172. 删除元素

给定一个数组和一个值，在原地删除与值相同的数字，返回新数组的长度。元素的顺序可以改变.

思路:双指针

```java
public int removeElement(int[] A, int elem) {
    int fast = 0, slow = 0;
    int res = 0;
    while( fast < A.length ){
        if( A[fast] != elem ){
            res++;
            A[slow] = A[fast];
            fast++;
            slow++;
        }else{
            fast++;
        }
    }
    return res;
}
```

缺点：需要移动大量数据。能否不移动大量数据？

正常数组范围:[0....size-elemSize-1],长度为size-elemSize. 考虑下一个元素：[i]

后面的数组为:[size-elemSize ... size-1],长度为elemSize.考虑下一个元素:[size-elemSize-1]

```java
public int removeElement(int[] A, int elem) {
    int size = A.length, elemSize = 0, i = 0;
    if( size <=0 )
        return 0;
    while( i < size - elemSize ){
        if( A[i] == elem && A[size - elemSize -1] != elem ){
            A[i] = A[size - elemSize -1];
            A[size - elemSize -1] = elem;
            elemSize++;
            i++;
        }else if( A[i] == elem && A[size - elemSize -1] == elem ){
            elemSize++;
        }else if( A[i] != elem && A[size - elemSize -1] == elem ){
            elemSize++;
            i++;
        }else{
            i++;
        }
    }
    return size - elemSize;
}
```