Stack using Linked List

**ALGORITHM**

**Input**: Elements of the stack by push and pop operations

**Output:** Display the elements present in the stack

**Steps:**

Define a structure Node

struct Node

{ int data

struct Node \*next

}\*top

**push( )**

1. Start
2. Declare pointer ptr
3. Create node ptr
4. print "Enter the data: "
5. Read ptr->data
6. if(top==NULL)
7. ptr->next=NULL
8. else
9. ptr->next=top
10. top=ptr
11. print "Inserted"
12. Stop

**pop( )**

1. Start
2. if(top==NULL)
3. print "Underflow"
4. else
5. Declare pointer ptr=top
6. top=ptr->next
7. Delete node ptr
8. Stop

**display( )**

1. Start
2. Declare pointer ptr=top
3. if(ptr==NULL)
4. print "The stack is empty"
5. else
6. while(ptr!=NULL)
7. Print ptr->data
8. ptr=ptr->next
9. Stop

**main( )**

1. Start
2. Declare ch and ans
3. Print "1.Push

2.Pop

3.Display

Enter your choice: "

1. Read ch
2. If(ch==1)

push( )

1. Else If(ch==2)

pop( )

1. Else If(ch==3)

Display( )

1. Else

Print “wrong choice”

1. Print "Do you want to continue?(y/n) : "
2. Read ans
3. If(ans=='y'||ans=='Y')

Go to step 3

1. Stop

**PROGRAM**

#include<stdio.h>

#include<stdlib.h>

struct Node

{

int data;

struct Node \*next;

}\*top;

void push()

{

struct Node \*ptr;

ptr=(struct Node\*)malloc(sizeof(struct Node));

printf("Enter the data: ");

scanf("%d",&ptr->data);

if(top==NULL)

{

ptr->next=NULL;

}

else

{

ptr->next=top;

}

top=ptr;

printf("Inserted\n");

}

void pop()

{

if(top==NULL)

{

printf("Underflow\n");

}

else

{

struct Node \*ptr=top;

printf("\nDeleted element: %d",ptr->data);

top=ptr->next;

free(ptr);

}

}

void display()

{

struct Node \*ptr=top;

if(ptr==NULL)

{

printf("\nThe stack is empty\n");

}

else

{

while(ptr!=NULL)

{

printf("%d\n",ptr->data);

ptr=ptr->next;

}

}

}

void main()

{

int ch;

char ans;

do

{

printf("1.Push\n2.Pop\n3.Display\nEnter your choice: ");

scanf("%dd",&ch);

switch(ch)

{

case 1: push();break;

case 2: pop();break;

case 3: display();break;

default: printf("Wrong choice\n");

}

printf("\nDo you want to continue?(y/n): ");

scanf("%s",&ans);

}while(ans=='y'||ans=='Y');

}