

```
1 #include<stdio.h>
2 #include<stdlib.h>
3
4 struct Node{
5     int data;
6     struct Node* next;
7 };
8
9 struct Node* createNode(int data){
10     struct Node *newNode = (struct Node*)malloc(sizeof(struct Node));
11     newNode->data = data;
12     newNode->next = NULL;
13     return newNode;
14 }
15 struct Node* createList(){
16     struct Node *head = NULL, *temp, *newNode;
17     int n, data;
18     printf("Enter number of nodes: ");
19     scanf("%d", &n);
20     for(int i = 0; i < n; i++){
21         printf("Enter data: ");
22         scanf("%d", &data);
23         newNode = createNode(data);
24         if(head == NULL) head = newNode;
25         else {
26             temp = head;
27             while(temp->next != NULL)
28                 temp = temp->next;
29             temp->next = newNode;
30         }
31     }
32     return head;
33 }
34 void display(struct Node *head){
35     while(head != NULL){
36         printf("%d->", head->data);
37         head = head->next;
38     }
39     printf("NULL\n");
40 }
41 void sort(struct Node* head){
42     struct Node *i, *j;
43     int temp;
44     for(i = head; i != NULL; i = i->next){
45         for(j = i->next; j != NULL; j = j->next){
46             if(i->data > j->data){
47                 temp = i->data;
48                 i->data = j->data;
```

```
1 struct Node *reverse(struct Node* head,
2     struct Node *prev = NULL, *curr = head,
3     *next = NULL;
4
5     while(curr != NULL){
6         next = curr->next;
7         curr->next = prev;
8         prev = curr;
9         curr= next;
10    }
11
12    return prev;
13 }
```

```
14
15 struct Node *concatenate(struct Node *head1, struct Node *head2){
16
17     if(head1 == NULL) return head1;
18     if(head2 == NULL) return head1;
19
20     struct Node *temp = head1;
21
22     while(temp->next != NULL)
23         temp = temp->next;
24
25     temp->next = head2;
26
27     return head1;
28 }
29
30 int main(){
31
32     struct Node *list1 = NULL, *list2 = NULL;
33     printf("Create List 1: \n");
34     list1 = createList();
35
36     printf("\nCreate List 2: \n");
37     list2 = createList();
38
39     printf("List 1: ");
40     display(list1);
41
42     printf("List 2: ");
43     display(list2);
44
45     sort(list1);
46     printf("\nList 1 After sorting: ");
47     display(list1);
48
49     list1 = reverse(list1);
50     printf("List1, After Reversing: ");
51     display(list1);
52
53     list1 = concatenate(list1, list2);
54     printf("After concatenation (list1 + list2): ");
55     display(list1);
56
57     return 0;
58 }
```

```
PS C:\Users\gsm22\OneDrive\Documents\DS> cd "c:\Users\gsm22\OneDrive\Documents\DS\"
```

Create List 1:

Enter number of nodes: 4

Enter data: 12

Enter data: 23

Enter data: 32

Enter data: 43

Create List 2:

Enter number of nodes: 3

Enter data: 3

Enter data: 52

Enter data: 63

List 1: 12->23->32->43->NULL

List 2: 3->52->63->NULL

List 1 After sorting: 12->23->32->43->NULL

List1, After Reversing: 43->32->23->12->NULL

After concatenation (list1 + list2): 43->32->23->12->3->52->63->NULL

```
PS C:\Users\gsm22\OneDrive\Documents\DS>
```