Arrays are simple lists of nested datastructures. This means that you can put any type of data inside an array. All of the data inside arrays has a corresponding index number. For example, if “hello” was the first item inside the array “array”, it would be defined as array[0], and the subsequent items would be array[1], array[2] ,and so on. However, hashes work a little differently. Instead of using indices and values, hashes use key-value pairs. So, instead of identifying values by their indices, you would identify them by their corresponding keys. Say I had the hash:

hash1 = {“greeting” => “hello”}

If I were to look for “hello”, I would identify it by the following code:

puts hash1[“greeting”]

That is the fundamental difference between hashes and arrays. One might think that they can use hashes and arrays for the same purposes, however, when delving into more complicated topics, complications arise when using hashes. Say I owned a car dealership, and I wanted to sort the cars in my dealership by brand. Using arrays, I would put:

toyota = [“camry”, “prius”]

bmw = [“x5”, “x3”, “i8”]

lamborghini = [“gallardo”, “huracan”]

Notice how I have to create MULTIPLE arrays to display my inventory. If I wanted to see all of the Lamborghinis in my inventory, I would do:

puts lamborghini

and that would return all of the Lamborghinis in my inventory. A simpler way to do this would be to use a hash. For example, I would use:

inventory = {

“toyota” => “camry”, “prius”

“bmw” => “x5”, “x3”, “i8”

“lamborghini” => “gallardo”, “huracan”

}

This is a lot simpler, as I only gave to access ONE hash to display my inventory. Now, If I wanted to see all of my Lamborghinis, I would do:

puts inventory[“lamborghini”]

and that would return all of the Lamborghinis in my inventory. This is an example of how hashes are more efficient when associating multiple values with one key. An example of when arrays would be more useful is when you only need one value per key. Say I was making a mixtape, for example. If I were to put it in a hash, I would put:

mixtape = [“track1”, “track2”, “track3”]

and if I wanted to find track3, I would put:

puts mixtape[2]

and it would return track3. However, using hashes would overcomplicate things. I would have to manually input the key. For example:

mixtape = {1 => “track1”, 2 => “track2”, 3 => “track3”}

and I would put:

puts mixtape[3]

to return track3

These are only a couple examples of where one method of nesting datastructures is easier than the other. In my opinion, however, I would personally use hashes more, because they are more versatile, despite their drawbacks.