**stack-using-linked-list.c**

//write a program to implement stack using linked list.

#include <stdio.h>

#include <stdlib.h>

typedef struct Stack{

int data;

struct Stack \*next;

}stack;

int len(stack \*st){

int count = 0;

while(st){

st = st->next;

count++;

}

return count;

}

int isEmpty(stack \*st){

return (st == NULL);

}

void push(stack \*\*st, int data){

stack \*new\_node = (stack\*)malloc(sizeof(stack));

new\_node->data = data;

new\_node->next = \*st;

\*st = new\_node;

}

int pop(stack \*\*st){

stack \*temp = \*st;

\*st = (\*st)->next;

int data = temp->data;

free(temp);

return data;

}

void display(stack \*st){

while(st){

printf("%d ",st->data);

st = st->next;

}

printf("\n");

}

void main(){

stack \*st1 = NULL;

if(isEmpty(st1)){

printf("The stack is empty.\n");

}else{

printf("The stack is not empty.\n");

}

printf("the length of the stack is %d\n",len(st1));

push(&st1,10);

printf("the length of the stack is %d\n",len(st1));

push(&st1,102);

push(&st1,15);

push(&st1,13);

push(&st1,12);

display(st1);

printf("the length of the stack is %d\n",len(st1));

pop(&st1);

pop(&st1);

pop(&st1);

display(st1);

}

**OUTPUT**

PS S:\WorkSpace\CollegeWork\DataStructure\Temp> gcc .\stack-using-linked-list.c

PS S:\WorkSpace\CollegeWork\DataStructure\Temp> ./a

The stack is empty.

the length of the stack is 0

the length of the stack is 1

12 13 15 102 10

the length of the stack is 5

102 10

PS S:\WorkSpace\CollegeWork\DataStructure\Temp>