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1: #include <stdio.h>
2: #include <stdlib.h>
3:
4: struct Node
5: {
6:     int data;
7:     struct Node *next;
8: };
9:
10: void linkedListTraversal(struct Node *ptr)
11: {
12:     while (ptr != NULL)
13:     {
14:         printf("Element: %d\n", ptr->data);
15:         ptr = ptr->next;
16:     }
17: }
18:
19: // Case 1: Deleting the first element from the linked list
20: struct Node * deleteFirst(struct Node * head){
21:     struct Node * ptr = head;
22:     head = head->next;
23:     free(ptr);
24:     return head;
25: }
26:
27: // Case 2: Deleting the element at a given index from the l
28: struct Node * deleteAtIndex(struct Node * head, int index){
29:     struct Node *p = head;
30:     struct Node *q = head->next;
31:     for (int i = 0; i < index-1; i++)
32:     {
33:         p = p->next;
34:         q = q->next;
35:     }
36:
37:     p->next = q->next;
38:     free(q);
39:     return head;

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40: }
41:
42: // Case 3: Deleting the last element
43: struct Node * deleteAtLast(struct Node * head){
44:     struct Node *p = head;
45:     struct Node *q = head->next;
46:     while(q->next !=NULL)
47:     {
48:         p = p->next;
49:         q = q->next;
50:     }
51:
52:     p->next = NULL;
53:     free(q);
54:     return head;
55: }
56:
57:
58: // Case 4: Deleting the element with a given value from the
59: struct Node * deleteAtIndex2(struct Node * head, int value){
60:     struct Node *p = head;
61:     struct Node *q = head->next;
62:     while(q->data!=value && q->next!= NULL)
63:     {
64:         p = p->next;
65:         q = q->next;
66:     }
67:
68:     if(q->data == value){
69:         p->next = q->next;
70:         free(q);
71:     }
72:     return head;
73: }
74: int main()
75: {
76:     struct Node *head;
77:     struct Node *second;
78:     struct Node *third;

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79:     struct Node *fourth;
80:
81:     // Allocate memory for nodes in the Linked List in Heap
82:     head = (struct Node *)malloc(sizeof(struct Node));
83:     second = (struct Node *)malloc(sizeof(struct Node));
84:     third = (struct Node *)malloc(sizeof(struct Node));
85:     fourth = (struct Node *)malloc(sizeof(struct Node));
86:
87:     // Link first and second nodes
88:     head->data = 4;
89:     head->next = second;
90:
91:     // Link second and third nodes
92:     second->data = 3;
93:     second->next = third;
94:
95:     // Link third and fourth nodes
96:     third->data = 8;
97:     third->next = fourth;
98:
99:     // Terminate the list at the third node
100:    fourth->data = 1;
101:    fourth->next = NULL;
102:
103:    printf("Linked list before deletion\n");
104:    linkedListTraversal(head);
105:
106:    // head = deleteFirst(head); // For deleting first element
107:    // head = deleteAtIndex(head, 2);
108:    head = deleteAtLast(head);
109:    printf("Linked list after deletion\n");
110:    linkedListTraversal(head);
111:
112:    return 0;
113: }

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