DATA STRUCTURES (ARRAYS)

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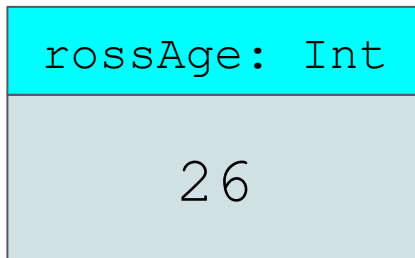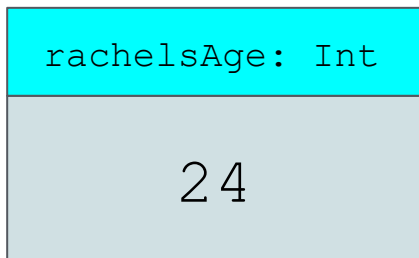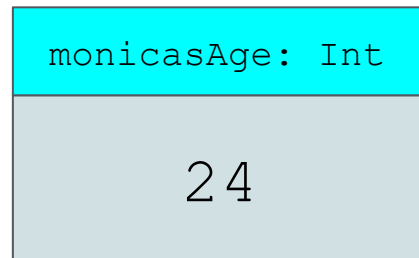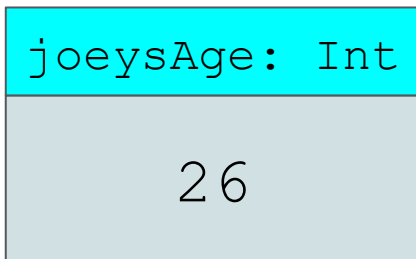*Lead iOS Instructor, General Assembly*

LEARNING OBJECTIVES

+ Define an array

+ Create an array

+ Access an element in an array

+ Modify an array

+ Iterate over an array

ORGANIZING DATA

phoebesAge: Int

27

chandlersAge: Int

26

joeysAge: Int

26

rachelsAge: Int

24

rossAge: Int

26

monicasAge: Int

24

ORGANIZING DATA

ARRAYS!

0	Int 26	4	Int 24
1	Int 26	5	Int 26
2	Int 24		
3	Int 27		

ARRAYS

Arrays organize your data into series.

```
let ages = [26, 26, 24, 27, 24, 26]
```

An array's type specifies what types of objects it can contain.

```
var birthYears: [Int]
```

CREATING ARRAYS

```
var arrayName: [ItemType] = [item1, item2, item3]
```

Practice

1) Create an array holding the strings, "Tom", "Dick" and "Harry".

2) Declare an array variable that will hold doubles.

3) Create an empty array.

ACCESSING ARRAYS

Access entries in an array by using the item's index (an integer).

```
let favoriteLetters = ["A", "G", "N", "Z"]
let firstLetter = favoriteLetters[0]
let thirdLetter = favoriteLetters[1]
print(firstLetter + thirdLetter)
```

MODIFYING ARRAYS

Use the append and remove functions to add and remove elements.

```
var records = [40.5, 32.6, 81.4]
records.append(54.2)
records.remove(at: 1)
print("\(heights)")
```

MODIFYING ARRAYS

Practice

1) Create an array with the names of the Mount Rushmore presidents.

2) Add the string "Kanye" to your array.

3) Remove the second item in the array.

4) Add the string "Dolphin disguised as Virginian" in the second index position of your array.

ITERATING OVER ARRAYS

Use the append and remove functions to add and remove elements.

```
var names = ["Hal", "John", "Kyle"]
for name in names {
    print("Hi there, \(name)")
}
```

ITERATING OVER ARRAYS

Practice

1) Create an array that has the names of the Beatles in it.

2) Loop through the items in your name array. If the loop encounters the name "Ringo", print "Oh yeah. Him."

3) Create two arrays: one with the integers 8, 13, 19, and 7, one with the integers 2 and 26.

4) Loop through the first integer array and append each item to the second integer array.

SORTING ARRAYS

Use the sort function to rearrange an array with a closure.

```
var lapTimes = [42.6, 58.3, 33.7, 84.5]
let sortedTimes = lapTimes.sorted { (first, second) -> Bool in
    if first > second {
        return true
    }
    return false
}
```