Practical

AIM: Implement stack using linked list.

Code:

```
#include <stdio.h>
#include <stdlib.h>
void push();
void pop();
void display();
struct node
{
int val;
struct node *next;
};
struct node *head;
void main ()
{
int choice=0;
printf("\n Stack operations using linked list \n");
printf("\n----------------------------------------------\n");
while(choice != 4)
{
printf("\n\nChose one from the below options...\n");
printf("\n1.Push\n2.Pop\n3.Show\n4.Exit");
printf("\n Enter your choice \n");
scanf("%d",&choice);
switch(choice)
{
case 1:
{
push();
break;
}
case 2:
{
pop();
break;
}
case 3:
```

```
{
display();
break;
}

case 4:
{
printf("Exiting....");
break;
}
default:
{
printf("Please Enter valid choice ");
}
};
}
}
void push ()
{
int val;
struct node *ptr = (struct node*)malloc(sizeof(struct node));
if(ptr == NULL)
{
printf("not able to push the element");
}
else
{
printf("Enter the value");
scanf("%d",&val);
if(head==NULL)
{
ptr->val = val;
ptr -> next = NULL;
head=ptr;
}
else
{
ptr->val = val;
ptr->next = head;
head=ptr;
}
printf("Item pushed");
```

```
}
}
void pop()
{
int item;
struct node *ptr;
if (head == NULL)
{


printf("Underflow");
}
else
{
item = head->val;
ptr = head;
head = head->next;
free(ptr);
printf("Item popped");
}
}
void display()
{
int i;
struct node *ptr;
ptr=head;
if(ptr == NULL)
{
printf("Stack is empty\n");
}
else
{
printf("Printing Stack elements \n");
while(ptr!=NULL)
{
printf("%d\n",ptr->val);
ptr = ptr->next;
}
}
}
```

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Output:

```
 Stack operations using linked list

----------------------------------------


Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
1
Enter the value4
Item pushed

Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
1
Enter the value6
Item pushed

Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
2
```

```
Item popped

Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
2
Item popped

Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
3
Stack is empty


Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
1
Enter the value6
Item pushed

Chose one from the below options...
```

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```
Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
3
Printing Stack elements
6


Chose one from the below options...

1.Push
2.Pop
3.Show
4.Exit
 Enter your choice
4
Exiting....

...Program finished with exit code 0
Press ENTER to exit console.
```