# Creating and Deconstructing Tuples


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# What Problem Are We Trying to Solve?

- Getting more than one value returned from a method
- Out parameters don’t cut it
  - They are clunky
  - They cannot be used with async methods

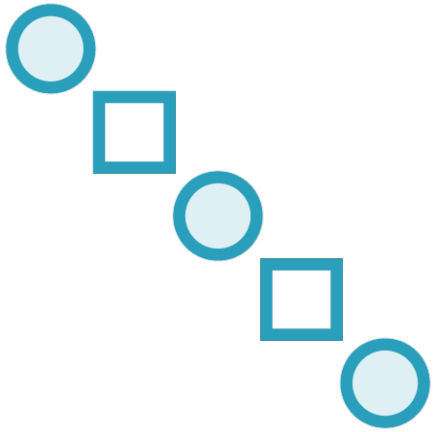
# What Problem Are We Trying to Solve?

- System.Tuple<T>
  - verbose and require allocation of tuple object
- Anonymous types returned through dynamic return type
  - High performance overhead
  - No static type checking

Tuples can be a return type

Tuples can be a literal

# Tuples



- Each element in a tuple can be accessed with dot notation
- The tuple parts are automatically named Item1, Item2, etc.
- You can name the return tuple parts

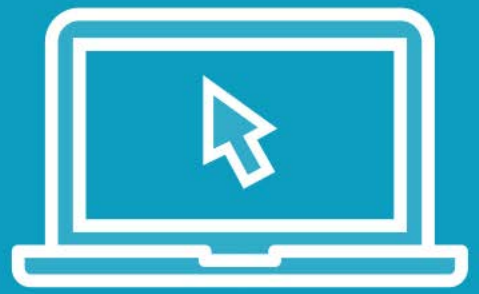
```
(string firstName,
 string middleInitial,
 string lastName) myMethod();
```

Tuples convert to other tuples

Tuples are value types

Tuple elements are public, mutable fields

# Demo



- Tuples

# Consume Tuples Through Deconstruction

Splits a tuple into new variables

You can use var for the deconstructing declaration

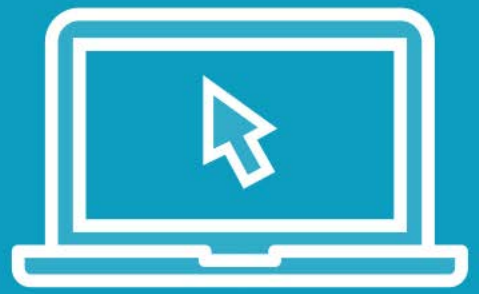
```
(var first, var middle, var last) = GetName(id);
```

You can even put the var outside the parentheses as shorthand

```
var(first, middle, last) = GetName(id);
```

You can deconstruct into existing variables

# Demo



- Deconstruction