

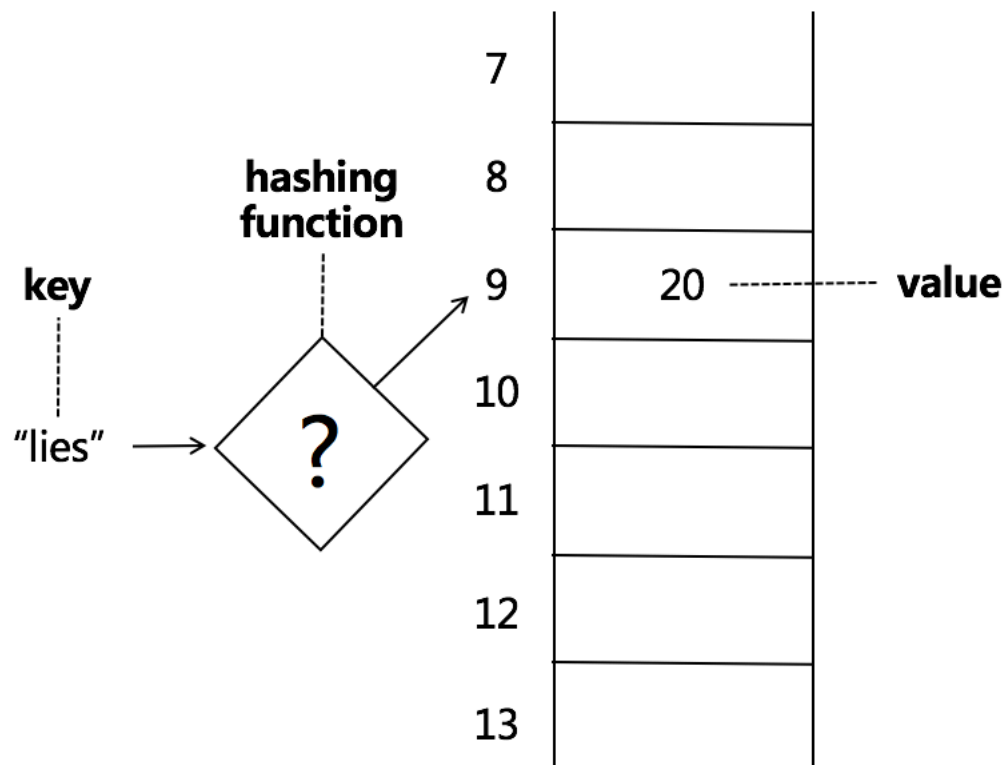
# 哈希表(HashTable) & 集合(Set)

# 本节内容

1. Hash Function

2. Hash Collisions

# Hash Function



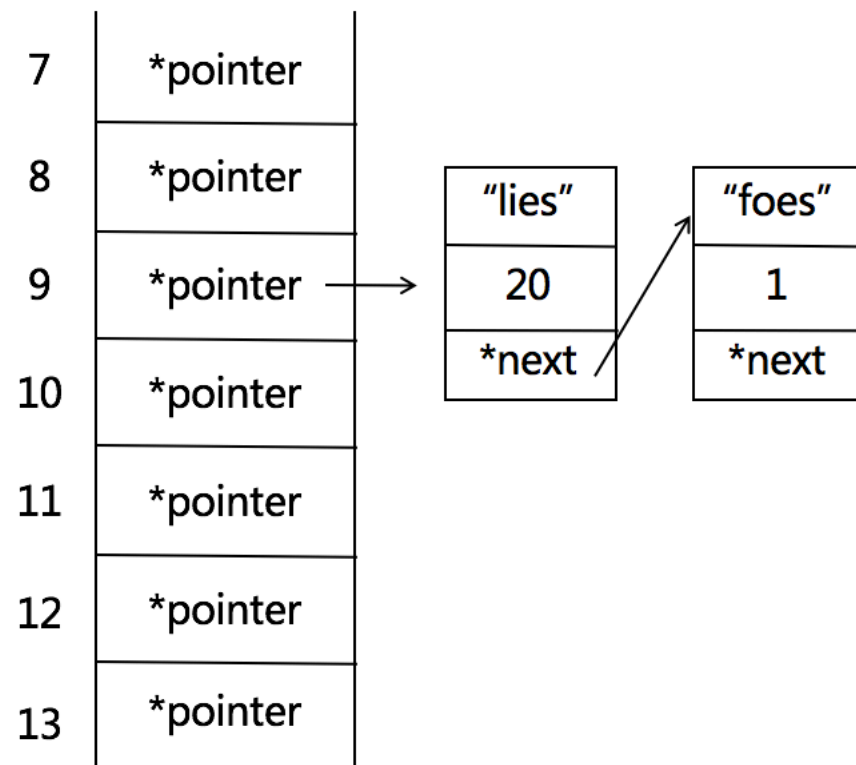
**" l i e s "**

↓ ↓ ↓ ↓

$$108 + 105 + 101 + 115 = 429$$

# Hash Collisions

" l i e s "  
 ↓ ↓ ↓ ↓  
 108 + 105 + 101 + 115 =  
 108 + 105 + 101 + 115 = **429**  
 ↑ ↑ ↑ ↑  
 " f o e s "



# HashMap best practices

## Python

`dict`

`hashmap = {key: value}`

## Java

`HashMap`

`TreeMap`

## C++

`std::unordered_map`

`std::map`

## C#

`Dictionary<TKey,TValue>`

`Hashtable`

`StringDictionary`

`SortedDictionary`

# HashSet best practices

## Python

```
hashset = {value1, value2}
```

## C++

```
std::unordered_set
```

```
std::set
```

## Java

```
HashSet
```

```
TreeSet
```

## C#

```
HashSet
```

```
SortedSet
```

# 实战题目

1. <https://leetcode.com/problems/valid-anagram/description/>
2. <https://leetcode.com/problems/two-sum/description/>
3. <https://leetcode.com/problems/3sum/description/>
4. <https://leetcode.com/problems/4sum/>
5. <https://leetcode.com/problems/group-anagrams/description/>