

## set.cm

```
/*  
  
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    )  
  
*/  
  
// Copyright (c) 1994  
// Hewlett–Packard Company  
// Copyright (c) 1996  
// Silicon Graphics Computer Systems, Inc.  
// Copyright (c) 2009 Alexander Stepanov and Paul McJones  
  
using System;  
using System.Concepts;  
  
namespace System.Collections  
{  
    public class Set<T, C = Less<T>> where T is Semiregular and C is  
        Relation and C.Domain is T  
    {  
        public typedef T ValueType;  
        public typedef T KeyType;  
        public typedef C Compare;  
        private typedef Set<ValueType, Compare> Self;  
        private typedef RedBlackTree<KeyType, ValueType, Identity<  
            ValueType>, Compare> TreeType;  
        public typedef TreeType.ConstIterator ConstIterator;  
        public typedef TreeType.Iterator Iterator;  
  
        public nothrow inline Iterator Begin()  
        {  
            return tree.Begin();  
        }  
        public nothrow inline ConstIterator Begin() const  
        {  
            return tree.CBegin();  
        }  
        public nothrow inline ConstIterator CBegin() const  
        {  
            return tree.CBegin();  
        }  
        public nothrow inline Iterator End()  
        {  
            return tree.End();  
        }  
    }  
}
```

```

    }
    public nothrow inline ConstIterator End() const
    {
        return tree.CEnd();
    }
    public nothrow inline ConstIterator CEnd() const
    {
        return tree.CEnd();
    }
    public nothrow inline int Count() const
    {
        return tree.Count();
    }
    public nothrow inline bool IsEmpty() const
    {
        return tree.IsEmpty();
    }
    public nothrow void Clear()
    {
        tree.Clear();
    }
    public nothrow inline Iterator Find(const KeyType& key)
    {
        return tree.Find(key);
    }
    public nothrow inline ConstIterator Find(const KeyType& key)
        const
    {
        return tree.CFind(key);
    }
    public nothrow inline ConstIterator CFind(const KeyType& key)
        const
    {
        return tree.CFind(key);
    }
    public inline Pair<Iterator, bool> Insert(const ValueType& value)
        where T is Copyable
    {
        return tree.Insert(value);
    }
    public nothrow inline bool Remove(const KeyType& key)
    {
        return tree.Remove(key);
    }
    public nothrow inline void Remove(Iterator pos)
    {
        tree.Remove(pos);
    }
    private TreeType tree;
}

public nothrow inline bool operator==<T, C>(const Set<T, C>& left,
    const Set<T, C>& right) where T is Regular and C is Relation and C

```

```

        .Domain is T
    {
        return left.Count() == right.Count() && Equal(left.CBegin(), left
            .CEnd(), right.CBegin(), right.CEnd(), EqualTo<T>());
    }

    public nothrow inline bool operator<<T, C>(const Set<T, C>& left ,
        const Set<T, C>& right) where T is Semiregular and C is Relation
        and C.Domain is T
    {
        return LexicographicalCompare(left.CBegin(), left.CEnd(), right.
            CBegin(), right.CEnd(), C());
    }
}

```