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package linkedlist;

// Java program to rotate a linked list

class LinkedList {
    Node head; // head of list

    /* Linked list Node*/
    class Node {
        int data;
        Node next;
        Node(int d)
        {
            data = d;
            next = null;
        }
    }

    // This function rotates a linked list counter-clockwise
    // and updates the head. The function assumes that k is
    // smaller than size of linked list. It doesn't modify
    // the list if k is greater than or equal to size
    void rotate(int k)
    {
        if (k == 0)
            return;

        // Let us understand the below code for example k = 4
        // and list = 10->20->30->40->50->60.
        Node current = head;

        // current will either point to kth or NULL after this
        // loop. current will point to node 40 in the above example
        int count = 1;
        while (count < k && current != null) {
            current = current.next;
            count++;
        }

        // If current is NULL, k is greater than or equal to count
        // of nodes in linked list. Don't change the list in this case
        if (current == null)
            return;

        // current points to kth node. Store it in a variable.
        // kthNode points to node 40 in the above example
        Node kthNode = current;

        // current will point to last node after this loop
        // current will point to node 60 in the above example
        while (current.next != null)
            current = current.next;

        // Change next of last node to previous head
        // Next of 60 is now changed to node 10

        current.next = head;

        // Change head to (k+1)th node
        // head is now changed to node 50
        head = kthNode.next;

        // change next of kth node to null
        kthNode.next = null;
    }
}
```

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/* Given a reference (pointer to pointer) to the head
   of a list and an int, push a new node on the front
   of the list. */
void push(int new_data)
{
    /* 1 & 2: Allocate the Node &
       Put in the data*/
    Node new_node = new Node(new_data);

    /* 3. Make next of new Node as head */
    new_node.next = head;

    /* 4. Move the head to point to new Node */
    head = new_node;
}

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

/* Driver program to test above functions */
public static void main(String args[])
{
    LinkedList llist = new LinkedList();

    // create a list 10->20->30->40->50->60
    for (int i = 60; i >= 10; i -= 10)
        llist.push(i);

    System.out.println("Given list");
    llist.printList();

    llist.rotate(4);

    System.out.println("Rotated Linked List");
    llist.printList();
}
} /* This code is contributed by Rajat Mishra */
```