

Tuples

Swift 5

Fall 2020

What is a Tuple?

- ▶ Lightweight compound values
- ▶ Not an Object or Struct
- ▶ Can hold as many “things” as it needs
- ▶ Less than a <Type> but more than a primitive
- ▶ No methods
- ▶ Passed by value

Complex Returns

- ▶ Unlike Java, Swift (and other languages) allows you to define and return multiple values in one statement. This can be especially useful when dealing with API calls as they often need or use multiple related values and creating an entire object structure is overkill

How do I return a tuple?

- ▶ Instead of the Type after the `->` operator you have a set of parens with the name : Type pattern for each of the returning values specified
- ▶ Inside the block of the method do the work you need to (duh)
- ▶ Make sure each of the components in the tuple are calculated/determined
- ▶ Write `return` then inside a set of parens; each value in the tuple attach values via the name : value pattern just like in a method call.

How do I make a tuple in code?

- ▶ Define the Types used by enclosing them in parens with the standard Type :
name convention separating each by commas
- ▶ Assign values to the variable with the magic power of the assignment operator
and the associated name
- ▶ Retrieve values by using the variable name and associated label

Using Tuples

- ▶ When a tuple is the return type of a method you can assign it to a let and then access the components via name
- ▶ When using an inline tuple assign it to a var since you will be modifying the internal state
- ▶ This is yet another reason why naming conventions are important

Tuple Method Example

```
public fun tupleDemo() -> (hashtag: String, when: Date, howImportant: Double)
{
    var phrase2020 = "#BlackLivesMatter"
    let number = Double.infinity

    return (hashtag: phrase2020, when: Date(), howImportant: number)
}
```

```
let results = tupleDemo()

print("What is the hashtag? \(results.hashtag)")
print("When do we want it? \(results.when.description(with: .current))")
print("How important is it? \(results.howImportant)")
```

```
What is the hashtag? #BlackLivesMatter
When do we want it? Thursday, August 6, 2020 at 3:19:46 PM Mountain Daylight Time
How important is it? inf
```

Tuple Inline Example

```
var quickTuple : (activist : String, year : Int)  
quickTuple.activist = "John Lewis"  
quickTuple.year = 2020
```

```
print("Good Trouble: \$(quickTuple.activist) #NeverStop \$(quickTuple.year)")
```

```
Good Trouble: John Lewis #NeverStop 2020
```


What should you know

- ▶ Define tuple
- ▶ How to create an inline tuple
- ▶ How to return a tuple
- ▶ How to access the contents of a tuple
- ▶ What can a tuple NOT have