

## 16.Map,Filter,Reduce

首先要理解一个概念，函数作为一等数据值，这意味着它们可以存储在变量中，可以作为参数传递给其他函数，并且可以像其他值一样动态创建。

Map对一个集合中所有的元素都进行一个函数操作

What sequence is the result of

```
["1", "2", "3"].map((s: string) => s.length);
```

- ✓
- ☐ 1
  - ☒ [1, 1, 1] ✓
  - ☐ [1, 2, 3]
  - ☐ [ "1", "1", "1" ]
  - ☐ [ "1", "2", "3" ]
  - ☐ static error
  - ☐ dynamic error

➤ [ "1", "2", "3" ] is mapped to ["1".length, "2".length, "3".length] which is [1, 1, 1] .

Filter对一个集合中的所有元素进行判断，符合条件的留下

Given:

```
let s1 = "Abel";  
let s2 = "Baker";  
let s3 = "Charlie";
```

What sequence is the result of

```
[s1, s2, s3]  
.filter(s => s.startsWith("A"));
```

- ✓
- ☐ [s1, s2, s3]
  - ☐ ["Abel", "Baker", "Charlie"]
  - ☐ ["Abel", "", ""]
  - ☒ ["Abel"] ✓
  - ☐ []
  - ☐ static error
  - ☐ dynamic error

➤ This code is filtering for strings that start with the substring "A" .

CHECK

EXPLAIN

Reduce：一个集合中的元素和一个初始值（可以没有初始值，但是如果没有初始值，集合中至少有两个元素）reduce中的函数先用集合中的第一个元素与初始值进行二元函数操作，然后用结

果和集合中的第二个元素进行二元操作，直到最后返回最终操作结果。

What is the result of:

```
[1, 2, 3].reduce((a, b) => a * b, 0)
```

✓

0

➤

The initial value is 0, so we compute 0\*1\*2\*3 = 0.

What is the result of:

```
[ "oscar", "papa", "tango" ]  
.reduce((a,b) => a.length > b.length ? a : b)
```

✓

tango

➤

Here's how the reduction goes: first we call the lambda function with a="oscar" and b="papa"; the result is "oscar". Then we call the lambda function with a="oscar" and b="tango"; the result is "tango".

CHECK

EXPLAIN