

1. ArrayList Vector

List

List

Collection

HashSet

HashSet

hashset

ArrayList Vector

ArrayList Vector

•

Vector

ArrayList

ArrayList

Vector

Vector&ArrayList Hashtable&HashMap

Vector Hashtable java

ArrayList HashMap java2

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ArrayList Vector

ArrayList Vector

Vector

ArrayList 1.5

ArrayList Vector Vector

ArrayList

Vector ArrayList 0.5

2. ArrayList, Vector, LinkedList

ArrayList Vector

Vector

synchronized

ArrayList LinkedList

ArrayList LinkedList

3. (fail-fast) (fail-safe)

Iterator

java.util

java.util.concurrent

ConcurrentModificationException

4. hashmap

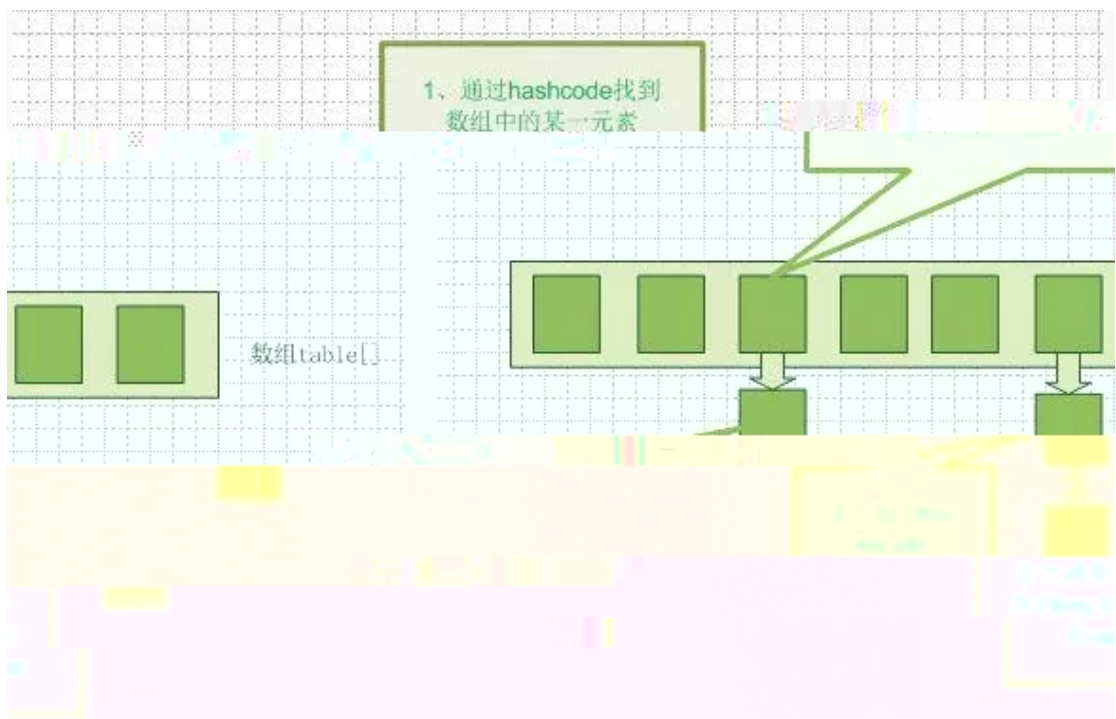
java

hashmap

Hashmap

"

"



enter image description here

5. HashMap ?

Java HashMap (key-value) HashMap

hash hashCode() equals() /

put() HashMap key hash

key value

HashMap (capacity) (load factor)

(threshold resizing)

6. Hashmap

hashmap loadFactor

loadFactor 0.75 16

hashmap $16 \cdot 0.75 = 12$ $2^{16} = 32$

hashmap

hashmap 1000 new HashMap(1000),

new HashMap(1024) annegu

1000 hashmap 1024 new HashMap(1024)

$0.75 \cdot 1000 < 1000$, $0.75 \cdot \text{size} > 1000$,

new HashMap(2048) & resize

7. List Map Set



Map List Set put
 put(obj key,obj value) key/value
 key equals key
 value get(Object key) key value
 key value key value
 Map.Entry

 List Set ,
 Map key-value value

 HashSet hashCode hashCode
 "abc" ---> 78 "def" ---> 62 "xyz" ---> 65
 HashSet 62,65,78

 LinkedHashSet hashCode
 ! hashset hashCode
 equals new Student HashSet
 HashSet size hashCode equals size

 Vector
 HashSet

 8. Set ? ==
 equals()? ?

Set

equals()

equals() ==

equals()

9.

(x.equals(y) == true)

hash code

?

HashSet

HashMap

equals

hashCode

HashSet

HashMap

hashCode

hashCode

arrayList

hashCode

10. heap stack

Java

new

final

11. Java

Java

Java

Collection

Set

Collection

List

collection

Map

(key)

(value)

12. HashSet

TreeSet

HashSet

hash

add()

remove()

contains()

TreeSet

add()

remove()

contains()

$O(\log n)$

13. HashSet

?

HashSet

HashMap

HashSet

HashMap

HashSet

HashMap

HashSet

HashSet

HashMap

key

HashMap

false

14. LinkedHashMap

?

LinkedHashMap

HashMap

Entry

header

header

Table

LinkedHashMap hashMap Entry, Entry
before,after, header
LinkedHashMap accessOrder boolean
true false

15. Cloneable Serializable
(cloning) (serialization)

16. (Iterator)

Iterator

remove(Object Obj) remove()

17. Iterator ListIterator

Iterator Set List ListIterator List

Iterator ListIterator

ListIterator Iterator

18. (Array) (ArrayList) Array

ArrayList

Array ArrayList

Array ArrayList

ArrayList

19. Java

- Array

- ArrayList

- hash

- ClassCastException

- JDK (immutable class) Map

- hashCode() equals()

- 0

- null

20. Set ==

equals()

Set

```
iterator()
```

equals()

Set

equals() ==

equals()

21. Comparable Comparator

Java

compareTo()

Comparable

0

Java

compare()

equals()

Comparator

compare()

0

equals()

comparator

comparator

comparator

true

22. Collection Collections

collection

1

set

list

collections

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/ /