**Assignment No : 1.6**

**Title : Implementation of program based on stack using Linked list.**

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#include<iostream.h>

#include<conio.h>

class NODE

{

public:

int data;

NODE \*next;

};

class STACK

{

private:

NODE \*top;

public:

STACK();

void PUSH(int ele);

int POP();

void LIST\_ALL();

};

STACK::STACK()

{

top=NULL;

}

void STACK::PUSH(int ele)

{

NODE \*NEW = new NODE();

NEW -> data = ele;

NEW -> next = NULL;

NEW -> next = top;

top = NEW;

}

int STACK:: POP()

{

if(top==NULL)

{

cout<<"List is empty";

return NULL;

}

else

{

int ele = top -> data;

NODE \*TEMP = top;

top = top ->next;

delete TEMP;

return ele;

}

}

void STACK :: LIST\_ALL()

{

cout<<"\n List elements are: ";

if(top==NULL)

{

cout<<"List is empty";

}

else

{

NODE \*ptr;

ptr=top;

while(ptr!=NULL)

{

cout<<ptr ->data<<" ";

ptr=ptr->next;

}

}

}

void MENU()

{

int ch,ele;

STACK obj;

do

{

cout<<"\n1.PUSH";

cout<<"\n2.POP";

cout<<"\n3.LIST ALL";

cout<<"\n4.Exit";

cout<<"\n Enter your choice : ";

cin>>ch;

switch(ch)

{

case 1:

cout<<"Enter Element to Add in Stack :";

cin>>ele;

obj.PUSH(ele);

break;

case 2:

ele=obj.POP();

if(ele!=NULL)

cout<<ele<<"is deleted";

break;

case 3:

obj.LIST\_ALL();

break;

case 4:

return;

default:

cout<<"INVALID CHOICE";

}

} while(1);

}

void main()

{

clrscr();

MENU();

getch();

}