement a stack using a linked list, basically we need to implement the push() and pop() operations of a stack using linked list.

Input:
1,3,5,8,4,0

We push the numbers into the stack and whenever it executes a pop() operation, the number is popped out from the stack.



Algorithm:

To implement the push() operation:
- If the Linked list is empty then create a node and point it as head of that Linked List.
- If the Linked List is not empty then create a node with the input number to

be pushed and make it head of the Linked List.

To implement The pop() operation:
- If the Linked List is already empty then do nothing. Output that empty stack.
- If the Linked List is not empty then delete the node from head.

Exercice 2:

Reverse the linked List in groups of given size.
Given a linked list of size N. The task is to reverse every k nodes in the linked list.

Example:

$1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8$
The value of k is 2
The reversed linked list: $2 \rightarrow 1 \rightarrow 4 \rightarrow 3 \rightarrow 6 \rightarrow 5 \rightarrow 8 \rightarrow 7$

Exercice 3:

Eliminate duplicates from the linked list.

Example:

$1 \rightarrow 2 \rightarrow 3 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8$
The new linked list:
$1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8$