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| --- |
| import java.io.\*; |
|  | public class LinkedList |
|  | { |
|  | Node head; // head of list |
|  | static class Node |
|  | { |
|  | int data; |
|  | Node next; |
|  | Node(int d) |
|  | { |
|  | data = d; |
|  | next = null; |
|  | } |
|  | } |
|  | // Method to insert a new node |
|  | public static LinkedList insert(LinkedList list, int data) |
|  | { |
|  | // Create a new node with given data |
|  | Node new\_node = new Node(data); |
|  | new\_node.next = null; |
|  | // If the Linked List is empty, then make the new node as head |
|  | if (list.head == null) |
|  | { |
|  | list.head = new\_node; |
|  | } |
|  | else |
|  | { |
|  | // Else traverse till the last node and insert the new\_node there |
|  | Node last = list.head; |
|  | while (last.next != null) |
|  | { |
|  | last = last.next; |
|  | } |
|  | // Insert the new\_node at last node |
|  | last.next = new\_node; |
|  | } |
|  | return list; |
|  | } |
|  | public static void printList(LinkedList list) |
|  | { |
|  | Node currNode = list.head; |
|  | System.out.print("LinkedList: "); |
|  | // Traverse through the LinkedList |
|  | while (currNode != null) |
|  | { |
|  | // Print the data at current node |
|  | System.out.print(currNode.data + " "); |
|  | // Go to next node |
|  | currNode = currNode.next; |
|  | } |
|  | System.out.println(); |
|  | } |
|  | // Method to delete a node in the LinkedList by KEY |
|  | public static LinkedList deleteByKey(LinkedList list, int key) |
|  | { |
|  | // Store head node |
|  | Node currNode = list.head, prev = null; |
|  | if (currNode != null && currNode.data == key) |
|  | { |
|  | list.head = currNode.next; // Changed head |
|  | System.out.println(key + " found and deleted"); |
|  | return list; |
|  | } |
|  | while (currNode != null && currNode.data != key) |
|  | { |
|  | prev = currNode; |
|  | currNode = currNode.next; |
|  | } |
|  | if (currNode != null) |
|  | { |
|  | prev.next = currNode.next; |
|  | System.out.println(key + " found and deleted"); |
|  | } |
|  | if (currNode == null) |
|  | { |
|  | System.out.println(key + " not found"); |
|  | } |
|  | return list; |
|  | } |
|  | // method to create a Singly linked list with n nodes |
|  | public static void main(String[] args) |
|  | { |
|  | /\* Start with the empty list. \*/ |
|  | LinkedList list = new LinkedList(); |
|  | // Insert the values |
|  | list = insert(list, 1); |
|  | list = insert(list, 2); |
|  | list = insert(list, 3); |
|  | list = insert(list, 4); |
|  | list = insert(list, 5); |
|  | list = insert(list, 6); |
|  | list = insert(list, 7); |
|  | list = insert(list, 8); |
|  | // Print the LinkedList |
|  | printList(list); |
|  | // Delete node with value 1 |
|  | deleteByKey(list, 1); |
|  | // Print the LinkedList |
|  | printList(list); |
|  | // Delete node with value 4 |
|  | deleteByKey(list, 4); |
|  | // Print the LinkedList |
|  | printList(list); |
|  | // Delete node with value 10 |
|  | deleteByKey(list, 10); |
|  | // Print the LinkedList |
|  | printList(list); |
|  | } |
|  | } |