DSA Lab
Experiment number 07

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Aim: Implementation of Stack using Singly linked list

Algorithms:

Algorithm to Push an element onto stack:

Step 1: [INITIALIZE] New_node
Step 2: SET New_Node->Data = START
Step 3: New_Node->Next = TOP
Step 4: SET TOP = New_Node
Step 5: EXIT

Algorithm to Push an element onto stack:

Step 1: IF START == NULL
PRINT "Stack is already empty"
Goto Step 7
Step 2: [INITIALIZE] ptr
Step 3: SET ptr = TOP
Step 4: SET TOP = ptr->Next
Step 5: free(ptr)
Step 6: EXIT

Algorithm to Display element from stack:

Step 1: IF START == NULL
PRINT "Stack is already empty"
Goto Step 8
Step 2: [INITIALIZE] ptr
Step 3: SET ptr = TOP
Step 4: Repeat steps 5, 6 WHILE ptr->Next != NULL
Step 5: PRINT ptr->Data
Step 6: SET ptr = ptr-> Next
[End of loop]
Step 7: PRINT ptr -> Data
Step 8: EXIT

Algorithm to Peek element from stack:

Step 1: IF START == NULL
PRINT "Stack is already empty"
Goto Step 3
Step 2: PRINT TOP -> Data
Step 3: EXIT

Algorithm to find Size of stack:

Step 1: IF START == NULL
PRINT 0
[End If]
Step 2: [INITIALIZE] ptr, count=1
Step 3: SET ptr = TOP
Step 4: Repeat step 5 WHILE ptr->Next != NULL
Step 5: SET count = count + 1
[End of loop]
Step 7: PRINT count
Step 8: EXIT