**Assignment No:-1.6**

**Assignment Title:-Implementation of Program based on Stack using Link 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();

};

void STACK::STACK()

{

top=NULL;

}

void STACK::PUSH(int ele)

{

//create a node

NODE \*NEW =new NODE();

if(NEW==NULL)

{

cout<<"STACK is full";

return;

}

//fill up the data

NEW->data= ele;

NEW->next=NULL;

//set the link

NEW->next=top;

top=NEW;

}

int STACK::POP()

{

if(top==NULL)

{

cout<<"stack is empty";

return NULL;

}

else

{

int ele=top->data;

NODE \*TEMP=top;

top=top->next;

delete TEMP;

return ele;

}

}

void STACK:: LIST\_ALL()

{

if(top==NULL)

{

cout<<"stack is empty";

}

NODE \*ptr;

ptr=top;

while(ptr != NULL)

{

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

ptr=ptr->next;

}

}

void MENU()

{

STACK obj;

int opt,ele;

do

{

cout<<"\n 1. PUSH";

cout<<"\n 2. POP";

cout<<"\n 3. LIST\_ALL";

cout<<"\n 4.EXIT";

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

cin>>opt;

switch(opt)

{

case 1:

cout<<"Enter your element: ";

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 OPTION";

}

}while(1);

}

void main()

{

clrscr();

MENU();

getch();

}