

Windows Presentation Foundation

Lesson 7: New Features in
WPF 4.5

Lesson Objectives

- In this lesson, you will learn:
 - New Features in WPF 4.5
 - Working with ICustomTypeProvider interface



7.1: Introduction

New Features in WPF 4.5

- Just like any other product or technology that undergoes a version update, WPF also brings up a number of new/enhanced features to the table.
- The new features in WPF 4.5 are
 - Binding to types that implement `ICustomTypeProvider`
 - Repositioning the data as the data's value change (Live shaping)

7.1: Introduction

Binding to Types that Implement CustomTypeProvider

- WPF 4.5 adds data-binding support for the interface `ICustomTypeProvider`. This interface enables data binding to objects the structure of which is not known until runtime.
- With `ICustomTypeProvider` you can add properties to objects on the fly and then data bind to these newly created objects. For example, you can use this interface to generate bindable objects from XML data with a schema that is known only at run time.

7.1: Introduction

Live Shaping

- There are situations in programming where data that needs to be displayed on the UI is stored in a collection and sorting and filtering operations need to be performed on this data.
- These sorting and filtering operations are performed only when the item is added to the collection or when the Refresh method is called. However, these operations are not performed when an existing item in the collection is updated.
- WPF 4.5 introduces a feature called live shaping which allows you to perform the sorting and filtering operations on the fly (when an item in a collection is updated at runtime).



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CollectionView class represents a view of the specified collection. One of the new features introduced in WPF 4.5 is `ICollectionViewLiveShaping` interface. This interface provides properties which enable sorting and filtering on the `CollectionView` in real time. Using the Live Shaping feature in WPF 4.5, changes made to the specific property of the collection can be monitored and if the property value has changed, then the UI is refreshed to reflect the changes.


When to use Live Shaping:


Suppose you have developed an application that lists stocks in the stock market. The stocks are sorted by value. If live sorting is enabled on the stock's `CollectionView`, a stock's position in the `DataGrid` moves when the value of the stock becomes greater or less than another stock's value.

6.2: Data Binding

Demo

▪ Demo on New Features in WPF 4.5



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Summary

- In this lesson, we had a look at:
 - New Features available in WPF 4.5
 - Working with the following interfaces
 - ICustomTypeProvider



Review Question

- Question 1: The ____ property added to the Binding markup extension defines the timespan after which source is updated.
- Question 2: The _____ interface can be used to bind to objects with dynamically generated properties.
- Question 3: _____ feature of WPF 4.5 shapes the collection view in live.

