# STACK USING LINKED LIST

```
#include<stdio.h>
#include<stdlib.h>

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

struct node *top;

void DISPLAY(){
   struct node *ptr;
   if(top==NULL){
      printf("THE STACK IS EMPTY");
   }
   else{
      printf("THE STACK ELEMENTS ARE\n");
      ptr=top;
      while(ptr!=NULL){
         printf("%d\t",ptr->data);
         ptr=ptr->link;
      }
   }

}
```

```
void PUSH(int item){
   struct node *new;
   new=(struct node *) malloc(sizeof(struct node));
   new->data=item;
   new->link=top;
   top=new;

   DISPLAY();
}


void POP(){
   struct node *temp;
   if(top==NULL){
      printf("THE STACK IS EMPTY");
   }
   else{
      temp=top;
      printf("THE POPED ELEMENT IS %d",top->data);
      top=top->link;
      free(temp);
   }
   DISPLAY();


}
```

```
void main(){
   int item,opt;
   do{
      printf(" \n ENTER 1 TO PUSH AN ELEMENT INTO THE STACK \n ENTER 2 TO POP AN
ELEMENT FROM THE STACK \n ENTER 3 TO DISPLAY THE STACK \n ENTER 4 TO EXIT");
      scanf("%d",&opt);
      switch(opt){
         case 1: printf("ENTER THE ELEMENT TO PUSH");
               scanf("%d",&item);
               PUSH(item);
               break;
         case 2: POP();
               break;
         case 3: DISPLAY();
               break;
         case 4: printf("THE PROGRAM HAS ENDED");
               break;

      }
   }while(opt!=4);
 }
```