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Ex. No.:7

Date :

Implementation of Stack using Linked List

Aim: To write a C-program to implement Stack using Linked List.

Program

```
/*This program demonstrate the linked implementation of stacks*/
#include <process.h>
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>

struct stack
{
    int no;
    struct stack *next;
} *top = NULL;

typedef struct stack st;
void push();
int pop();
void display();
int main()
{
        char ch;
        int choice, item;
        int flag = 1;
        do
        {
            printf("\n\n Enter your choice");
            printf(" \n\n\t 1: Push the elements");
            printf(" \n\n\t 2: Pop the elements");
            printf(" \n\n\t 3: To display the element");
            printf(" \n\n\t 4: Exit");
            printf("\n\n\n Enter of your choice:\t");
            scanf("%d",&choice);
            //clrscr();
            switch(choice)
            {
                case 1:
                    push();
                    break;
                case 2:
                    item = pop();
                    if(item != -1)
                    printf("poped item is %d", item);
                    break;
                case 3:
//                  clrscr();
```

```
                    display();
                    break;
                case 4:
                    flag=0;
                    break;
                default:
                printf("\n Invalid Choice");
            }
        }while(flag);
    getch();
}


void push()
{
    st *p;
    p = (st *) malloc (sizeof(st));
    printf("\n Enter the number");
    scanf("%d", &p->no);
    p->next = top;
    top = p;
}

int pop()
{
    st *p;
    p = top;
    if(top == NULL){
        printf("stack is already empty");
        return -1;
    }
    else
    {
            top = top -> next;
            return (p -> no);
            free(p);
    }
}

void display()
{
    st *p;
    p = top;
    while (p != NULL)
    {
        printf("\nno = %d", p -> no);
        p = p -> next;

    }
    if(top == NULL)
    printf("Stack is empty");
}
```