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package linkedlist;

// Java program to Implement a stack
// using singly linked list
// import package
import static java.lang.System.exit;

// Create Stack Using Linked list
class StackUsingLinkedlist {

    // A linked list node
    private class Node {

        int data; // integer data
        Node link; // reference variable Node type
    }
    // create global top reference variable global
    Node top;
    // Constructor
    StackUsingLinkedlist()
    {
        this.top = null;
    }

    // Utility function to add an element x in the stack
    public void push(int x) // insert at the beginning
    {
        // create new node temp and allocate memory
        Node temp = new Node();

        // check if stack (heap) is full. Then inserting an
        // element would lead to stack overflow
        if (temp == null) {
            System.out.print("\nHeap Overflow");
            return;
        }

        // initialize data into temp data field
        temp.data = x;

        // put top reference into temp link
        temp.link = top;

        // update top reference
        top = temp;
    }

    // Utility function to check if the stack is empty or not
    public boolean isEmpty()
    {
        return top == null;
    }

    // Utility function to return top element in a stack
    public int peek()
    {
        // check for empty stack
        if (!isEmpty()) {
            return top.data;
        }
        else {
            System.out.println("Stack is empty");
            return -1;
        }
    }
}
```

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// Utility function to pop top element from the stack
public void pop() // remove at the beginning
{
    // check for stack underflow
    if (top == null) {
        System.out.print("\nStack Underflow");
        return;
    }

    // update the top pointer to point to the next node
    top = (top).link;
}

public void display()
{
    // check for stack underflow
    if (top == null) {
        System.out.printf("\nStack Underflow");
        exit(1);
    }
    else {
        Node temp = top;
        while (temp != null) {

            // print node data
            System.out.printf("%d->", temp.data);

            // assign temp link to temp
            temp = temp.link;
        }
    }
}

// main class
class GFG {
    public static void main(String[] args)
    {
        // create Object of Implementing class
        StackUsingLinkedlist obj = new StackUsingLinkedlist();
        // insert Stack value
        obj.push(11);
        obj.push(22);
        obj.push(33);
        obj.push(44);

        // print Stack elements
        obj.display();

        // print Top element of Stack
        System.out.printf("\nTop element is %d\n", obj.peek());

        // Delete top element of Stack
        obj.pop();
        obj.pop();

        // print Stack elements
        obj.display();

        // print Top element of Stack
        System.out.printf("\nTop element is %d\n", obj.peek());
    }
}

```