

Stack

Exercise

```
class Stack {  
  
    private int top;  
    private int maxSize;  
    private int[] arr;  
  
    Stack(int maxSize)  
    { this.top = -1;  
      this.maxSize = maxSize;  
      arr = new int[maxSize];  
    }  
  
    public boolean isFull()  
    { return top >= (maxSize -  
      1);  
    }  
  
    public boolean push(int data)  
    { if (isFull()) {  
      return false;  
    } else {  
      arr[++top] = data;  
      return true;  
    }  
    }
```

```
public int peek()
{
    if (isEmpty())
        return Integer.MIN_VALUE;
    else
        return arr[top];
}
```

```
public void display()
{
    if (isEmpty())
        System.out.println("Stack is empty!");
    else {
        System.out.println("Displaying stack elements");
        for (int index = top; index >= 0; index--) {
            System.out.println(arr[index]);
        }
    }
}
```

```
public boolean isEmpty()
{
    return top < 0;
}
```

```
public int pop()
{
    if (isEmpty())
        return Integer.MIN_VALUE;
    else
```

```
        return arr[top--];  
    }  
}
```

```
class Tester {
```

```
    public static void main(String args[]) {
```

```
        Stack stack = new Stack(10);
```

```
        stack.push(15);
```

```
        stack.push(25);
```

```
        stack.push(30);
```

```
        stack.push(40);
```

```
        stack.display();
```

```
        if (checkTop(stack)) {
```

```
            System.out.println("The top most element of the stack is an even number");
```

```
        } else {
```

```
            System.out.println("The top most element of the stack is an odd number");
```

```
        }
```

```
    }
```

```
    public static boolean checkTop(Stack stack)
```

```
    {int topElement = stack.peek();
```

```
    if (topElement == Integer.MIN_VALUE)
```

```
        {System.out.println("Stack is empty");
```

```
        return false;
    }
    return topElement % 2 == 0;
}
}
```

Output-

```
Displaying stack elements
40
30
25
15
The top most element of the stack is an even number
```