Programming for Everybody

4. Arrays and Hashes

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Arrays

a **collection** of Ruby data that stores a list of values (called **elements**) in a single variable

arrays can contain: **numbers** (in any order, repeated or not), **strings**, **boleeans, symbols** and even… **other arrays**! :)
(arrays of arrays are called *multidimensional arrays*)

arrays are defined by specifying values between square brackets [ ] , separated by commas

```
my_array = [“Bob”, “Joe”, “Zack”]
```

Arrays

each element in the array has what's called an **index** -> the first element is at index **0**, the next is at index 1, the following is at index 2, etc.

we can **access** elements of an array by putting the index within **square brackets**

```
array = [5, 7, 9, 2, 0]
array[1]
```

(returns "7", since "7" is at index 1)

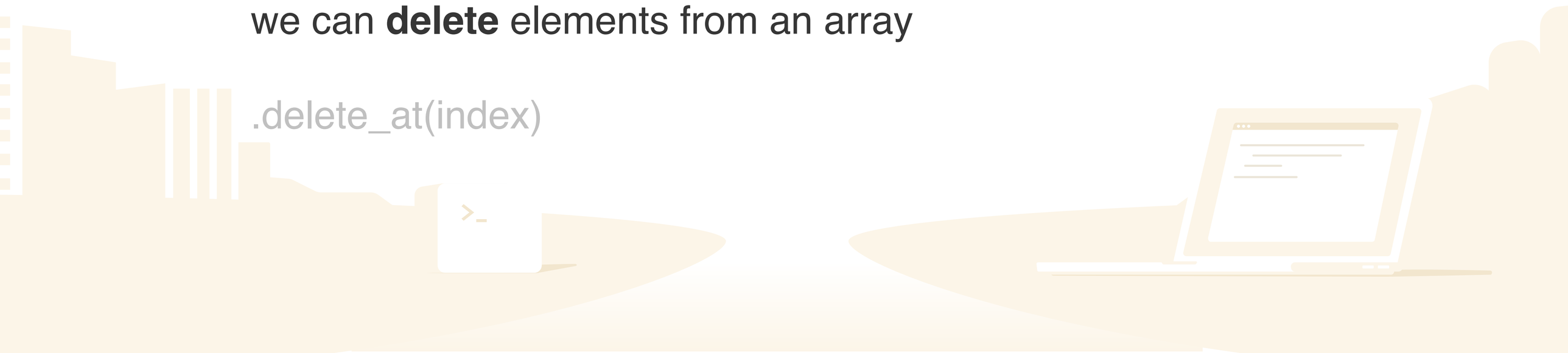
Arrays

we can **add** elements to an array

.push(new element) or << new element

we can **delete** elements from an array

.delete_at(index)



Hashes

a **collection** of Ruby data that stores a list of **key-value pairs** in a single variable

we can use **any** Ruby object as a key or value

values are assigned to keys using =>

```
hash_name = {
  key1 => value1,
  key2 => value2,
  key3 => value3
}
```

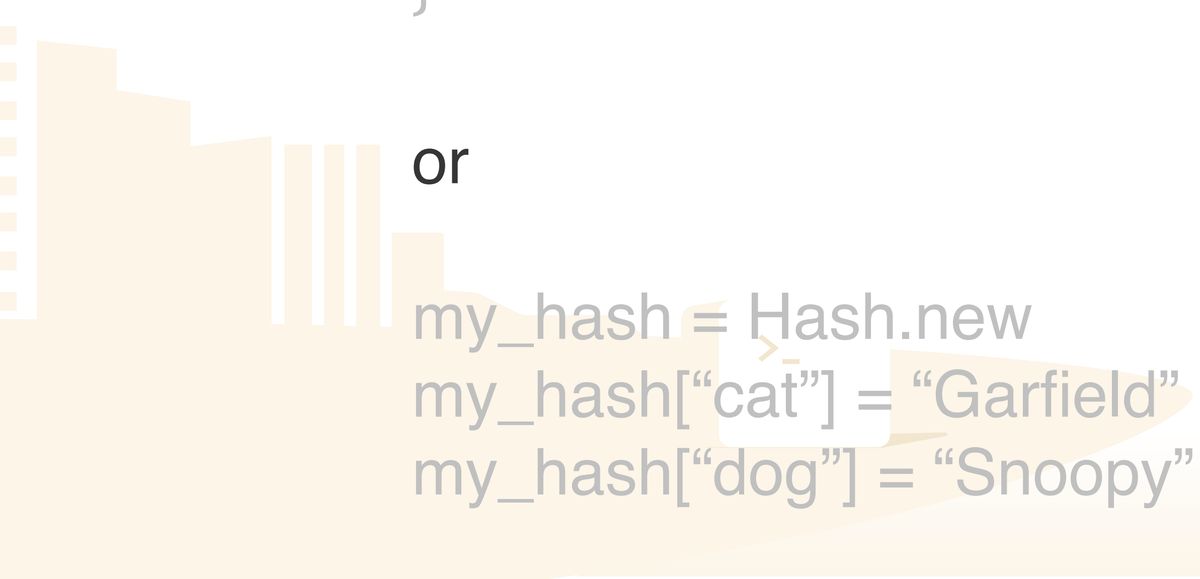
Hashes

creating a new hash:

```
my_hash = {
  “cat" => “Garfield”,
  “dog” => “Snoopy”
}
```

or

```
my_hash = Hash.new
my_hash[“cat”] = “Garfield”
my_hash[“dog”] = “Snoopy”
```



Hashes

we can **access** a specific key-value pair like so:

```
my_hash = {
  “cat" => “Garfield”,
  “dog” => “Snoopy”
}

puts my_hash[“cat”]

(will print out “Garfield”)
```

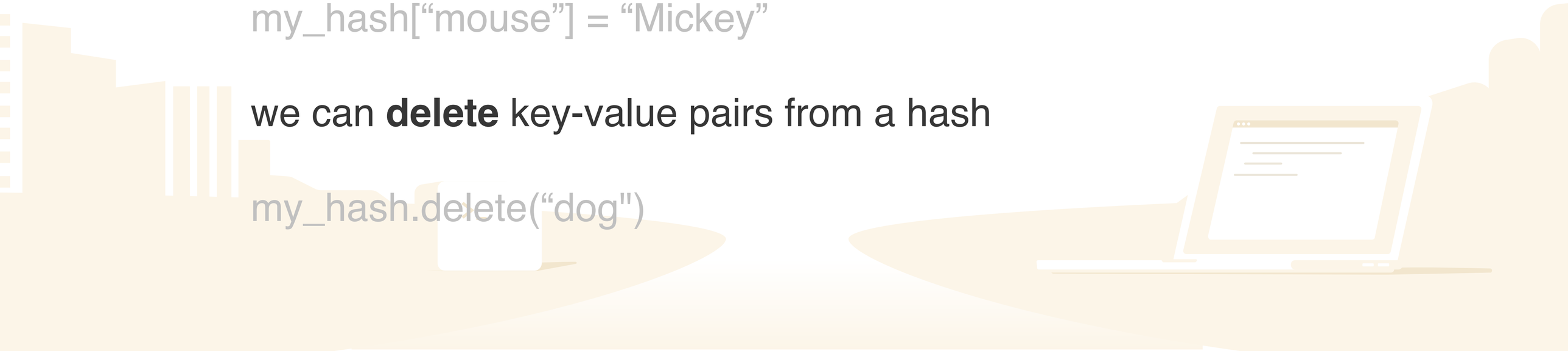
Hashes

we can **add** key-value pairs to an hash

```
my_hash = {
  “cat" => “Garfield”,
  “dog” => “Snoopy”
}
my_hash[“mouse”] = “Mickey”
```

we can **delete** key-value pairs from a hash

```
my_hash.delete(“dog")
```



Iterating... again!

we can loop over an array on a hash, in which case we say we're **iterating** over them

Iterating... again!

1. Iterating over an Array

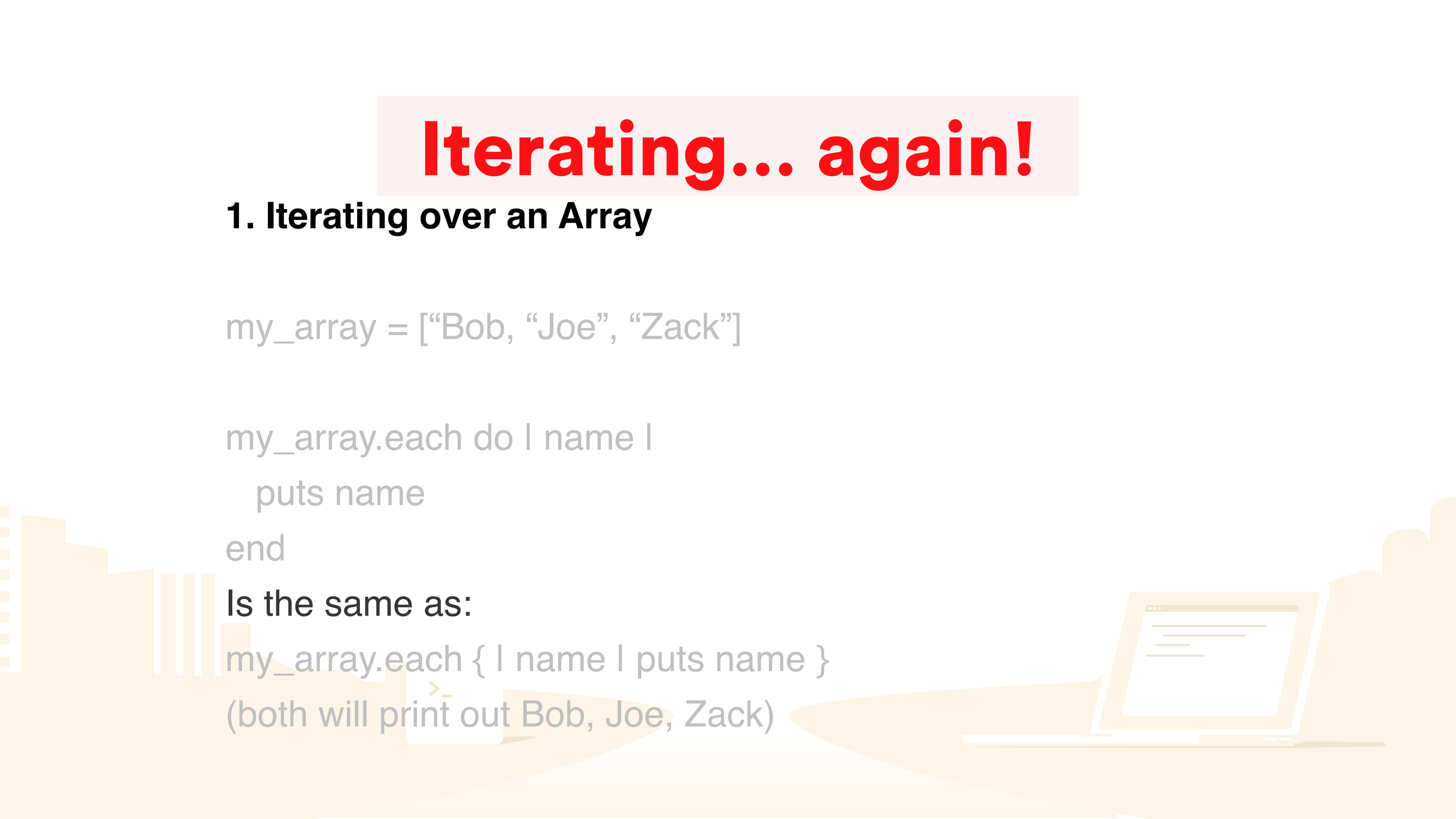
```
my_array = [“Bob, “Joe”, “Zack”]


my_array.each do | name |
   puts name
end
```

Is the same as:

```
my_array.each { | name | puts name }
```

(both will print out Bob, Joe, Zack)



Iterating... again!

2. Iterating over a multidimensional array

```
my_array = [[“Bob, “Joe”, “Zack”], [“Zoe”, “Nina", “Chloe”]]

my_array.each do | sub_array |
   sub_array.each do | name |
       puts name
    end
end

(prints out Bob, Joe, Zack, Zoe, Nina, Chloe
```

Iterating... again!

3. Iterating over a Hash

we need **two placeholders** to represent each key/value pair:

```
students_grades = {
  "Zack" => 7,
  "Zoe" => 10
}

students_grades.each do |student, grade|
  puts "#{student}: #{grade}"
end
```

(prints out Zack: 7, Zoe: 10)

Thank you!