

词典

散列函数：hashCode与多项式法

有意整齐与有意变化，皆是一方死法

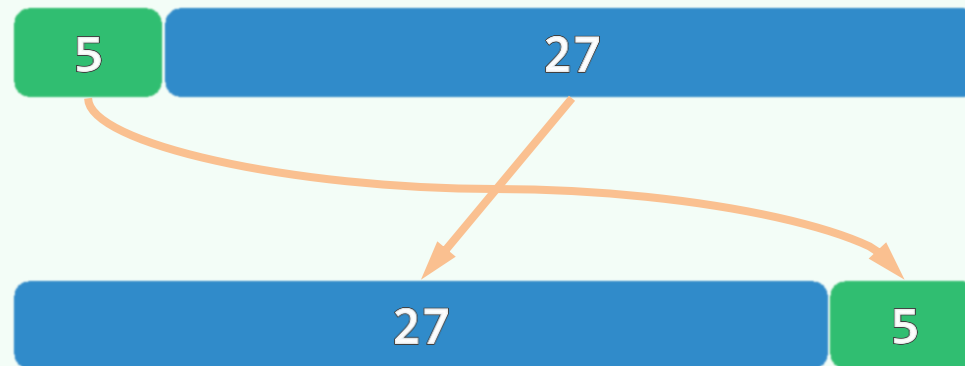
于是父亲只得求助于拈阄的办法，把两个姑娘的姓氏写在两方小红纸片上，把它们揉成两团，拿在手里，走到祖宗的神主面前诚心祷告了一番，然后随意拈起一个来。李家的亲事就这样地决定了

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# String/Object To Integer

```
static Rank hashCode( char s[] ) {  
    Rank n = strlen(s); Rank h = 0;  
    for ( Rank i = 0; i < n; i++ ) {  
        h = (h << 5) | (h >> 27);  
        h += s[i];  
    } //乘以32~27, 加上扰动, 累计贡献  
    return h;  
}  
//有必要如此复杂吗? 能否使用更简单的散列, 比如...
```



$$\begin{aligned} & \text{hashCode}("x_{n-1} \dots x_3 x_2 x_1 x_0") \\ &= x_{n-1} \cdot a^{n-1} + \dots + x_2 \cdot a^2 + x_1 \cdot a^1 + x_0 \\ &= (\dots ((x_{n-1} \cdot a + x_{n-2}) \cdot a) + \dots + x_1) \cdot a + x_0 \end{aligned}$$

# 冲突 ~ 巧合

❖ 比如:  $\text{hashCode}(S) = \sum_{c \in S} \text{code}(\text{upper}(c))$   
 $\text{hashCode}(\text{"hash"}) = 8 + 1 + 19 + 8 = 36$

❖ 字符相对次序信息丢失, 将引发大量冲突

- I am Lord Voldemort
- Tom Marvolo Riddle

❖ 即便字符不同、数目不等...

- He's Harry Potter

❖ Key to improving your programming skills

Learning Tsinghua Data Structures & Algorithms

