Program 1

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#include <stdlib.h>
#include <stdio.h>
#include <malloc.h>
struct node {
    int data;
    struct node * next;
};
struct node * start = NULL, *tail = NULL;
struct node * create_ll(struct node *);
struct node * create_2(struct node *);
struct node * display(struct node *);
struct node * reverse(struct node *);
struct node * concat(struct node *);
struct node * sort_list(struct node *);
void main()
{
    int option;
    do {
        printf("\n1. Create a list");
        printf("\n2. Display the list");
        printf("\n3. Reverse entire list");
        printf("\n4. Concatenation of two list");
        printf("\n5. Sort the list");
        printf("\n6. EXIT");
        printf("\nEnter your choice : ");
        scanf("%d", &option);
        switch(option)
        {
        case 1: start = create_ll(start);
                printf("\n Linked list created");
                break;
```

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case 2 : start = display (start) ;
    break ;
case 3 : start = insert_beg (start) ;
    break ;
case 4 : start = insert_end (start) ;
    break ;
case 5 : start = insert_
case 3 ; start = reverse (start) ;
    break ;
case 4 : start = concat (start) ;
    break ;
case 5 : start = sort_list (start) ;
    break ;
}
} while (option != 6) ;
return 0 ;
}
struct node * create_ll (struct node* start) {
    struct node *ptr, *new_node ;
    int num ;
    printf ("\n Enter -1 to end") ;
    printf ("Enter the data") ;
    scanf ("%d", &num) ;
    while (num != -1) {
        new_node = (struct node *) malloc (sizeof (struct node)) ;

        new_node -> data = num ;
        if (start == NULL) {
            new_node -> next = NULL ;
            start = new_node ;
        }
```

else 2

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ptr = start;
while (ptr->next != NULL) {
    ptr = ptr->next;
    ptr->next = new_node;
    new_node -> next = NULL;
}
printf("\n Enter the data");
scanf("%d", &num);
}
return start;
}
struct node * display(struct node* start) {
    struct node* new_node;
    int num;
    printf("Enter the data");
    scanf("%d", &num
struct node * display(struct node* start) {
    struct node * ptr;
    ptr = start;
    while(ptr != NULL) {
        printf("It =%d", ptr->data);
        ptr = ptr->next;
    }
    return start;
}
struct node * reverse(struct node * start) {
    struct node * prev = NULL, * current = start,
        * next = NULL;
    while(current != NULL) {
        next = current->next;
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        current -> next = prev;
        prev = current;
        current = next;
    }
    start = prev;
    return start;
}
struct node* concat(struct node* start1, struct node* start2)
{
    struct node *ptr;
    ptr = start1;
    printf("Enter the second");
    start2 = create(start2);
    while (ptr -> next != NULL)
        ptr = ptr -> next;
    ptr -> next = start2;
    return start1;
}
struct node * sortlist(struct node * start)
{
    struct node *ptr1, *ptr2;
    int temp;
    ptr1 = start;
    while (ptr1 -> next != NULL)
    {
        ptr2 = ptr1 -> next;
        while(ptr2 != NULL)
        {
            if (ptr1 -> data > ptr2 -> data)
            {
                temp = ptr1 -> data;
                ptr1 -> data = ptr2 -> data;
                ptr2 -> data = temp;
            }
            ptr2 = ptr2 -> next;
        }
        ptr1 = ptr1 -> next;
    }
    return start;
}
```