Determine the Type of Data Contained within Collections

Paul D. Sheriff
Business / IT Consultant

psheriff@pdsa.com | www.pdsa.com

Module Goals

Answer questions about a collection…

- Do **All**() items meet a condition
- Do **Any**() items meet a condition
- Collection **Contains**() an item?

Use an EqualityComparer<T> for classes

All() Method

Uses of All() Method

Are all products' price greater than their cost?

Do all sales orders have a quantity greater than or equal to 1?

Do all customers have a zero balance?

```
IEnumerable<T>.All(predicate);


products.All(prod =>
   prod.ListPrice > prod.StandardCost);
```

- All() searches the entire collection
- Determines if all items match the condition

- Do all products' list price exceed their cost?

Demo

All() method

Any() Method

Uses of Any() Method

Do any sales orders have a quantity greater than 10

Do any sales orders have a total greater than 10k?

Do any customers have a credit balance?

```
IEnumerable<T>.Any(predicate);
```

```
sales.Any(sale =>
    sale.LineTotal > 10000);
```

- Any() method searches entire collection
- Determines if *any* items in collection match the condition

- Do any sales have a line total greater than 10,000?

Demo

Any() method

Contains() Method

Contains() Method

Searches collection to see if a value exists

For simple data type collections such as int, decimal, string, etc.

Checks if value in the collection is equal to value you are searching for

Demo

Contains using an integer list

Contains() with Objects

Default is to compare object references

You probably want to look at the value in one or more properties of an object

Need to create EqualityComparer<T> class

```
public class ProductIdComparer :
             EqualityComparer<Product>
{
  public override bool Equals(Product x,
                              Product y)
  {
    return (x.ProductID == y.ProductID);
  }

  public override int
    GetHashCode(Product obj) {
    return obj.ProductID.GetHashCode();
  }
}
```

◂ **Inherit from EqualityComparer<Product>**

◂ **Override Equals(product 1, product 2) method**

◂ **Return true if both match**

◂ **Override GetHashCode() method**

◂ **Create a unique value from one or more properties**

Demo

Contains() using a comparer class

Module Summary

All() checks if all items match a predicate

Any() checks if any items match a predicate

Contains() with a comparer make it easy to search object property values

Need to build a comparer class for each type of search you wish to perform

Up Next:

Determine Differences Between Two Collections