#### Cheatsheets / Learn Swift

# **Arrays & Sets**

#### **Array**

An array stores an ordered collection of values of the same data type.

Use the initializer syntax, [Type](), to create an empty array of a certain type.

## **Initialize with Array Literal**

An array can be initialized with an array literal, which is a short-hand method of writing one or more values as an array collection.

An array literal is written as a list of values, separated by commas, and surrounded by a pair of square brackets.

#### Index

An index refers to an item's position within an ordered list. Use the subscript syntax, array[index], to retrieve an individual element from an array.

**Note:** Swift arrays are zero-indexed, meaning the first element has index 0.

# .count Property

The .COUNT property returns the number of elements in an array.

```
var scores = [Int]()
// The array is empty: []
```

```
// Using type inference:
var snowfall = [2.4, 3.6, 3.4, 1.8, 0.0]

// Being explicit with the type:
var temp: [Int] = [33, 31, 30, 38, 44]
```

```
var vowels = ["a", "e", "i", "o", "u"]

print(vowels[0]) // Prints: a
print(vowels[1]) // Prints: e
print(vowels[2]) // Prints: i
print(vowels[3]) // Prints: o
print(vowels[4]) // Prints: u
```

```
var grocery = ["%", "%", "%", "%", "%",
"%"]
print(grocery.count)
```

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#### // Prints: 5

## .append() Method and += Operator

The .append() method can be called on an array to add an item to the end of the array.

The += addition assignment operator can be used to add the elements of another array to the existing array.

```
var gymBadges = ["Boulder", "Cascade"]
gymBadges.append("Thunder")
gymBadges += ["Rainbow", "Soul"]

// ["Boulder", "Cascade", "Thunder",
"Rainbow", "Soul"]
```

#### .insert() and .remove() Methods

The .insert() method can be called on an array to add an element at a specified index. It takes two arguments: value and at: index.

The .remove() method can be called on an array to remove an element at a specified index. It takes one argument: at: index.

```
var moon = [""", """, """, """]
moon.insert(""", at: 0)

// [""", """, """, """, """]
moon.remove(at: 4)

// [""", """, """, """]
```

## **Iterating Over an Array**

In Swift, a for - in loop can be used to iterate through the items of an array.

This is a powerful tool for working with and manipulating a large amount of data.

```
var employees = ["Michael", "Dwight",
"Jim", "Pam", "Andy"]

for person in employees {
  print(person)
}

// Prints: Michael
// Prints: Dwight
```

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```
// Prints: Jim
// Prints: Pam
// Prints: Andy
```

#### **Swift Sets**

We can use a set to store unique elements of the same data type.

```
var paintingsInMOMA: Set = ["The Dream",
"The Starry Night", "The False Mirror"]
```

#### **Empty Sets**

An empty set is a set that contains no values inside of it.

```
var team = Set<String>()
print(team)
// Prints: []
```

#### **Populated Sets**

To create a set populated with values, use the Set keyword before the assignment operator.

The values of the set must be contained within brackets and separated with commas,

```
var vowels: Set = ["a", "e", "i", "o",
"u"]
```

#### .insert()

To insert a single value into a set, append
.insert() to a set and place the new value inside
the parentheses ().

```
var cookieJar: Set = ["Chocolate Chip",
"Oatmeal Raisin"]
```

cookieJar.insert("Peanut Butter Chip")

#### .remove() and .removeAll() Methods

To remove a single value from a set, append
.remove() to a set with the value to be removed
placed inside the parentheses ().
To remove every single value from a set at once,

```
var oddNumbers: Set = [1, 2, 3, 5]
// Remove an existing element
```

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append .removeAll() to a set.

```
oddNumbers.remove(2)
```

```
// Remove all elements
oddNumbers.removeAll()
```

## .contains()

Appending .Contains() to an existing set with an item in the parentheses () will return a true or false value that states whether the item exists within the set.

```
var names: Set = ["Rosa", "Doug",
"Waldo"]

print(names.contains("Lola")) // Prints:
false

if names.contains("Waldo"){
   print("There's Waldo!")
} else {
```

print("Where's Waldo?")

## **Iterating Over a Set**

A for - in loop can be used to iterate over each item in a set.

```
var recipe: Set = ["Chocolate chips",
"Eggs", "Flour", "Sugar"]

for ingredient in recipe {
  print ("Include \(ingredient) in the recipe.")
}
```

# .isEmpty Property

Use the built-in property .isEmpty to check if a set has no values contained in it.

```
var emptySet = Set<String>()
print(emptySet.isEmpty) // Prints: true
```

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```
var populatedSet: Set = [1, 2, 3]
print(populatedSet.isEmpty) // Prints:
false
```

# .count Property

The property .COUNT returns the number of elements contained within a set.

```
var band: Set = ["Guitar", "Bass",
"Drums", "Vocals"]

print("There are \((band.count)) players
in the band.")
// Prints: There are 4 players in the
band.
```

## .intersection() Operation

The .intersection() operation populates a new set of elements with the overlapping elements of two sets.

```
var setA: Set = ["A", "B", "C", "D"]
var setB: Set = ["C", "D", "E", "F"]

var setC = setA.intersection(setB)
print(setC) // Prints: ["D", "C"]
```

# .union() Operation

The .union() operation populates a new set by taking all the values from two sets and combining them.

```
var setA: Set = ["A", "B", "C", "D"]
var setB: Set = ["C", "D", "E", "F"]

var setC = setA.union(setB)
print(setC)
// Prints: ["B", "A", "D", "F", "C",
"E"]
```

# .symmetricDifference() Operation

The .symmetricDifference() operation creates a new set with all the non-overlapping values

```
var setA: Set = ["A", "B", "C", "D"]
var setB: Set = ["C", "D", "E", "F"]
```

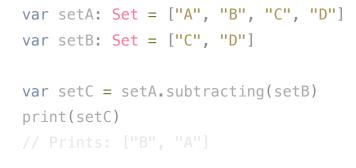
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between two sets.

```
var setC =
setA.symmetricDifference(setB)
print(setC)
// Prints: ["B", "E", "F", "A"]
```

# .subtracting() Operation

The .Subtracting() operation removes the values of one second set from another set and stores the remaining values in a new set.









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