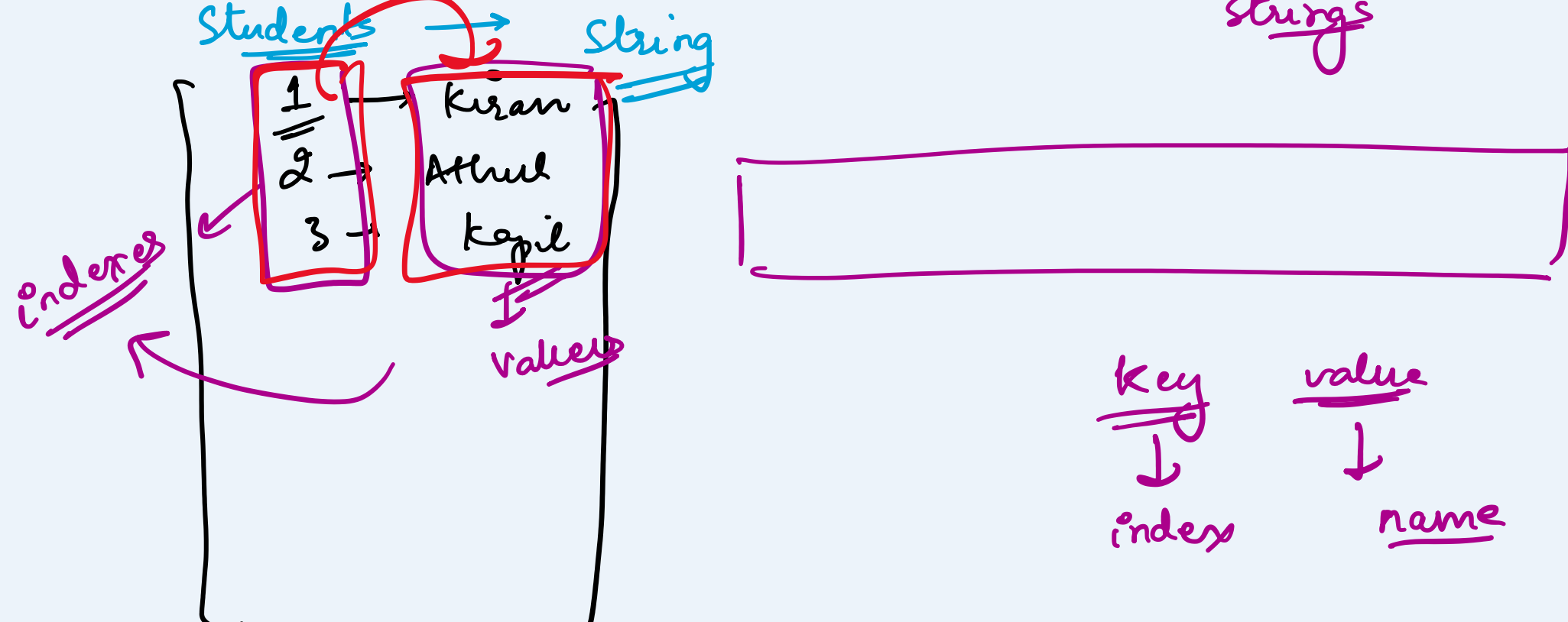


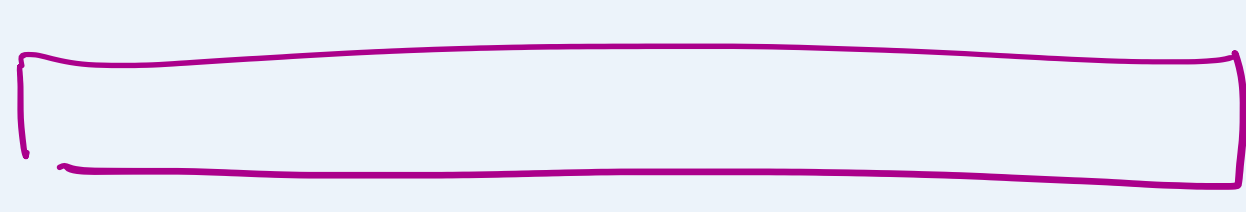
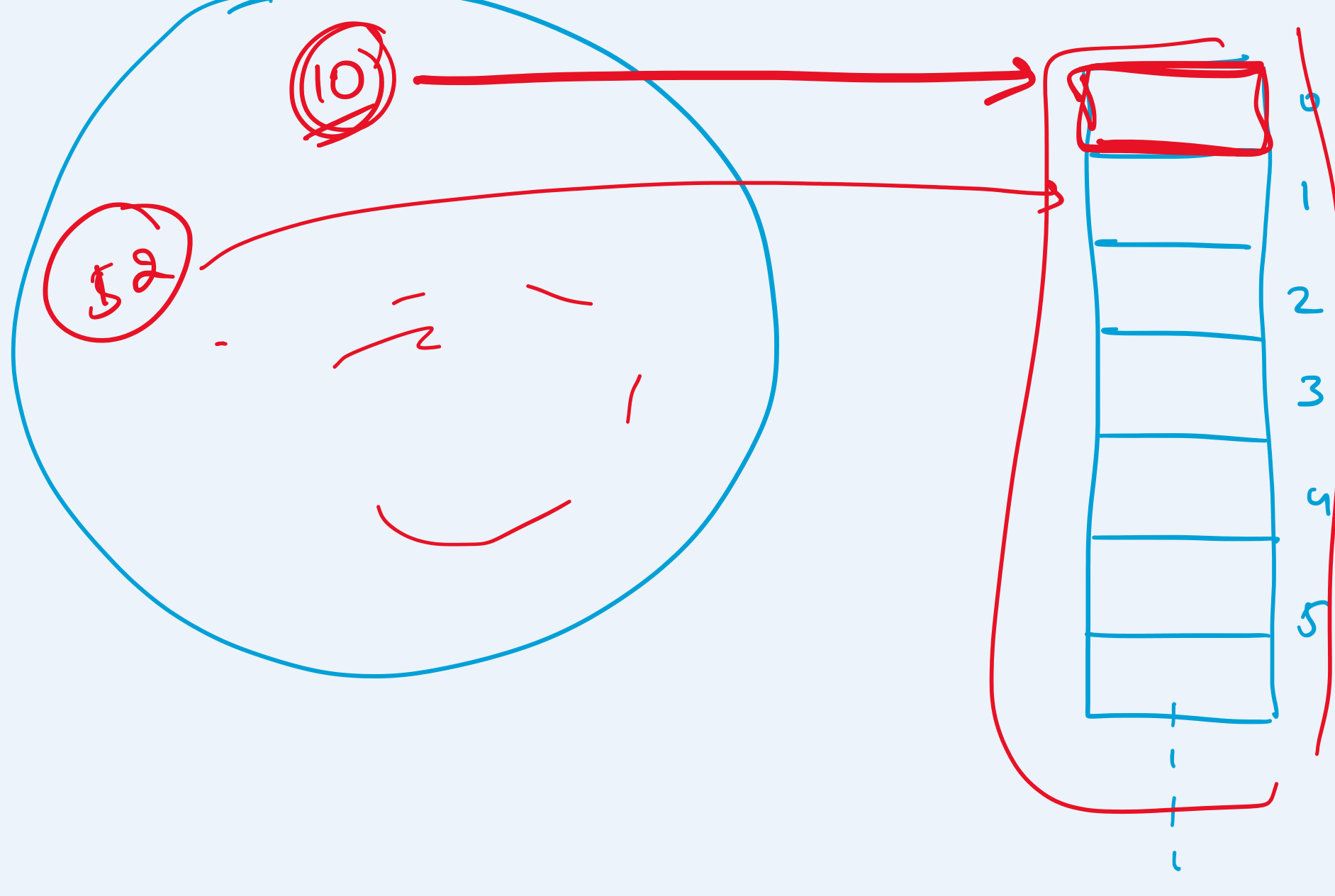
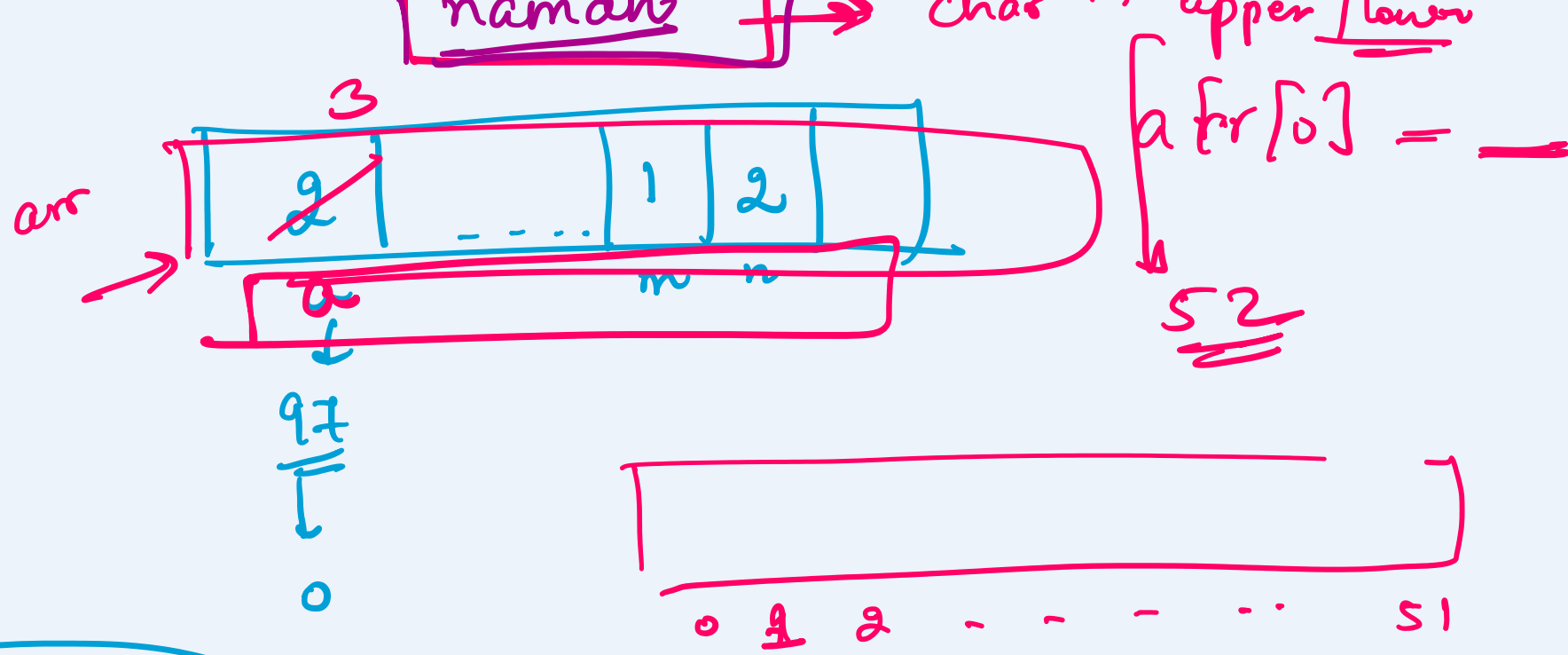
## Hashing

→ storing & retrieving information

Array → Hash table

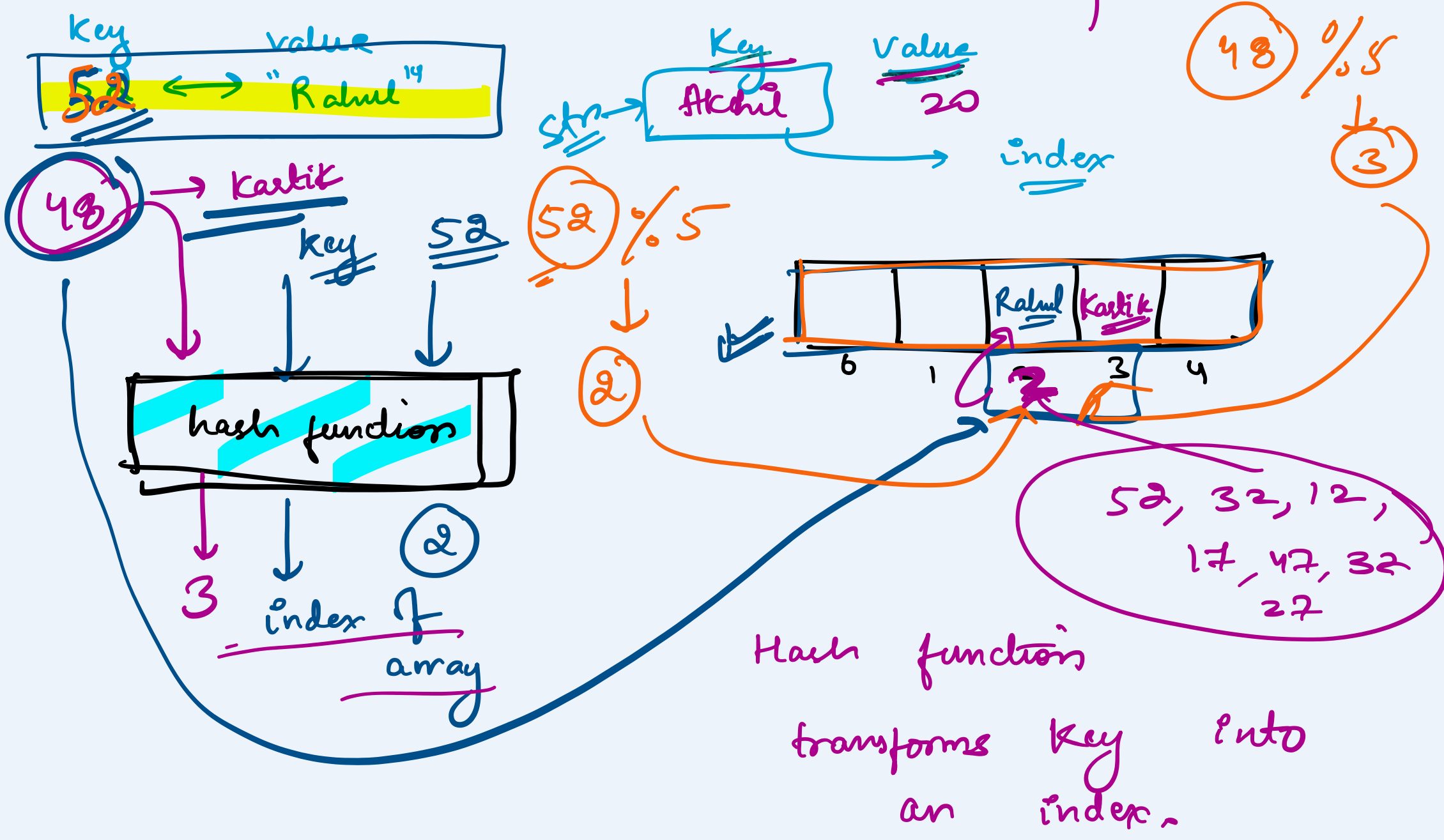


String → store freq of each char



## Components of hashing

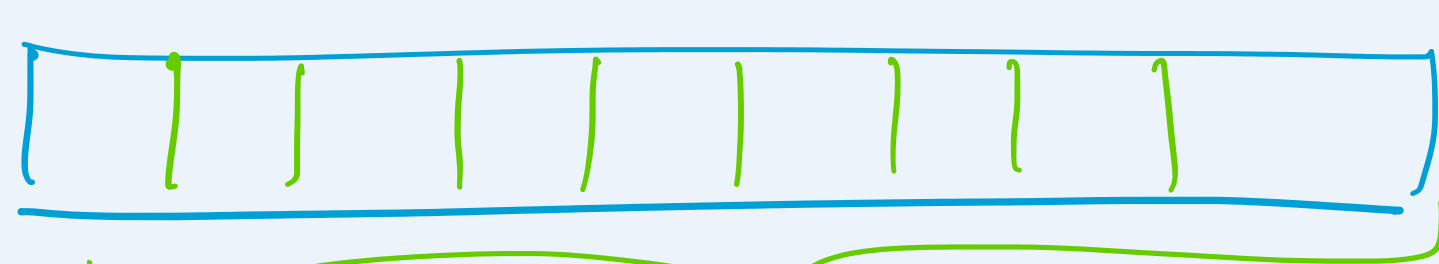
- 1) Hash table / Hashmap <Key, value>
- 2) Hash Functions
- 3) Collisions
- 4) Collision resolution techniques.



Hash function transforms key into an index.

Key → Index

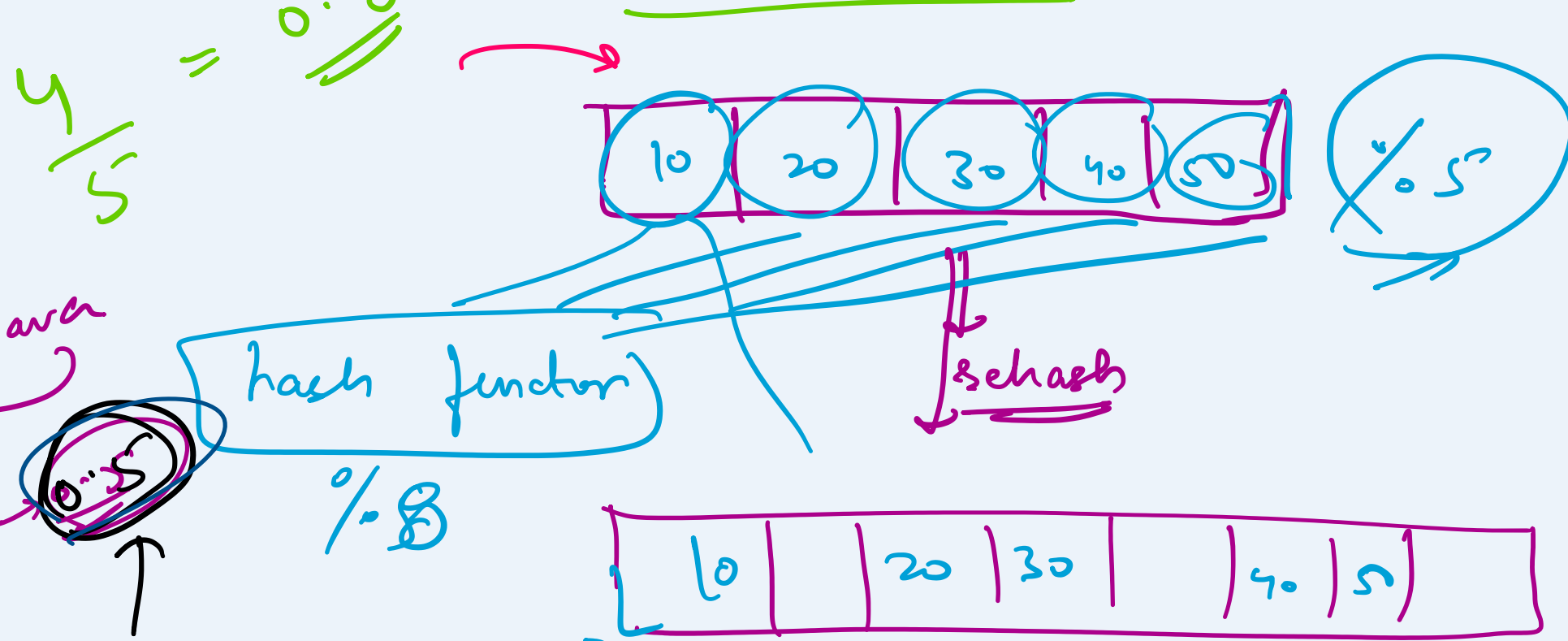
abc  
1+6  
97+98+99 → index % 10  
bac same hash values



## Load Factor / Threshold

= no. of elements in hash table

Hash table size



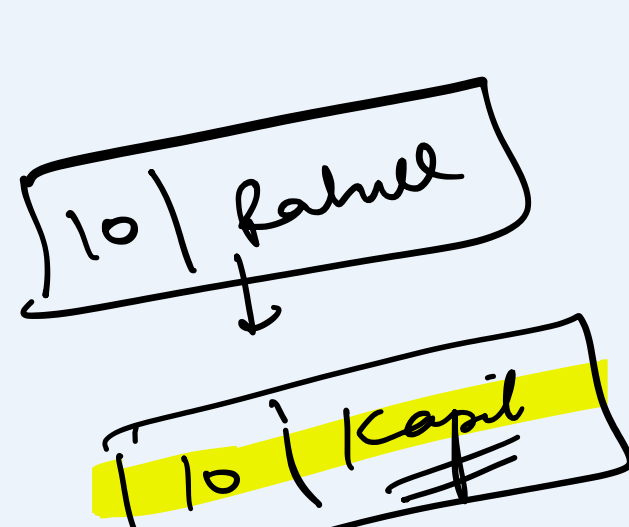
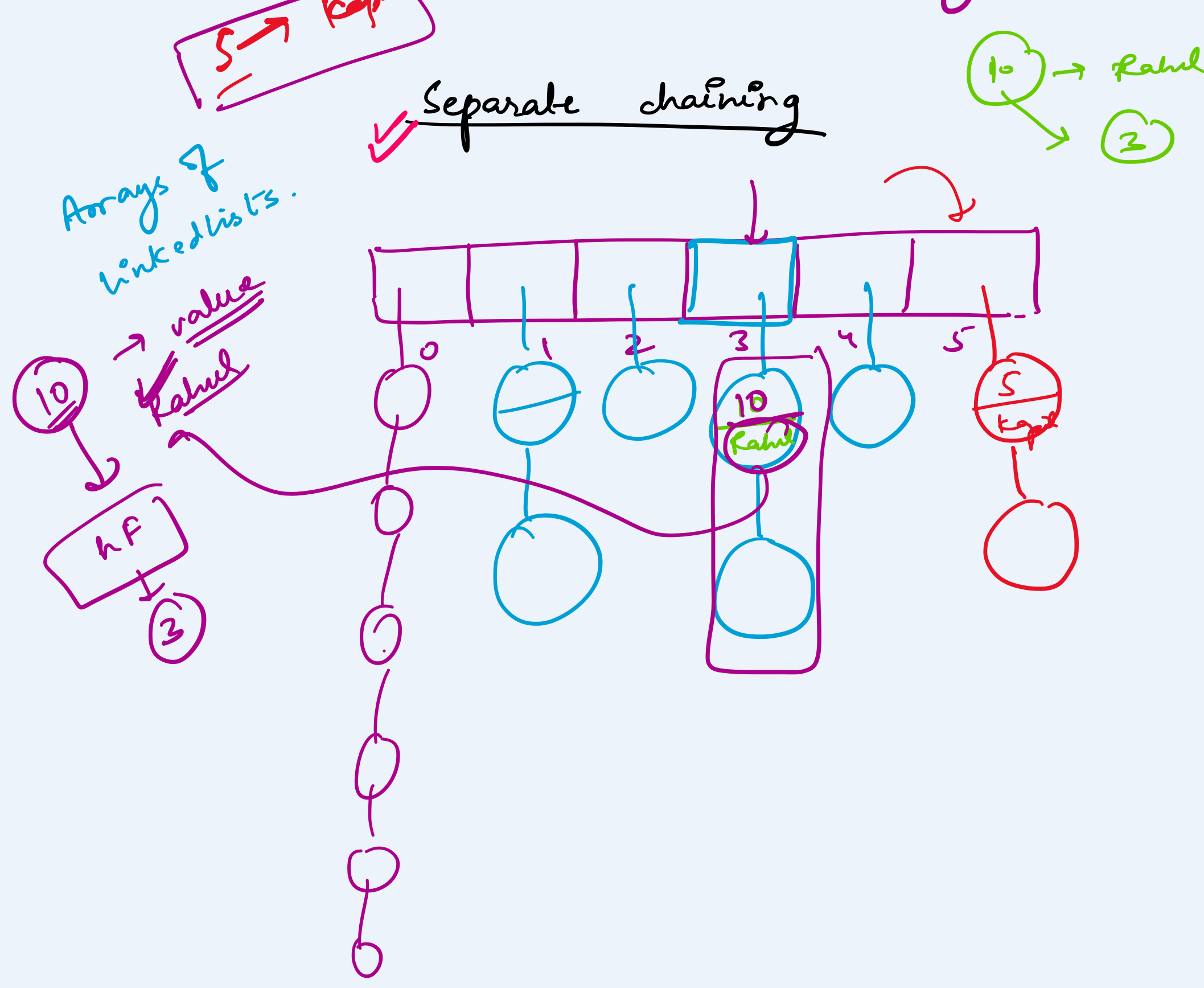
J → LF → 2

## Collisions

→ Collision is the condition where two records are stored in same location.

## Collision Resolution Techniques

- 1) Direct chaining → separate chaining
- 2) open addressing
  - Linear probing
  - Quadratic probing
  - Double hashing



- 1) put (10, "Rahul")
- 2) get (10) // Rahul
- 3) put (10, "Kapil")
- 4) containsKey (10) true