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package linkedlist;

// Java program to add two numbers
// represented by linked list

class LinkedList75 {

    static Node head1, head2;

    static class Node {

        int data;
        Node next;

        Node(int d)
        {
            data = d;
            next = null;
        }
    }

    /* Adds contents of two linked
    lists and return the head node
    of resultant list */
    Node addTwoLists(Node first, Node second)
    {
        // res is head node of the resultant list
        Node res = null;
        Node prev = null;
        Node temp = null;
        int carry = 0, sum;

        // while both lists exist
        while (first != null || second != null) {
            // Calculate value of next
            // digit in resultant list.
            // The next digit is sum
            // of following things
            // (i) Carry
            // (ii) Next digit of first
            // list (if there is a next digit)
            // (ii) Next digit of second
            // list (if there is a next digit)
            sum = carry + (first != null ? first.data : 0)
                + (second != null ? second.data : 0);

            // update carry for next calculation
            carry = (sum >= 10) ? 1 : 0;

            // update sum if it is greater than 10
            sum = sum % 10;

            // Create a new node with sum as data
            temp = new Node(sum);

            // if this is the first node then set
            // it as head of the resultant list
            if (res == null) {
                res = temp;
            }

            // If this is not the first
            // node then connect it to the rest.
            else {
                prev.next = temp;
            }
        }
    }
}
```

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        // Set prev for next insertion
        prev = temp;

        // Move first and second pointers
        // to next nodes
        if (first != null) {
            first = first.next;
        }
        if (second != null) {
            second = second.next;
        }
    }

    if (carry > 0) {
        temp.next = new Node(carry);
    }

    // return head of the resultant list
    return res;
}
/* Utility function to print a linked list */

void printList(Node head)
{
    while (head != null) {
        System.out.print(head.data + " ");
        head = head.next;
    }
    System.out.println("");
}

// Driver Code
public static void main(String[] args)
{
    LinkedList75 list = new LinkedList75();

    // creating first list
    list.head1 = new Node(7);
    list.head1.next = new Node(5);
    list.head1.next.next = new Node(9);
    list.head1.next.next.next = new Node(4);
    list.head1.next.next.next.next = new Node(6);
    System.out.print("First List is ");
    list.printList(head1);

    // creating second list
    list.head2 = new Node(8);
    list.head2.next = new Node(4);
    System.out.print("Second List is ");
    list.printList(head2);

    // add the two lists and see the result
    Node rs = list.addTwoLists(head1, head2);
    System.out.print("Resultant List is ");
    list.printList(rs);
}

// this code has been contributed by Mayank Jaiswal

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