NWayAssociateCache Class

Represents a N way associate cache.
Provides methods to set and read key values in the cache.

Syntax:

```
public class NWayAssociateCache<TKey, TValue> where TKey : IComparable<TKey> where TValue :
IComparable<TValue>
```

It’s a generic class that was implemented on two class types : TKey type and TValue type.

TKey and TValue should implement IComparable interface to provide comparison methods to outside classes.

Creation:

```
public NWayAssociateCache(int nWays, int setCapacity, IKeyMapper<TKey> keyMapper)
```

Constructor Parameters :

`int nWays`	Number of cache sets
`int setCapacity`	Size of each cache set which is equal for all of them
`IKeyMapper<TKey> keyMapper`	Object that implements the logic to map a given Key to a cache set. Two already provided classes are: IntKeyMapper, StringKeyMapper

Configuration :

```
public bool SetRemoveAlgorithm(AlgorithmTypeEnum algorithmType,
            IEntrySelector<TKey> customDeleteKeySelector = null)
```

Parameters :

`AlgorithmTypeEnum algorithmType`	Algorithm type to remove an item from a cache set
`IEntrySelector<TKey> customDeleteKeySelector`	Object that implements IEntrySelector

By Default NWayAssociateCache uses LRU algorithm to remove an entry from the cache set but if a Custom type selected then its necessary to provide the second parameter which is an object that implements IEntrySelector interface.

Class Members:

Methods

NWayAssociateCache	Constructor
SetRemoveAlgorithm	Defines the key removing algorithm
SetValue	Sets a key value in cache
ReadValue	Reads a key value in cache
ToString	Returns the content and structure of the cache

Properties

NumbertOfSets	Number of cache sets that are available
SetCapacity	Number of entries in each cache set

Events

OnMiss	Triggered when a Miss in cache happens
OnHit	Triggered when a Hit in cache happens

Examples:

```
var cache = new NWayAssociateCache<int, int>(1, 16, new IntKeyMapper());
```

Creates fully associative cache with size of 16 which both keys and values are integer and remove entry selection algorithm is default LRU. IntKeyMapper is an already provided class that has implemented mapping an integer value to a given cache size by computing the reminder of given integer divided by cache size.

```
var cache = new NWayAssociateCache<string, int>(2, 16, new StringKeyMapper());
```

Creates 2 way associative cache that each cache set has a size of 16 and keys are string and the mapper class is StringKeyMapper which will map a string to a cache set entry by computing the string length reminder in division to cache size.

```
var cache = new SetAssociativeCache.NWayAssociateCache<string, Student>(3, 2, new
StringKeyMapper());
```

Creates 3 way associative cache that each cache set has a size of 2 and keys are string and values are Student class and the mapper class is StringKeyMapper which will map a string to a cache set entry by computing the string length reminder in division to cache size.