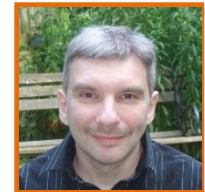


Sets

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pluralsight 
hardcore developer training

Lists



**Linked Lists,
Stacks and Queues**



Dictionaries



Sets

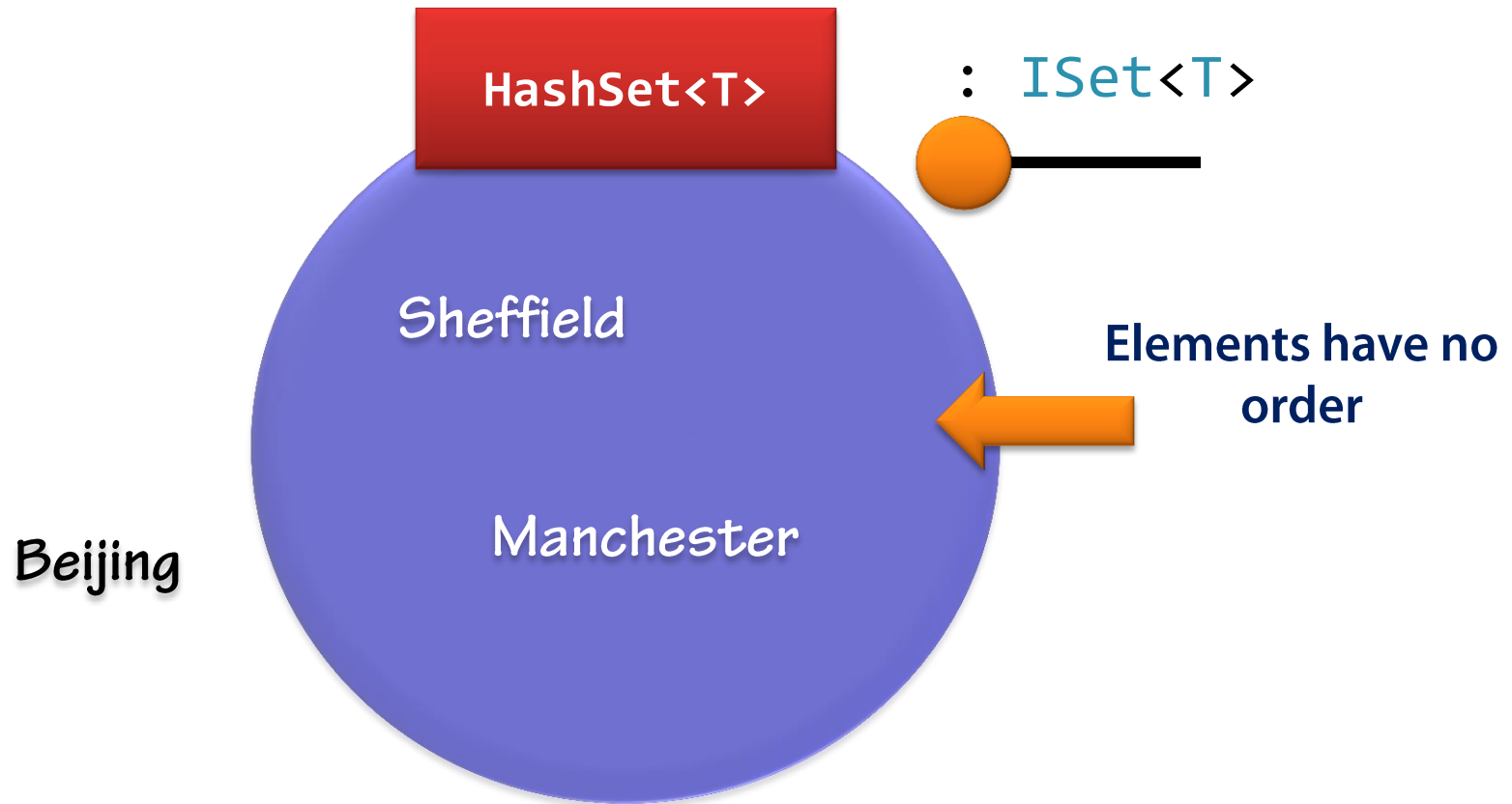
Module Overview - Sets



HashSet<T>

- **SortedSet<T>**
- **The ISet<T> interface**
 - Set operations
 - Set comparisons
- **Uniqueness of Elements**





HashSet<T>

Hash table



Values in buckets

Dictionary
<TKey, TValue>

HashSet<T>

Buckets determined by
keys
(Values tag along)

Buckets determined by
values
(No keys exist)

What use is this?

Uniqueness



ISet<T> Operations


Intersection

Union

Difference

Symmetric
Difference

ISet<T> Operations

	ISet<T> Method	LINQ Method
Intersection	IntersectWith()	Intersect()
Union	UnionWith()	Union()
Difference	ExceptWith()	Except ()
Symmetric Difference	SymmetricExceptWith()	

ISet<T> Comparisons

SetEquals()

IsSubsetOf()

IsSupersetOf()

Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()

**These compare
two collections**

ISet<T> Comparisons

SetEquals()



IsSubsetOf()

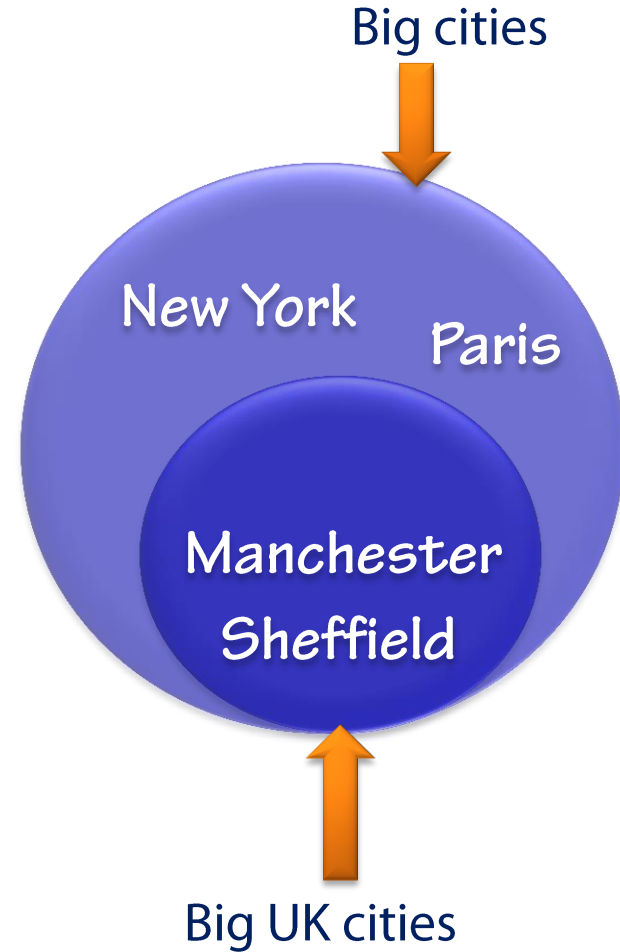
IsSupersetOf()

Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()

**Big UK cities
is a subset of
Big Cities**



ISet<T> Comparisons

SetEquals()

IsSubsetOf()

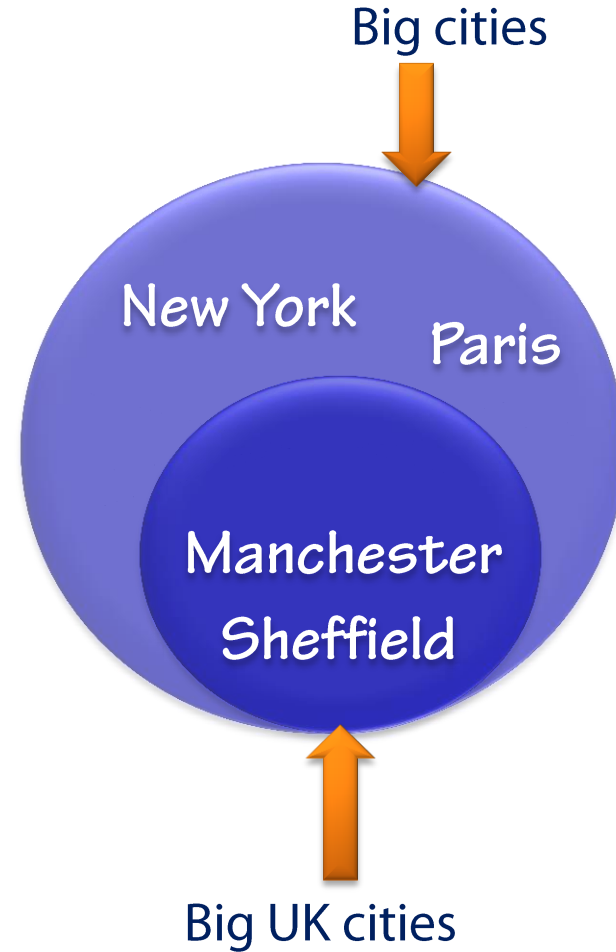


IsSupersetOf()

Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()



**Big cities
is a superset of
Big UK Cities**



ISet<T> Comparisons

SetEquals()

IsSubsetOf()

IsSupersetOf()

Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()

Big cities



New York

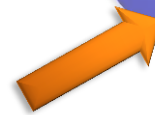
Paris

Manchester
Sheffield

Ripon

Truro

UK cities



UK cities
is NOT a subset of
Big Cities



ISet<T> Comparisons

SetEquals()



IsSubsetOf()



IsSupersetOf()



Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()

ISet<T> Comparisons

SetEquals()



IsSubsetOf()



IsSupersetOf()

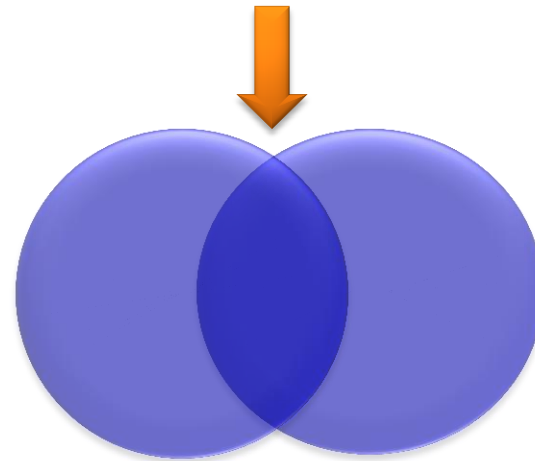


Overlaps()

IsProperSubsetOf()

IsProperSupersetOf()

Any elements in both sets?



ISet<T> Comparisons

SetEquals()



IsSubsetOf()



IsSupersetOf()

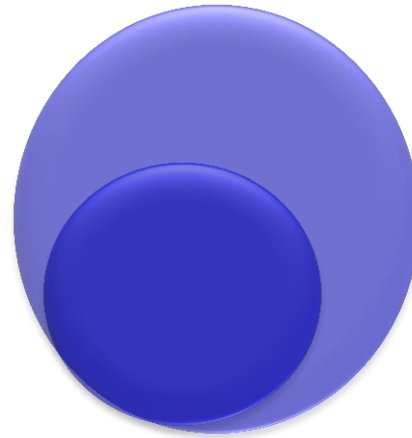


Overlaps()



IsProperSubsetOf()

IsProperSupersetOf()



Proper subset: Subset, excluding same
Proper superset: Superset, excluding same

ISet<T> Comparisons

SetEquals()



IsSubsetOf()



IsSupersetOf()



Overlaps()



IsProperSubsetOf()



IsProperSupersetOf()



No LINQ Equivalents

Dictionaries

Dictionary<TKey, TValue>



SortedDictionary<TKey, TValue>

Sets

HashSet<T>



SortedSet<T>

Same `ISet<T>`
features

Based on
hashtable



`HashSet<T>`

`SortedSet<T>`

Based on
balanced tree



Summary - Sets



Sets

- Guarantee values can only occur once in a collection
- But no element look-up
- **HashSet<T>**
 - Not sorted
- **SortedSet<T>**
- **Can use sets to compare elements**
 - Do sets contain the same elements?
 - Do they overlap? etc.

