Hashed Data Structures

Hash Table 🡪 is a Data Structure (Think of it as an array)

* Fast insertion & searching
* Limited in size (since they are based off an array)
* Can be resized BUT should be avoided
* Hard to order

\*Key Values are assigned to elements in a Hash Table using a Hash Function\*

Hash Function 🡪 calculates the best index an item should go in

* Achieves the task of storing values in an array with a limited size, in a way that the array doesn’t need to be searched through to find it
* Allows you to enter values in any order
* It then finds the values using a calculation instead of searching 🡪 hence VERY FAST
* Index must be small enough for the array size
* Don’t overwrite other data in the Hash Table

Hash Functions == Speed

* Nonduplicate ID for info stored in a Hash Table
* Calculation(ID) 🡪 provides the exact index where that info is located in the Hash Table (array)
* Goes directly to that location in the structure and returns/sends that info to the user

hashFunction1

hashFunction2

* Plan to store values between 0 – 999 BUT never plan to have more than 15 values stored in each array 🡪 wasteful to use the first function
* Use the Mod function 🡪 take the modulus (remainder)

\*Collision: trying to insert a value into an index that already contains a value