Lab 6 :

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

struct Node {
   int val;
   struct Node* next;
};

void sortList(struct Node** node);
void create(struct Node** node);
void display(struct Node** node);
void insert(struct Node** node, int value);
void reverse(struct Node** node);
void concat(struct Node** node1, struct Node** node2);

int main() {
   struct Node* head1 = NULL;
   struct Node* head2 = NULL;
   printf("Create LL 1 : \n");
   create(&head1);
   printf("Create LL 2 : \n");
   create(&head2);

   printf("Concatination of two lists is : \n");
   concat(&head1, &head2);
   display(&head1);

   printf("Sorting of this list : \n");
   sortList(&head1);
   display(&head1);
```

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    printf("Reversing of this list : \n");
    reverse(&head1);
}

void create(struct Node** node) {
    int ch, val;
    while (1) {
        printf("1. Insert\n2. Exit\n");
        scanf("%d", &ch);
        switch (ch) {
            case 1:
                printf("Enter the value : ");
                scanf("%d", &val);
                insert(node, val);
                break;
            case 2:
                return;
            default:
                printf("Invalid choice\n");
        }
    }
}

void insert(struct Node** node, int value) {
    struct Node* new_node = (struct Node*)malloc(sizeof(struct Node));
    new_node->val = value;
    new_node->next = *node;
    *node = new_node;
}
```

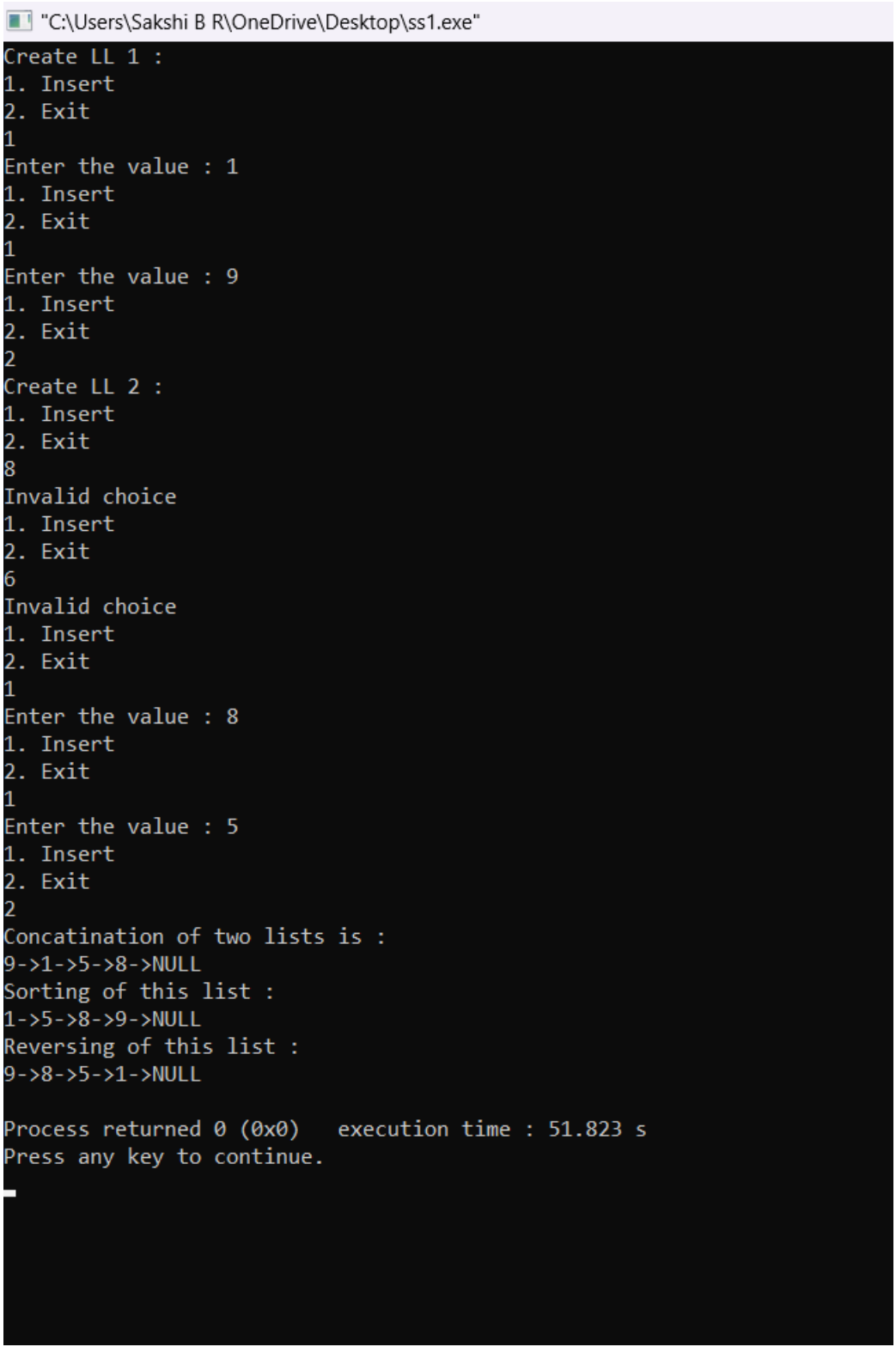
```
void sortList(struct Node** node) {
   struct Node *temp, *i;
   for (temp = *node; temp != NULL; temp = temp->next) {
      for (i = temp->next; i != NULL; i = i->next) {
         if (i->val < temp->val) {
            int tem = i->val;
            i->val = temp->val;
            temp->val = tem;
         }
      }
   }
}
void display(struct Node** node) {
   struct Node* temp = *node;
   while (temp != NULL) {
      printf("%d->", temp->val);
      temp = temp->next;
   }
   printf("NULL\n");
}
void reverse(struct Node* *node) {
   struct Node* temp = *node;
   struct Node* curr = temp;
   struct Node* prev = NULL;
   struct Node* nextOne = NULL;

   while(curr != NULL) {
      nextOne = curr->next;
      curr->next = prev;
      prev = curr;
      curr = nextOne;
```

```
    }
    display(&prev);
}
void concat(struct Node* *node1, struct Node* *node2) {
    struct Node* temp1 = *node1;
    struct Node* temp2 = *node2;

    struct Node* dummy = temp1;
    while(dummy->next != NULL) dummy = dummy->next;

    dummy->next = temp2;
}
```


"C:\Users\Sakshi B R\OneDrive\Desktop\ss1.exe"
Create LL 1 :
1. Insert
2. Exit
1
Enter the value : 1
1. Insert
2. Exit
1
Enter the value : 9
1. Insert
2. Exit
2
Create LL 2 :
1. Insert
2. Exit
8
Invalid choice
1. Insert
2. Exit
6
Invalid choice
1. Insert
2. Exit
1
Enter the value : 8
1. Insert
2. Exit
1
Enter the value : 5
1. Insert
2. Exit
2
Concatination of two lists is :
9->1->5->8->NULL
Sorting of this list :
1->5->8->9->NULL
Reversing of this list :
9->8->5->1->NULL
Process returned 0 (0x0) execution time : 51.823 s
Press any key to continue.