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Sorting a Map by values instead of keys

Sorting a Map by values instead of keys

Posted on November 11, 2015 by Arulkumaran Kumaraswamipillai

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This post is motivated by ""Sorting a list or array of numbers by frequency of occurrences in Java"

Sorting a Map by Keys

Sorting a map by its keys is straightforward

```
1
2  SortedSet<String> keys = new TreeSet<String>(map.
3
```

Sorting a Map by its Values – Pre Java 8

```
1
```

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```java
 2  package com.mytutorial;
 3
 4  import java.util.ArrayList;
 5  import java.util.Collections;
 6  import java.util.Comparator;
 7  import java.util.HashMap;
 8  import java.util.List;
 9  import java.util.Map;
10
11  public class SortingHasMapByValue {
12
13      public static void main(String[] args) {
14          //KEY: name, VALUE: age
15          Map<String, Integer> nameAgePair = new H
16          nameAgePair.put("John", 45);
17          nameAgePair.put("Peter", 65);
18          nameAgePair.put("Sam", 30);
19          nameAgePair.put("Alex", 42);
20
21          List<String> sortedKeysByAgeAsc = sortBy
22          System.out.println(sortedKeysByAgeAsc);
23      }
24
25
26      //Pre Java 8 sorting logic
27      private static List<String> sortByAgeAscendi
28          List<String> keys = new ArrayList<String
29
30          System.out.println(keys); // ["John", "P
31
32          // Anonymous inner class for sorting
33          Collections.sort(keys, new Comparator<St
34
35              @Override
36              public int compare(String o1, String
37                  // use the age to sort the keys
38                  return nameAgePair.get(o1) - nam
39              }
40          });
41
42          return keys;
43      }
44  }
45  }
46
47
```

If you want to sort by age in reverse, i.e. descending order then swap o1 and o2

```java
1
2  return nameAgePair.get(o1) - nameAgePair.get(o2);
3
```

to

```java
1
2  return nameAgePair.get(o2) - nameAgePair.get(o1)
```

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Sorting a Map by its Values – Java 8 onwards

The "sortByAgeAscending" method becomes

```
1
2    private static List<String> sortByAgeAscending(M
3        List<String> keys = nameAgePair.entrySet()
4                                      .stream()
5                                          .sorted((e1,
6                                          .map(Map.Entr
7                                          .collect(Coll
8
9        return keys;
10   }
11
12
```

OR the ".sorted(…..)" can be written as

```
1
2    .sorted(Map.Entry.<Integer, Integer> comparingB
3
```

for sorting by age descending

```
1
2    .sorted(Map.Entry.<Integer, Integer> comparingB
3
```

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