

Using singly linked list create 2 list and concatenate two lists and reverse the list

main.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 struct node
4 {
5     int info;
6     struct node *link;
7 };
8
9 typedef struct node *NODE;
10 NODE getnode()
11 {
12     NODE x;
13     x=(NODE)malloc(sizeof(struct node));
14     if(x==NULL)
15     {
16         printf("Memory full\n");
17         exit(0);
18     }
19     return x;
20 }
21
22 void freenode(NODE x)
23 {
24     free(x);
25 }
26 void display (NODE first)
```

main.c

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25 }
26 void display (NODE first)
27 {
28     NODE temp;
29     if(first==NULL)
30     {
31         printf("Linked List is empty ,Cannot Display items");
32         return;
33     }
34     printf("The contents of the linked list are: \n");
35     for(temp=first;temp!=NULL;temp=temp->link)
36     {
37         printf("%d\n",temp->info);
38     }
39 }
40 }
41 NODE insert_rear(int item,NODE first)
42 {
43     NODE temp,cur;
44     temp=getnode();
45     temp->info=item;
46     temp->link=NULL;
47     if(first==NULL)
48     {
49         return temp;
50     }
```

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main.c

```

46 temp->link=NULL;
47 if(first==NULL)
48 {
49     return temp;
50 }
51 cur=first;
52 while(cur->link!=NULL)
53 {
54     cur=cur->link;
55 }
56 cur->link=temp;
57 return first;
58 }
59
60 NODE concat(NODE first,NODE second)
61 {
62     NODE cur;
63     if(first==NULL)
64         return second;
65     if(second==NULL)
66         return first;
67     cur=first;
68     while(cur->link!=NULL)
69         cur=cur->link;
70     cur->link=second;
71     return first;

```

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main.c

```
59
60 NODE concat(NODE first,NODE second)
61 {
62     NODE cur;
63     if(first==NULL)
64         return second;
65     if(second==NULL)
66         return first;
67     cur=first;
68     while(cur->link!=NULL)
69         cur=cur->link;
70     cur->link=second;
71     return first;
72 }
73
74 NODE reverse(NODE first)
75 {
76     NODE cur,temp;
77     cur=NULL;
78     while(first!=NULL)
79     {
80         temp=first;
81         first=first->link;
82         temp->link=cur;
83         cur=temp;
84     }
85 }
```

input

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main.c

```
85     return cur;
86 }
87
88 int main()
89 {
90     NODE first=NULL;
91     NODE second=NULL;
92     int item, choice,llno;
93     for(;;)
94     {
95         printf("1:insert rear\n2:Concatenate the two linked lists\n3:reverse the linked list\n4:Display\n5:EXIT\n");
96         printf("Enter your choice: ");
97         scanf("%d",&choice);
98         switch(choice)
99         {
100             case 1: printf("Enter the LL number (1 or 2) :");
101                     scanf("%d",&llno);
102                     printf("Enter the item at the rear end: ");
103                     scanf("%d",&item);
104                     if(llno==1)
105                         first=insert_rear(item,first);
106                     else
107                         second=insert_rear(item,second);
108                     break;
109             case 2: first=concat(first,second);
110
```

```

105         first=insert_rear(item,first);
106     else
107         second=insert_rear(item,second);
108     break;
109
110     case 2: first=concat(first,second);
111             break;
112     case 3: printf("Enter the LL number (1 or 2) :");
113             scanf("%d",&llno);
114             if(llno==1)
115                 first=reverse(first);
116             else
117                 second=reverse(second);
118     case 4: printf("The contents of the first LL:\n");
119             display(first);
120             printf("\n*****\n");
121             printf("\nThe contents of the second LL:\n");
122             display(second);
123             break;
124     case 5: exit(0);
125             break;
126     default: printf("Enter a valid option\n");
127 }
128 }
129 return 0;
130 }

```

input

```
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 1
Enter the LL number (1 or 2) :1
Enter the item at the rear end: 10
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 1
Enter the LL number (1 or 2) :1
Enter the item at the rear end: 20
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 1
Enter the LL number (1 or 2) :2
Enter the item at the rear end: 30
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
```



onlinegdb.com/online\_c\_compiler#

input

```
Enter your choice: 1
Enter the LL number (1 or 2) :2
Enter the item at the rear end: 40
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 2
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 4
The contents of the first LL:
The contents of the linked list are:
10
20
30
40

*****

The contents of the second LL:
The contents of the linked list are:
30
40
1:insert rear
```

onlinegdb.com/online\_c\_compiler#

input

```
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 3
Enter the LL number (1 or 2) :2
The contents of the first LL:
The contents of the linked list are:
10
20
30
*****
The contents of the second LL:
The contents of the linked list are:
40
30
1:insert rear
2:Concatenate the two linked lists
3:reverse the linked list
4:Display
5:EXIT
Enter your choice: 5
```

...Program finished with exit code 0