Fine element needs to “return” two things

1. The location where the term is/terms are
2. Whether it is found

Each elt is given its own slot in the array. Let’s try this with student IDs.

Obviously an array of length 1 million is overkill. So let’s use an array of length 100 and use just the last 2 digits of the ID.

Hashing: hashing is the idea that we can somehow assign each element its own slot in the array. Therefore, we won’t have to search for it.

The function that takes an input value (called a key) and maps it to a slot is called the hash function.

An array indexed via a hash function is called a hash tables

If two keys hash to the same location, we have a collision. Ideally, we would have no collisions, a situation known as perfect hashing. Under perfect hashing, we have O(1) guaranteed.

Of course, perfect hashing does not happen in practice so we will need to employ a collision resolution strategy.