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| //Write C Program to create Singly Liked List with n elements and reverse the elements |
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|  |  |
|  | #include <stdio.h> |
|  | #include <stdlib.h> |
|  |  |
|  | struct node |
|  | { |
|  | int num; |
|  | struct node \*next; |
|  | }; |
|  |  |
|  | void create(struct node \*\*); |
|  | void reverse(struct node \*\*, int); |
|  | void release(struct node \*\*); |
|  | void display(struct node \*); |
|  |  |
|  | int main() |
|  | { |
|  | struct node \*p = NULL; |
|  | int n; |
|  |  |
|  | printf("Enter data into the list\n"); |
|  | create(&p); |
|  | printf("Displaying the nodes in the list:\n"); |
|  | display(p); |
|  | printf("Enter the number N to reverse first N node: "); |
|  | scanf("%d", &n); |
|  | printf("Reversing the list...\n"); |
|  | if (n > 1) |
|  | { |
|  | reverse(&p, n - 2); |
|  | } |
|  | printf("Displaying the reversed list:\n"); |
|  | display(p); |
|  | release(&p); |
|  |  |
|  | return 0; |
|  | } |
|  |  |
|  | void reverse(struct node \*\*head, int n) |
|  | { |
|  | struct node \*p, \*q, \*r, \*rear; |
|  |  |
|  | p = q = r = \*head; |
|  | if (n == 0) |
|  | { |
|  | q = q->next; |
|  | p->next = q->next; |
|  | q->next = p; |
|  | \*head = q; |
|  | } |
|  | else |
|  | { |
|  | p = p->next->next; |
|  | q = q->next; |
|  | r->next = NULL; |
|  | rear = r; |
|  | q->next = r; |
|  |  |
|  | while (n > 0 && p != NULL) |
|  | { |
|  | r = q; |
|  | q = p; |
|  | p = p->next; |
|  | q->next = r; |
|  | n--; |
|  | } |
|  | \*head = q; |
|  | rear->next = p; |
|  | } |
|  | } |
|  |  |
|  | void create(struct node \*\*head) |
|  | { |
|  | int c, ch; |
|  | struct node \*temp, \*rear; |
|  |  |
|  | do |
|  | { |
|  | printf("Enter number: "); |
|  | scanf("%d", &c); |
|  | temp = (struct node \*)malloc(sizeof(struct node)); |
|  | temp->num = c; |
|  | temp->next = NULL; |
|  | if (\*head == NULL) |
|  | { |
|  | \*head = temp; |
|  | } |
|  | else |
|  | { |
|  | rear->next = temp; |
|  | } |
|  | rear = temp; |
|  | printf("Do you wish to continue [1/0]: "); |
|  | scanf("%d", &ch); |
|  | } while (ch != 0); |
|  | printf("\n"); |
|  | } |
|  |  |
|  | void display(struct node \*p) |
|  | { |
|  | while (p != NULL) |
|  | { |
|  | printf("%d\t", p->num); |
|  | p = p->next; |
|  | } |
|  | printf("\n"); |
|  | } |
|  |  |
|  | void release(struct node \*\*head) |
|  | { |
|  | struct node \*temp = \*head; |
|  | \*head = (\*head)->next; |
|  | while ((\*head) != NULL) |
|  | { |
|  | free(temp); |
|  | temp = \*head; |
|  | (\*head) = (\*head)->next; |
|  | } |
|  | } |