

`/*stack using linked list*/`

```
#include <stdio.h>

#include <stdlib.h>

struct stack
{
    int data;
    struct stack*link;
};

struct stack*top;           //here,stack_head=top

struct stack*push(struct stack*,int);
struct stack*pop(struct stack*);
struct stack*display(struct stack*);

int main()
{
    int item, ch;
    while (1)
    {
        printf("***main menu**\n");
        printf("1 - Push\n");
        printf("2 - Pop\n");
        printf("3 - Dipslay\n");
        printf("4 - Exit\n");
        printf("Enter your choice : \n");
        scanf("%d", &ch);
        switch (ch)
        {
            case 1:
                printf("Enter the no to be pushed on stack : ");
                scanf("%d", &item);
                top=push(top,item);
                break;
```

case 2:

```
top=pop(top);    //return the rest of list after popping out a data
```

```
break;
```

case 3:

```
top=display(top);
```

```
break;
```

case 4:

```
exit(0);
```

default :

```
printf(" invalid choice\n");
```

```
}
```

```
}
```

```
}
```

```
/* Push data into stack */
```

```
struct stack*push(struct stack*top,int item)
```

```
{
```

```
struct stack*new_node;
```

```
new_node=(struct stack*)malloc(sizeof(struct stack*));
```

```
new_node->data=item;
```

```
if (top==NULL)
```

```
{
```

```
new_node->link=NULL;
```

```
top=new_node;
```

```
}
```

```
else
```

```
{
```

```
new_node->link=top;
```

```
top=new_node;
```

```
}
```

```
printf("the item is pushed\n");
```

```
return top;
```

```

}

/* Pop Operation on stack */
struct stack*pop(struct stack*top)
{
    struct stack*ptr;
    if (top==NULL)
    {
        printf("stack is empty\n");
    }
    else
    {
        ptr=top;
        top=top->link;
        printf("the popped value : %d\n",ptr->data);
        free(ptr);
    }
    return top;
}

/* Display stack elements */
struct stack*display(struct stack*top)
{
    struct stack*ptr;
    if (top==NULL)
    {
        printf("stack is empty\n");
    }
    else
    {
        printf("the stack is below\n");
        ptr=top;
        while (ptr!=NULL)

```

The image shows a Windows desktop with two overlapping terminal windows. The top window is titled "C:\Users\HP\OneDrive\Desktop\collage work 3rd sem\stack using ll.exe" and displays the following output:

```

**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
1
Enter the no to be pushed on stack : 10
the item is pushed
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
1
Enter the no to be pushed on stack : 20
the item is pushed
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
1
Enter the no to be pushed on stack : 30
the item is pushed
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
3
the stack is below
40
30
20
10
**main menu**

```

The bottom window is also titled "C:\Users\HP\OneDrive\Desktop\collage work 3rd sem\stack using ll.exe" and displays the following output:

```

3 - Dipslay
4 - Exit
Enter your choice :
3
the stack is below
40
30
20
10
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
2
the popped value : 40
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
3
the stack is below
30
20
10
**main menu**
1 - Push
2 - Pop
3 - Dipslay
4 - Exit
Enter your choice :
4

```

At the bottom of the screen, the Windows taskbar is visible, showing various application icons and the system clock indicating 21:37 on 27-09-2022.