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Scala tuple examples and syntax

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Scala FAQ: Can you share some examples of using tuples in Scala?

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Getting started with tuples

A Scala *tuple* is a class that can contain a miscellaneous collection of elements. I like to think of them as a little bag or container you can use to hold things and pass them around.

You create a tuple with the following syntax, enclosing its elements in parentheses. Here's a tuple that contains an `Int` and a `String`:

```
val stuff = (42, "fish")
```

This creates a specific instance of a tuple called a `Tuple2`, which we can demonstrate in the REPL:

```
scala> val stuff = (42, "fish")
stuff: (Int, java.lang.String) = (42,fish)

scala> stuff.getClass
res0: java.lang.Class[_ <: (Int, java.lang.String)] = class scala.Tuple2
```

A tuple isn't actually a collection; it's a series of classes named `Tuple2`, `Tuple3`, etc., through `Tuple22`. You don't have to worry about that detail, other than knowing that you can have anywhere from two to twenty-two items in a tuple. (And in my opinion, if you have twenty-two miscellaneous items in a bag, you should probably re-think your design.)

Accessing tuple elements

You can access tuple elements using an underscore syntax. The first element is accessed with `_1`, the second element with `_2`, and so on, like this:

```
scala> val things = ("a", 1, 3.5)
things: (java.lang.String, Int, Double) = (a,1,3.5)

scala> println(things._1)
a

scala> println(things._2)
1

scala> println(things._3)
3.5
```

Use variable names to access tuple elements

When referring to a Scala tuple you can also assign names to the elements in the tuple. I like to do this when returning miscellaneous elements from a method. To demonstrate the syntax, let's create a very

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simple method that returns a tuple:

```
def getUserInfo = ("Al", 42, 200.0)
```

Now we can call that method, and assign the tuple results directly to variables, like this:

```
val(name, age, weight) = getUserInfo
```

Here's what this looks like in the REPL:

```
scala> def getUserInfo = ("Al", 42, 200.0)
getUserInfo: (java.lang.String, Int, Double)

scala> val(name, age, weight) = getUserInfo
name: java.lang.String = Al
age: Int = 42
weight: Double = 200.0
```

It's shown in the REPL results, but we'll further confirm that we can indeed access the values by variable name:

```
scala> name
res4: java.lang.String = Al

scala> age
res5: Int = 42

scala> weight
res6: Double = 200.0
```

That's pretty nice.

In a cool, related feature, if you only want to access some of the elements, you can ignore the others by using an underscore placeholder for the elements you want to ignore. Imagine you want to ignore the `weight` in our example:

```
scala> val(name, age, _) = getUserInfo
name: java.lang.String = Al
age: Int = 42
```

Or suppose you want to ignore the `age` and `weight`:

```
scala> val(name, _, _) = getUserInfo
name: java.lang.String = Al
```

Again, that's good stuff.

Iterating over a Scala tuple

As mentioned, a tuple is not a collection; it doesn't descend from any of the collection traits or classes. However, you can treat it a little bit like a collection by using its `productIterator` method.

Here's how you can iterate over the elements in a tuple:

```
scala> val t = ("Al", 42, 200.0)
t: (java.lang.String, Int, Double) = (Al,42,200.0)

scala> t.productIterator.foreach(println)
Al
42
200.0
```

The tuple toString method

The tuple `toString` method gives you a nice representation of a tuple:

```
scala> t.toString
res9: java.lang.String = (Al,42,200.0)

scala> println(t.toString)
(Al,42,200.0)
```

Creating a tuple with ->

In another cool feature, you can create a tuple using this syntax:

```
1 -> "a"
```

This creates a `Tuple2`, which we can demonstrate in the REPL:

```
scala> 1 -> "a"
res1: (Int, java.lang.String) = (1,a)

scala> res11.getClass
res2: java.lang.Class[_ <: (Int, java.lang.String)] = class scala.Tuple2
```

You'll see this syntax a lot when creating maps:

```
scala> val map = Map(1->"a", 2->"b")
map: scala.collection.immutable.Map[Int,java.lang.String] = Map(1 -> a, 2 -> b)
```

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Scala Cookbook
Alvin Alexander
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Scala tuples – Summary

If you needed information on how to use a Scala *tuple*, I hope these examples have been helpful. Here are a few links to the tuple classes mentioned:

- Tuple2
- Tuple3
- Tuple22

tags: collection examples iterate iterator scala scala syntax tuple tuple2 tuple22 tuple3

related

- Scala Tuples, for when you just need a bag of things
- Scala - Using tuples in an anonymous function
- A Java tuple class
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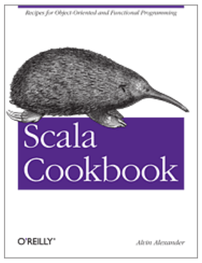

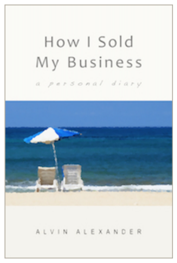

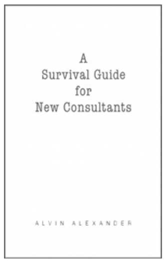

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