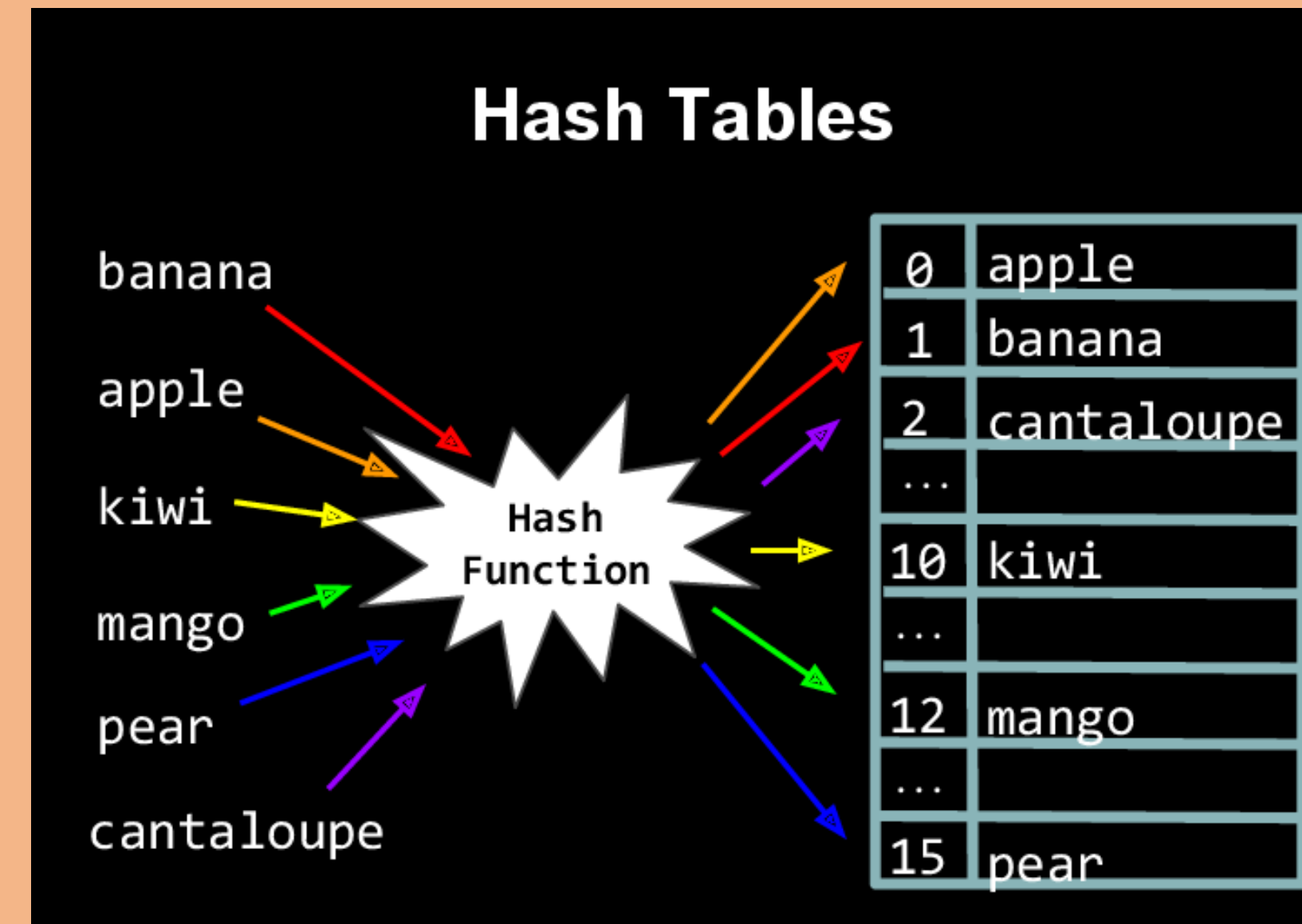


PERFECT HASHING



WHAT ARE HASH TABLES?

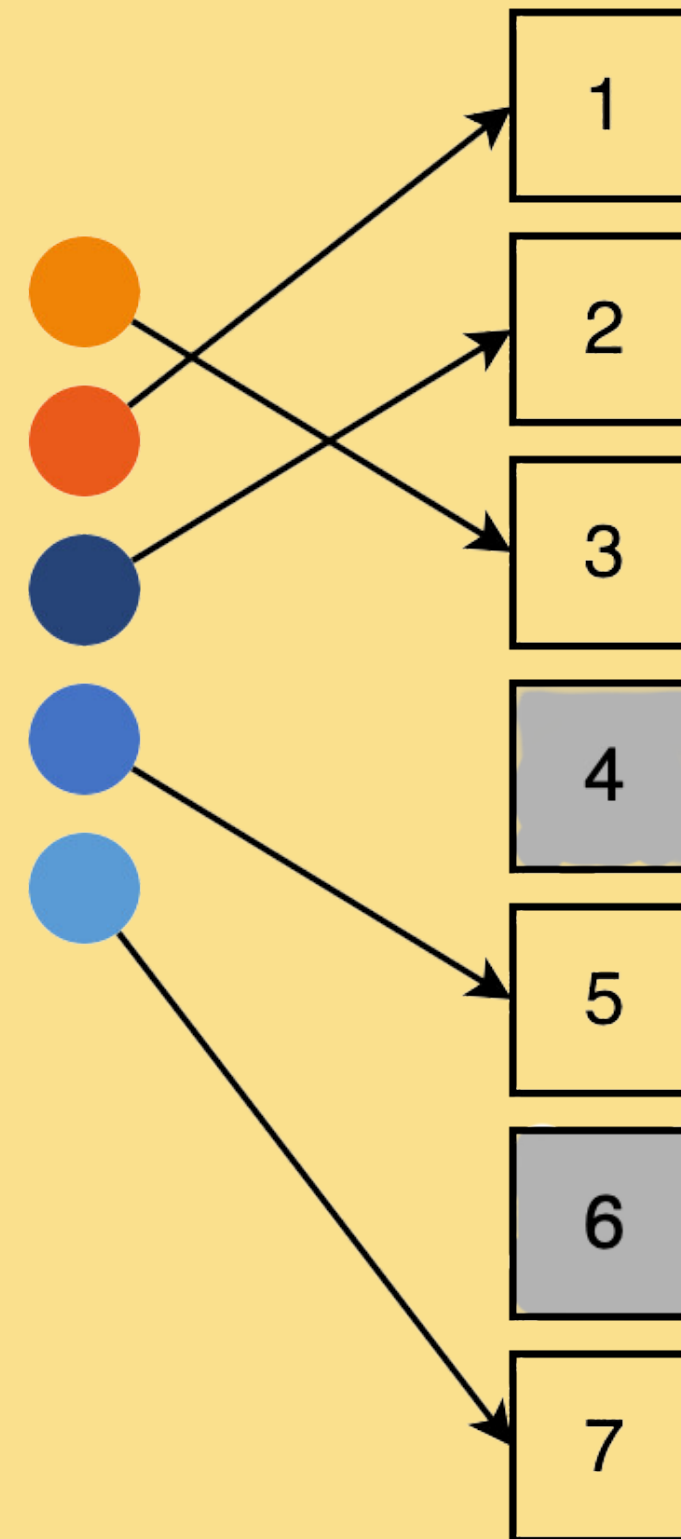
A hash table, also known as a hash map, is a data structure that implements an associative array, also called a dictionary, which is an abstract data type that maps keys to values. A hash table uses a hash function to compute an index, also called a hash code, into an array of buckets or slots, from which the desired value can be found .



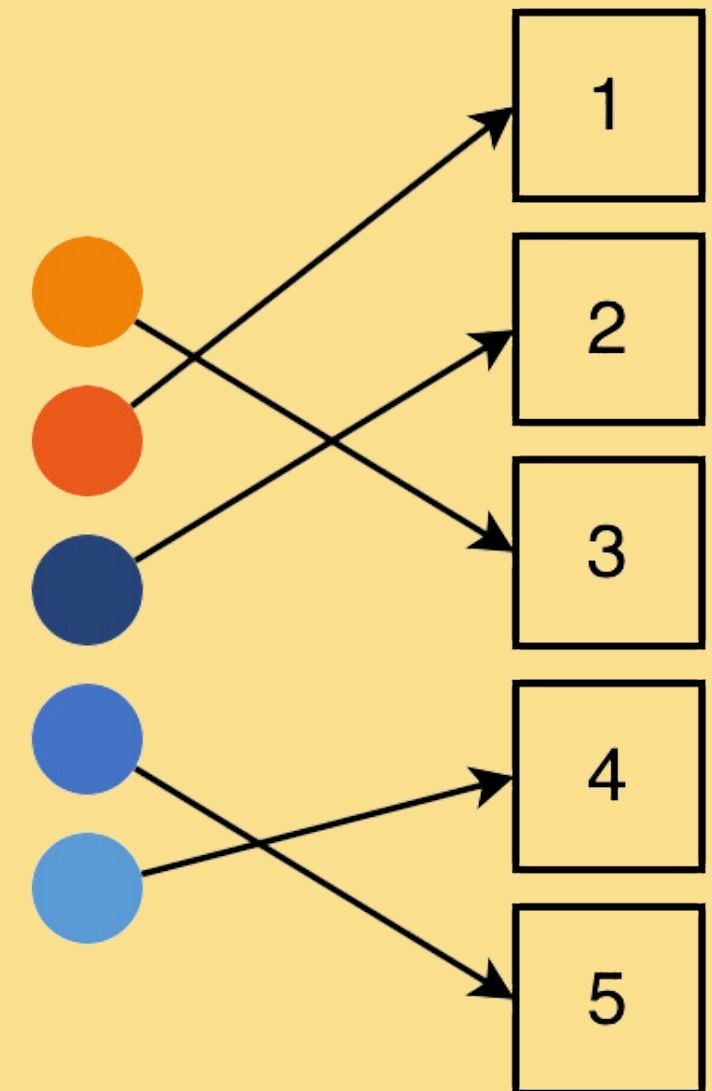
PERFECT HASHING

Perfect hashing is a technique used to store records in a hash table with no collisions. It maps distinct elements to a set of integers, with no collisions.

Perfect



Minimal Perfect



FIXED-SIZE VS VARIABLE-SIZE HASHING

Fixed

Hashing where the hash table size is predetermined and remains constant.

- Simple to implement.
- Potential for hash collisions is higher due to limited space.
- Efficient when the dataset size is known and static.

Variable

Hashing where the hash table can grow or shrink dynamically based on the data.

- Adapts to the number of elements, reducing collision chances.
- Can be more complex to implement due to the need for rehashing.
- Better for situations with unknown or highly variable data sizes.

