Difference between HashSet and TreeSet

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In this article we are gonna discuss the differences between `HashSet` and `TreeSet`.

HashSet vs TreeSet

1) HashSet gives better performance (faster) than TreeSet for the operations like add, remove, contains, size etc. HashSet offers constant time cost while TreeSet offers log(n) time cost for such operations.

2) HashSet does not maintain any order of elements while TreeSet elements are sorted in ascending order by default.

Similarities:

1) Both HashSet and TreeSet does not hold duplicate elements, which means both of these are duplicate free.

2) If you want a sorted Set then it is better to add elements to HashSet and then convert it into TreeSet rather than creating a TreeSet and adding elements to it.

3) Both of these classes are non-synchronized that means they are not thread-safe and should be synchronized explicitly when there is a need of thread-safe operations.

Examples:

HashSet example

```
import java.util.HashSet;
class HashSetDemo{
  public static void main(String[] args) {
     // Create a HashSet
     HashSet<String> hset = new HashSet<String>();

     //add elements to HashSet
     hset.add("Abhijeet");
     hset.add("Ram");
     hset.add("Kevin");
     hset.add("Singh");
     hset.add("Rick");
     // Duplicate removed
```

```
     hset.add("Ram");

     // Displaying HashSet elements
     System.out.println("HashSet contains: ");
     for(String temp : hset){
        System.out.println(temp);
     }
  }
}
```

Output:

```
HashSet contains:
Rick
Singh
Ram
Kevin
Abhijeet
```

TreeSet example

```
import java.util.TreeSet;
class TreeSetDemo{
  public static void main(String[] args) {
     // Create a TreeSet
     TreeSet<String> tset = new TreeSet<String>();

     //add elements to TreeSet
     tset.add("Abhijeet");
     tset.add("Ram");
     tset.add("Kevin");
     tset.add("Singh");
     tset.add("Rick");
     // Duplicate removed
     tset.add("Ram");

     // Displaying TreeSet elements
     System.out.println("TreeSet contains: ");
     for(String temp : tset){
        System.out.println(temp);
     }
  }
}
```

Output: Elements are sorted in ascending order.

```
TreeSet contains:
Abhijeet
Kevin
Ram
Rick
Singh
```