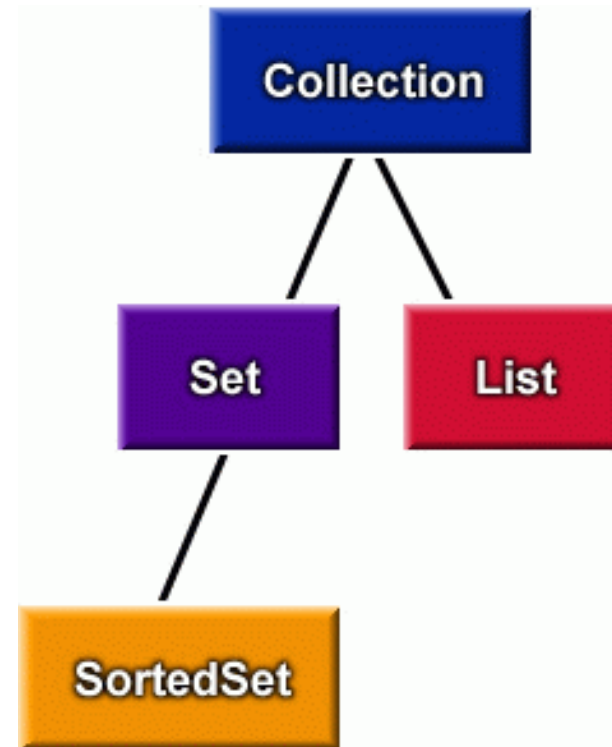


The Java Collection Framework

- A unified architecture for representing and manipulating collections
 - Interfaces
 - Implementations
 - Algorithms
- Advantages
 - It reduces programming effort
 - It increases program speed and quality
 - It allows interoperability among unrelated APIs
 - It fosters software reuse

Interfaces

- **Collection**
 - general interface
- **Set**
 - cannot contain duplicate elements
- **List**
 - ordered collection
- **SortedSet**
 - maintains its elements in ascending order



Object Ordering

- Implement Comparable interface
 - provides a *natural ordering*
 - allows objects of that class to be sorted automatically
- List
 - could be sorted in the *natural ordering* by method `Collections.sort(List l)`
- SortedSet
 - all objects sorted according to the *natural ordering*

Implementation

- SortedSet
 - TreeSet
- List
 - ArrayList
 - LinkedList
 - Vector
 - etc.

Comparable interface

- Source code

```
public interface Comparable {  
    public int compareTo(Object ob);  
}
```

- Method compareTo returns

negative – ob is less than this object

zero – ob is equal to this object

positive – ob is greater than this object

Collection interface

Collection

```
+add(element : Object) : boolean  
+addAll(collection : Collection) : boolean  
+clear() : void  
+contains(element : Object) : boolean  
+containsAll(collection : Collection) : boolean  
+equals(object : Object) : boolean  
+hashCode() : int  
+iterator() : Iterator  
+remove(element : Object) : boolean  
+removeAll(collection : Collection) : boolean  
+retainAll(collection : Collection) : boolean  
+size() : int  
+toArray() : Object[]  
+toArray(array : Object[]) : Object[]
```

Iterator

```
+hasNext() : boolean  
+next() : Object  
+remove() : void
```

For more information

- Documentation of the Collection Framework

<http://java.sun.com/j2se/1.4.2/docs/guide/collections/index.html>

- Tutorial

- API Specification

- Introduction to the Collection Framework

[http://java.sun.com/developer/
onlineTraining/collections/Collection.html](http://java.sun.com/developer/onlineTraining/collections/Collection.html)