1 OCTOBER 2018 / DATETIME

Time goes by .. so fast!



We all know the two value types `DateTime` and `TimeSpan`.

With this article, I will write about two simple (yet, very neat) value types, that has been part of the Cuemon family for a very long time (pun intended) and supplement the above mentioned almost to perfection; they are `DateSpan` and `TimeRange`.

After the v.6.0.0 release of Cuemon for .NET, `TimeRange` was changed to a class an renamed to `DateTimeRange` that inherits from the abstract class named Range{T}. Also, the former `TimeRange` was added - but covering a range between two TimeSpan value types.

DateSpan

With this struct I was aiming for a simple way to calculate the interval between two `DateTime` values. Although it seemed like a simple task, it was not without challenges as I had to think about `CultureInfo` and `Calendar` at the same time.

Just looking through the code while writing this, I am sure I would refactor most, as it dates back to 2010 (with some modifications over the years).

Update: the code was refactored with the release of Cuemon for .NET v6.0.0 🎉

Anyway, here is a sample on how to calculate the interval from January 1st this year up till today (2018-10-01):

```
public void DateSpanExample()
{
    var ds = new DateSpan(new DateTime(2018, 1, 1), DateTime.Today);
    Trace.WriteLine($"{ds.Years} year");
    Trace.WriteLine($"{ds.Months} months");
    Trace.WriteLine($"{ds.GetWeeks()} weeks");
    Trace.WriteLine($"{ds.TotalDays} days");
    Trace.WriteLine($"{ds.TotalHours} hours");
    Trace.WriteLine($"{ds.TotalMinutes:N0} minutes");
    Trace.WriteLine($"{ds.TotalSeconds:N0} seconds");
}
```

This writes out the following output:

```
Debug Trace:
0 year
10 months
40 weeks
273 days
6552 hours
393.120 minutes
23.587.200 seconds
```

DateTimeRange

Similiar to `DateSpan`, this class also represents a period of time between two `DateTime` values. However, the representation is pure and does not contain any code that can perform complex calculations as the case is with the `DateSpan` counterpart.

Here is a sample on how to define a period of time ranging from January 1st this year up till today (2021-05-03):

```
public void DateTimeRangeExample()
{
    var dtr = new DateTimeRange(new DateTime(2021, 1, 1), DateTime.Today);
    Trace.WriteLine(dtr);
}
```

This writes out the following output:

```
Debug Trace:
A duration of 122.00:00:00 between 2021-01-01T00:00:00 and 2021-05-03T00:00:00.
```

TimeRange

Similiar to `DateTimeRange`, this class represents a period of time between two `TimeSpan` values.

```
public void TimeRangeExample()
{
    var tr = new TimeRange(TimeSpan.FromHours(4), TimeSpan.FromHours(6));
    Trace.WriteLine(tr);
}
```

```
Debug Trace:
A duration of 00.02:00:00 between 04:00:00 and 06:00:00.
```

Closing Words

This was a brief article of the struct `DateSpan` and the two classes `DateTimeRange` and `TimeRange`. I hope it brought something to mind and that you can see the value it might add to your projects.

Never the less; code with passion 🔥