Stack Class in Java – Code

```
class Stack {
  int[] arr = new int[5];   // stack of size 5
  int top = -1;             // top of stack

  void push(int val) {
    if(top == 4)
      System.out.println("Stack Overflow");
    else
      arr[++top] = val;
  }

  int pop() {
    if(top == -1) {
      System.out.println("Stack Underflow");
      return -1;
    } else {
      return arr[top--];
    }
  }

  int peek() {
    if(top == -1) return -1;
    return arr[top];
  }

  boolean isEmpty() {
    return top == -1;
  }
}
```

Using the Stack Class

```
public class TestStack {
  public static void main(String[] args) {
    Stack s = new Stack();
    s.push(10);
    s.push(20);
    System.out.println("Top: " + s.peek());  // 20
    s.pop();
    System.out.println("Top after pop: " + s.peek());  // 10
  }
}
```

Summary of Stack

- Stack uses fixed-size array (can be replaced by ArrayList or LinkedList)
- Checks for **overflow** (full stack) and **underflow** (empty stack)
- Important for algorithm design: recursion, parsing, expression evaluation