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//Impletementation of stack using single linked list
#include<stdio.h>
#include<stdlib.h>
struct node
{
 int data;
 struct node*top;
}*h;
void push()
{
 int item;
 struct node*new;
 new=(struct node *) malloc (sizeof(struct node *));
 printf("Enter the data: ");
 scanf("%d",&item);
 new->data=item;
 new->top=NULL;
 if(h->top==NULL)
 {
  h->top=new;
 }
 else
 {
  new->top=h->top;
  h->top=new;
 }
}

void disp()
{
 struct node *ptr;
 ptr=h->top;
 if(ptr==NULL)
 {
  printf("List Empty\n");
 }
 else
 {
  while(ptr!=NULL)
  {
   printf("%d\t",ptr->data);
   ptr=ptr->top;
  }
 }
}
void pop()
{
 struct node *ptr;
 ptr=h->top;
 if(ptr==NULL)
 {
  printf("\nList Empty");
 }
```

```
 else
 {
  h->top=ptr->top;
  free(ptr);
 }
}
void main()
{
 int ch;
 h=(struct node *)malloc(sizeof(struct node *));
 do
 {
  printf("\n1:Push\n2:Pop\n3:Display\n4:EXIT\n");
  printf("Enter the choice: ");
  scanf("%d",&ch);
  switch(ch)
  {
   case 1:push();break;
   case 2:pop();break;
   case 3:disp();break;
   case 4:exit(0);break;
   default:printf("\nInvalid choice");
  }
 }while(ch<=4);
}
/*OUTPUT:

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 3
List Empty

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 1
Enter the data: 30

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 1
Enter the data: 20

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 3
```

```
20 30
1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 1
Enter the data: 50

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 1
Enter the data: 100

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 3
100 50 20 30
1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 2

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 3
50 20 30
1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 2

1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 3
20 30
1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 1
Enter the data: 10

1:Push
```

2:Pop
3:Display
4:EXIT
Enter the choice: 3
10 20 30
1:Push
2:Pop
3:Display
4:EXIT
Enter the choice: 4
user@user-WIV68B55-0113:~$*/