code decoded

data structures

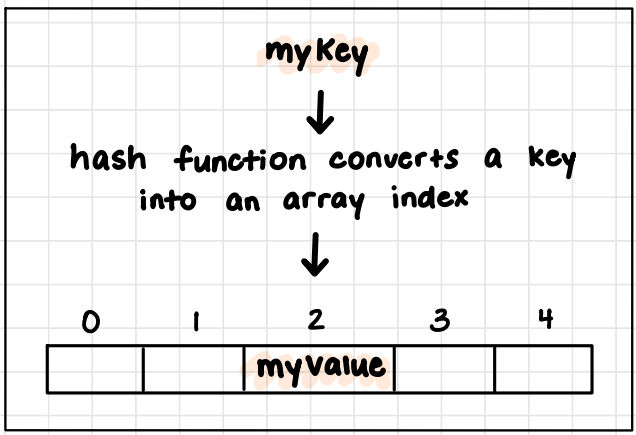
Hash Map

A HashMap is an unordered collection of key-value pairs.

"one"	1
"two"	2
"three"	3
"four"	4

A **hash function** consumes a key + outputs a unique hash.

Two equal keys will always produce the same hash.

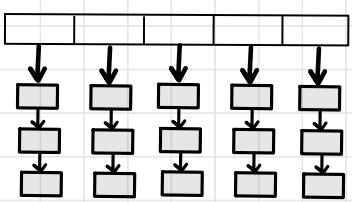


efficiency

INSERT	O(1)
KEY LOOKUP	O(1)
VALUE LOOKUP	O(n)
DELETE	O(1)

A **collision** occurs when the hash function returns the same hash for two distinct inputs.

To work around this, we can have an array of linked lists. Each linked list consists of the values for all of the keys whose hash returned that index.



Another technique for collision handling is **Linear Probing**.

If the resulting index has been filled, the value is inserted into the next available space.

A **set** is a hash table that stores only keys.

"one"	"two"	"three"	"four"	"five"	"six"