

Spse: want: idea:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Want

Map of names where empId (int) is key

①

	EmpId	Name
225	43	"George"
5	17	"Zoe"
56	36	"Erin"



43	"George"
17	"Zoe"
36	"Erin"

map.
Entry
getKey()
getValue()

how implemented

⑤

Obj class has a public hashCode method that returns an integer representation of the object

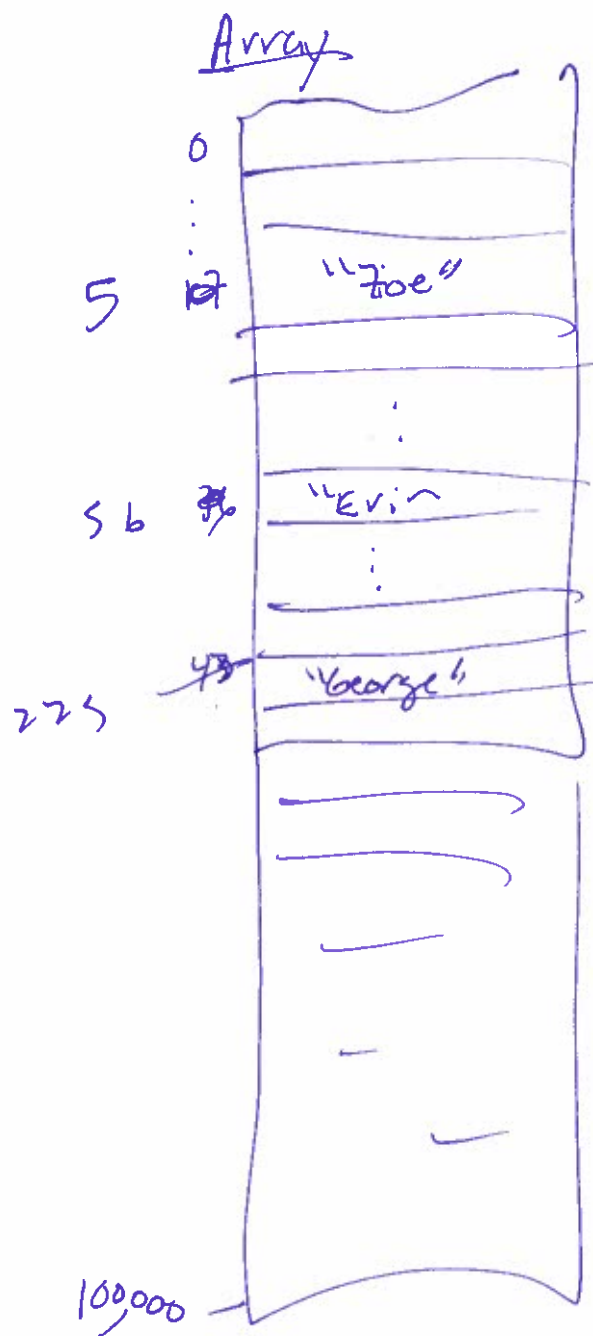
hc of an integer is the integer itself

$(Integer) 32).hc() = 32$

"Nyc".hc() = 77,784

②

Iden:



↳ how big to make?

③ Set capacity to n

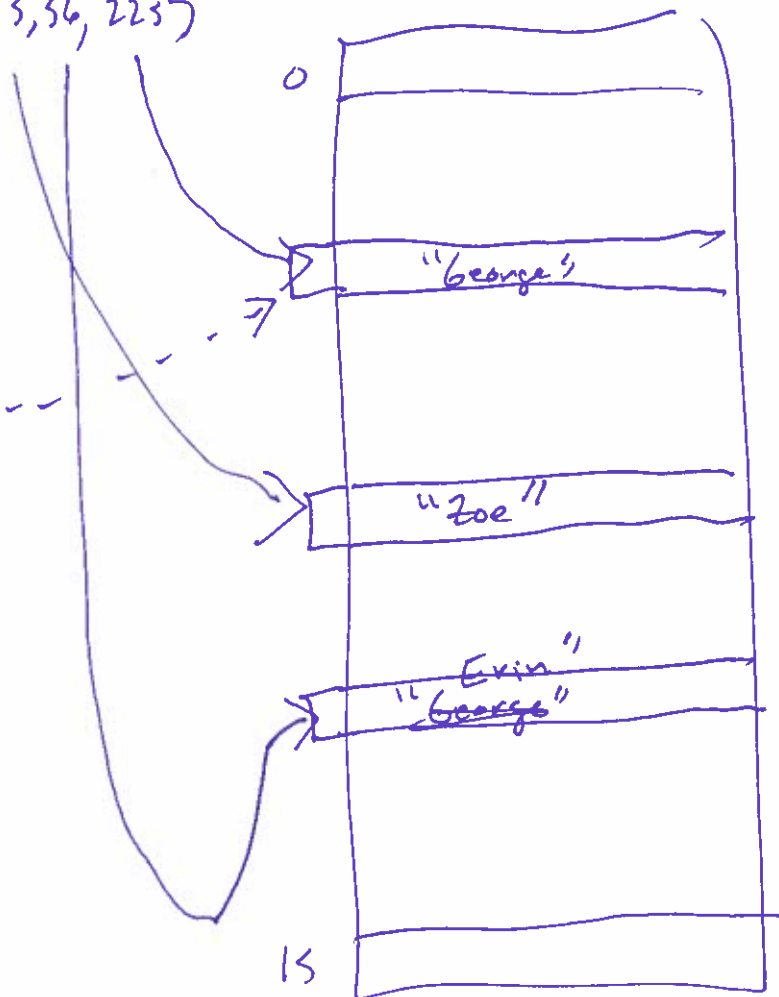
let $hf(key) \in [0, n-1]$

↳ hash function

let $n=16$,

Keys = $\{s, sb, zzs\}$

don't know
exactly
what
index
is



⊗ Collisions

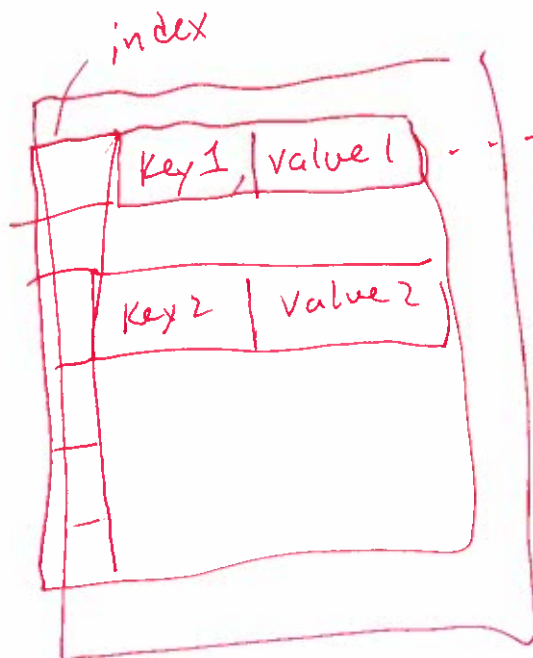
④ What about other types of keys?
String? Object?

⇒ see ⑤ on another page

⑥ Let capacity = n
Key $\rightarrow hc \in \{\dots, -2, -1, 0, 1, 2, \dots\} \rightarrow \text{index} \in \{0, n-1\}$

$x \in \mathbb{R} \mid -\infty < x < \infty$
 $hc \in \{hc\}$
 $hc = \text{Key.hashCode()} \in \{\dots, -2, -1, 0, 1, 2, \dots\}$
 $\text{index} = \text{hashfunction}(hc) \in \{0, 1, \dots, n\}$

⑦ Java



⑧ Junc = "put"

map.put(k, v)

index = hf(k.hashCode())

^{ary}
~~array~~[index] = v

⑨ Junc = "get"

map.get(k)

index = hf(~~key~~.k.hashCode())

ret ary[index]