JAVA - THE TREEMAP CLASS

http://www.tutorialspoint.com/java/java_treemap_class.htm

The TreeMap class implements the Map interface by using a tree. A TreeMap provides an efficient means of storing key/value pairs in sorted order, and allows rapid retrieval.

You should note that, unlike a hash map, a tree map guarantees that its elements will be sorted in ascending key order.

The TreeMap class supports four constructors. The first form constructs an empty tree map that will be sorted by using the natural order of its keys:

```
TreeMap( )
```

The second form constructs an empty tree-based map that will be sorted by using the Comparator comp:

```
TreeMap(Comparator comp)
```

The third form initializes a tree map with the entries from m, which will be sorted by using the natural order of the keys:

```
TreeMap(Map m)
```

The fourth form initializes a tree map with the entries from sm, which will be sorted in the same order as sm:

```
TreeMap(SortedMap sm)
```

Apart from the methods inherited from its parent classes, TreeMap defines following methods:

SN	Methods with Description
1	**void clear()** Removes all mappings from this TreeMap.
2	**Object clone()** Returns a shallow copy of this TreeMap instance.
3	**Comparator comparator()** Returns the comparator used to order this map, or null if this map uses its keys' natural order.
4	**boolean containsKey(Object key)** Returns true if this map contains a mapping for the specified key.
5	**boolean containsValue(Object value)** Returns true if this map maps one or more keys to the specified value.
6	**Set entrySet()** Returns a set view of the mappings contained in this map.

7 **Object firstKey()**

Returns the first (lowest) key currently in this sorted map.

8 **Object get(Object key)**

Returns the value to which this map maps the specified key.

9 **SortedMap headMap(Object toKey)**

Returns a view of the portion of this map whose keys are strictly less than toKey.

10 **Set keySet()**

Returns a Set view of the keys contained in this map.

11 **Object lastKey()**

Returns the last (highest) key currently in this sorted map.

12 **Object put(Object key, Object value)**

Associates the specified value with the specified key in this map.

13 **void putAll(Map map)**

Copies all of the mappings from the specified map to this map.

14 **Object remove(Object key)**

Removes the mapping for this key from this TreeMap if present.

15 **int size()**

Returns the number of key-value mappings in this map.

16 **SortedMap subMap(Object fromKey, Object toKey)**

Returns a view of the portion of this map whose keys range from fromKey, inclusive, to toKey, exclusive.

17 **SortedMap tailMap(Object fromKey)**

Returns a view of the portion of this map whose keys are greater than or equal to fromKey.

18 **Collection values()**

Returns a collection view of the values contained in this map.

Example:

The following program illustrates several of the methods supported by this collection:

```
import java.util.*;
```

```
public class TreeMapDemo {

   public static void main(String args[]) {
      // Create a hash map
      TreeMap tm = new TreeMap();
      // Put elements to the map
      tm.put("Zara", new Double(3434.34));
      tm.put("Mahnaz", new Double(123.22));
      tm.put("Ayan", new Double(1378.00));
      tm.put("Daisy", new Double(99.22));
      tm.put("Qadir", new Double(-19.08));

   // Get a set of the entries
      Set set = tm.entrySet();
      // Get an iterator
      Iterator i = set.iterator();
      // Display elements
      while(i.hasNext()) {
         Map.Entry me = (Map.Entry)i.next();
         System.out.print(me.getKey() + ": ");
         System.out.println(me.getValue());
      }
      System.out.println();
      // Deposit 1000 into Zara's account
      double balance = ((Double)tm.get("Zara")).doubleValue();
      tm.put("Zara", new Double(balance + 1000));
      System.out.println("Zara's new balance: " +
      tm.get("Zara"));
   }
}
```

This would produce the following result:

```
Ayan: 1378.0
Daisy 99.22
Mahnaz: 123.22
Qadir: -19.08
Zara: 3434.34
Zara's current balance: 4434.34
```