

Aggregate Data in Collections



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Module Goals



Use aggregate functions

- Count
- Min / MinBy()
- Max / MaxBy()
- Average
- Sum

Use Aggregate() method

Aggregate by a group of data

More efficient aggregation



Aggregate Functions



Aggregate Functions

Calculate a single value from a property in collection of objects

Aggregate method is applied after query executes



Demo



Count

Count using a filter



Other Aggregate Functions



Demo



Min()

Max()



Demo



MinBy()

MaxBy()



Demo



Average()

Sum()





Aggregate Method



Aggregate Method

**Iterate over
collection**

**Supply a custom
method for
calculating**

**Returns a single
value**



Demo



Simulate Sum() using Aggregate



Demo



Aggregate using custom expression





Aggregate Using Grouping



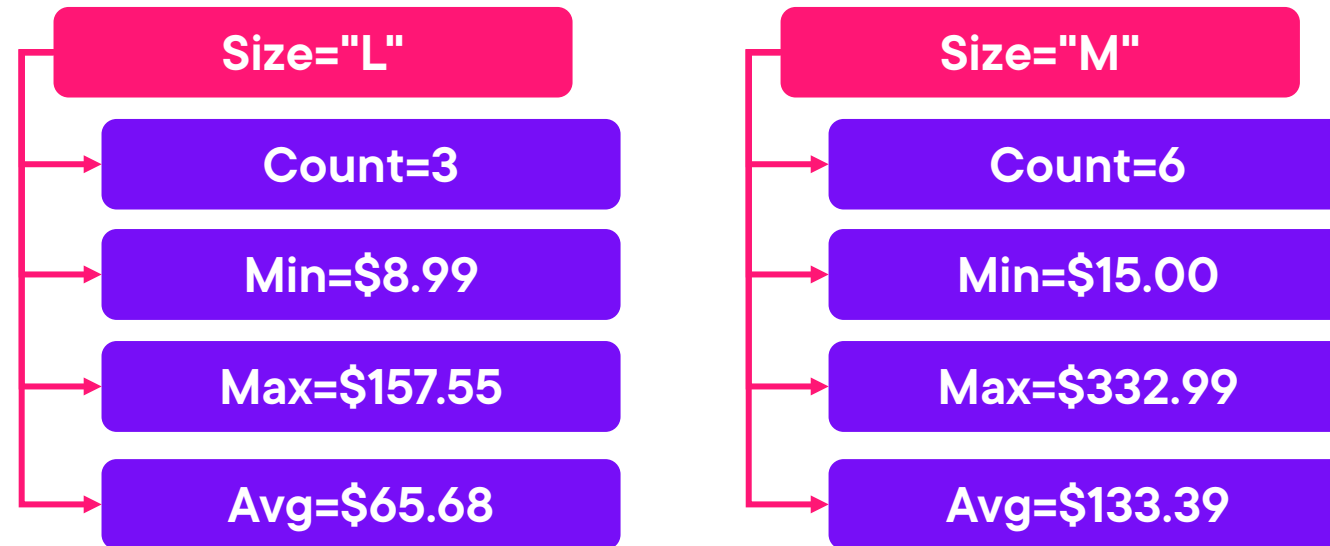
Group Aggregation

Group products by size

Calculate count, min, max and average for each size



Group Aggregation



Demo



Aggregate over a group of data



```
select new ProductStats
{
    Size = sizeGroup.Key,

    TotalProducts = sizeGroup.Count(),

    MinListPrice =
        sizeGroup.Min(s => s.ListPrice),

    MaxListPrice =
        sizeGroup.Max(s => s.ListPrice),

    AverageListPrice =
        sizeGroup.Average(s => s.ListPrice)
}
```

◀ **Problem: each of the following lines of code loops through the entire collection each time**

◀ **Looping to get count**

◀ **Looping to get minimum**

◀ **Looping to get maximum**

◀ **Looping to get average**



More Efficient Group Aggregation

Create class to hold accumulators

One property for each count, min, max, etc.

Use Aggregate() method

Only loops over data one time to gather statistics



Demo



**More efficient aggregation using
extension methods**



Module Summary



Learned to use aggregate functions

- Count(), Min(), MinBy(), Max(), MaxBy(), Sum(), and Average()

Learned to use Aggregate() method

Created a custom class with accumulators

Built more efficient method of aggregating groups of data



Up Next:

Use LINQ to Iterate over Collections

