



本节主题：

简单的计数排序

# 简单计数排序

R[i].key	6	1	12	6	18	1	18	7	0	6
	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]

C

1	2	0	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	2	0	...
[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[...]

R[i].key	0	1	1	6	6	6	7	12	18	18
	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]

## 计数排序的步骤

- 1、统计数组中每个值为i的元素出现的次数，存入数组C的第i项
- 2、根据C[i]，整理排序结果

评价：

- ❑ 不要比较的排序
- ❑ 时间复杂度 $O(n+MaxNum)$
- ❑ 空间复杂度一般高
- ❑ 适用于关键字数值密集的场所

```
#define MaxNum 100
```

```
void CountSort(RecType R[],int n)
```

```
{
```

```
    int i, j, k;
```

```
    int C[MaxNum+1] = {0};
```

```
    for(i=0; i<n; i++)
```

```
        C[R[i].key]++;
```

```
    k=0;
```

```
    for(j=0; j<=MaxNum; j++)
```

```
        for(i=1; i<=C[j]; i++)
```

```
            R[k++].key=j;
```

```
}
```