

Selecting a Single Piece of Data from a Collection



Paul D. Sheriff

Business / IT Consultant

psheriff@pdsa.com | www.pdsa.com



Module Goals



Finding a specific item in a collection

Searching for an item using...

- First() / FirstOrDefault()
- Last() / LastOrDefault()
- Single() / SingleOrDefault()



Finding a Single Value



Return Null if Not Found

**FirstOrDefault(
expression, [default])**

Search forward in collection

**Returns null if no values found or
default value**

**LastOrDefault(
expression, [default])**

Search backward in collection

**Returns null if no values found or
default value**



Exception Thrown if Not Found

First(expression)

Search forward in collection

**Throws exception if no values
found**

Last(expression)

Search backward in collection

**Throws exception if no values
found**



Search for Only a Single Item

`Single(expression)`

Throws exception if collection is null, or more than one element returned

`SingleOrDefault(expression, [default])`

Throws exception if collection is null, or more than one element returned

Otherwise, returns null or default



```
SamplesViewModel vm = new();  
try {  
    var result = vm.FirstQuery();  
    vm.Display(result);  
}  
catch (ArgumentNullException ex) {  
    vm.Display(ex);  
}  
catch (InvalidOperationException ex) {  
    vm.Display(ex);  
}
```

◀ **Create instance of view model**

◀ **Call the method to try out**

◀ **The Product collection is null**

◀ **First()/Last() = No item found that matches the criteria**

◀ **Single*() = Multiple values were found**





Demos



Demo



Search forward for an element using First()



Demo



**Search forward for an element using
`FirstOrDefault()`**



Demo



**Search backwards for an element using
Last()**



Demo



**Search backwards for an element using
LastOrDefault()**



Single*() Methods

**Returns a single
element**

**Throws exception if
not found**

**Throws an exception
if multiple elements**



Demo



Search for only one element using `Single()`



Demo



**Search for only one element using
SingleOrDefault()**





When to Use Which Method



First()/Last() or FirstOrDefault()/LastOrDefault()

First()/Last()

If you expect the element to be present

Want to handle/throw an exception if not found

or

FirstOrDefault()/LastOrDefault()

If you are not sure if element is present

Don't want to handle an exception

Want to get back a null or other default value



First() or Single()

First()

If you expect the element to be present

Want to handle/throw an exception if not found

Only searches until it finds the element

Faster than Single()

or

Single

If you expect the element to be present

Want to handle/throw an exception if not found

Searches the entire list every time

Slower than First()



SingleOrDefault() or FirstOrDefault()

SingleOrDefault()

If you expect the element to be present

Want to handle/throw an exception if not found

Must search the entire list every time

Slower than FirstOrDefault()

or

FirstOrDefault()

If you are not sure if element is present

Don't want to handle an exception

Searches only until it finds the element

Faster than SingleOrDefault()



Module Summary



Locate a single item in a collection

- First() / FirstOrDefault()
- Last() / LastOrDefault()
- Single() / SingleOrDefault()

Option to supply your own default value

Catch exceptions where appropriate

Check for null where appropriate

Use *OrDefault() methods to avoid throwing exceptions

Up Next:

Retrieve Specific Items Using Take, Skip, Distinct, and Chunk

