**EXPERIMENT 8**

**Aim-** To implement stack ADT using linked list

**Code:-**

#include <stdio.h>

#include <stdlib.h>

**struct** node

{

**int** data;

**struct** node \*next;

}

\*top=**NULL**;

**typedef** **struct** node node;

**void** push(**int** value){

node \*tmp;

tmp = malloc(**sizeof**(node));

tmp -> data = value;

tmp -> next = top;

top = tmp;

}

**void** pop(){

node \*tmp;

**int** n;

tmp = top;

**if**(top == **NULL**)

{

printf("Underflow");

}

**else**

{

n = tmp->data;

top = top->next;

free(tmp);

printf("\nValue deleted is :%d",n);

}

}

**void** peek(){

node \*tmp;

**int** n;

tmp = top;

**if**(top == **NULL**)

{

printf("Underflow");

}

**else**

{

n = tmp->data;

printf("Top value = %d",n);

}

}

**void** display(){

**if**(top==**NULL**)

{

printf("The stack is empty");

}

**else**

{

**struct** node \*tmp = top;

**while**(tmp->next != **NULL**){

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

tmp = tmp -> next;

}

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

}

}

**int** main(){

top = **NULL**;

**int** ch;

**int** value;

printf("\n1. Push \n2. Pop \n3. Display \n4. Peek \n5. Quit");

**while**(1){

printf("\nEnter your choice: ");

scanf("%d",&ch);

**switch**(ch)

{

**case** 1:

printf("\nEnter value to be inserted : ");

scanf("%d",&value);

push(value);

**break**;

**case** 2:

pop();

**break**;

**case** 3:

display();

**break**;

**case** 4:

peek();

**break**;

**case** 5:

exit(0);

**default**:

printf("\nWrong choice");

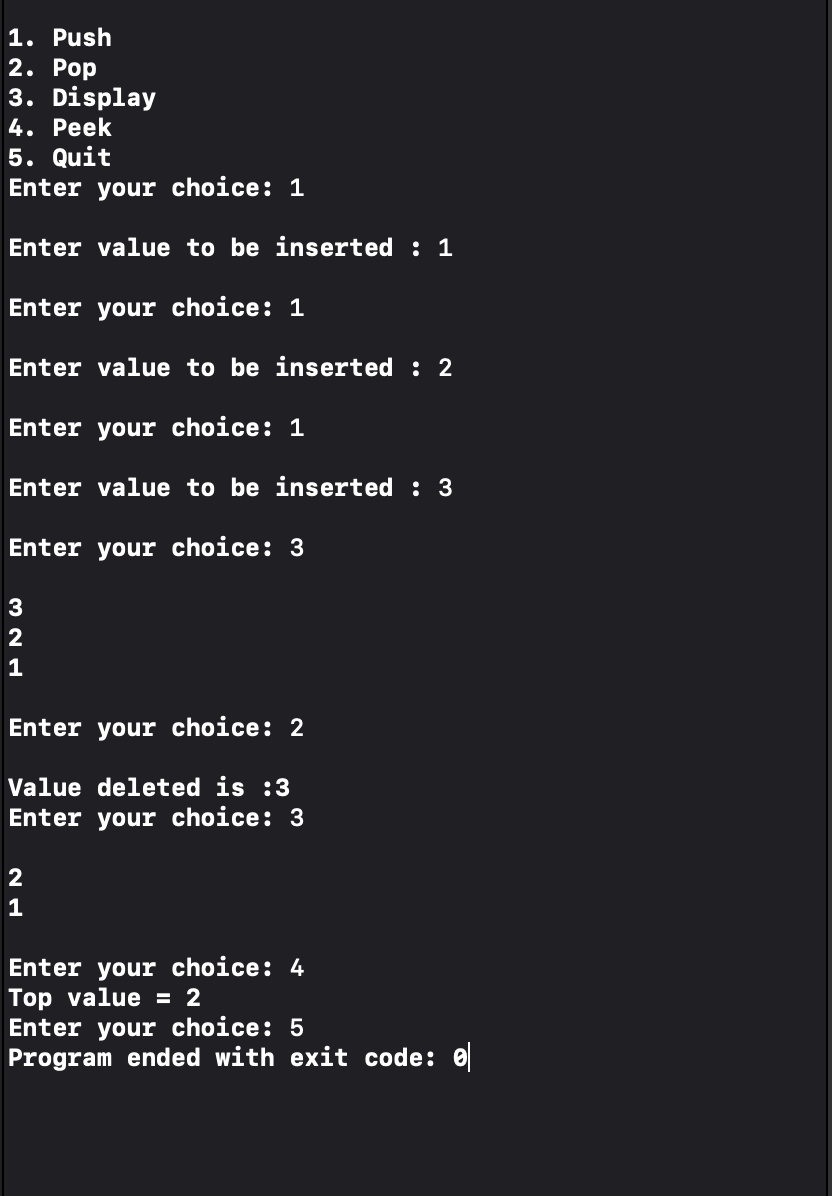
}

}

**return** 0;

}

**Output-**



**Conclusion:-** Hence, we implemented stack ADT using linked list.