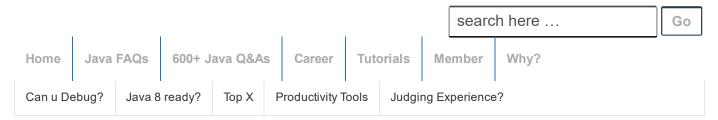
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# 04: Convert Lists to Maps and Maps to Lists with Java 8 power

Posted on November 6, 2015 by Arulkumaran Kumaraswamipillai



Why convert from a list to a map? Maps allow you to store and access data by a "**KEY**". Lists only allow you to access data by either index or by looping through the whole list to find a value that you are interested in.

Also, a map can be used to group a list of items by a key, and then to quickly access items by key as well as depicted below

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	EventKey	EventValue1	EventValue2	InActiveFlag
2001	EVENT_X	SEMINAR_A	1-Oct-15	N
2002	EVENT_X	SEMINAR_A	11-Jan-15	N
2003	EVENT_Y EVENT Z	SHOW_B SHOW C	25-Feb-15 3-Mar-15	N N
	KEY	VALUE		
	MAP			
	KEY	VALUE		
	EVENT_X	List <event> of</event>	2001 & 2002	
	EVENT_Y	List <event> of</event>	2003	
	EVENT_Z	List <event> of</event>	2004	
			KEY/VALUE	

Pre Java 8 code to convert a list to a map as per the above diagram

You can pull out all the vents (i.e. a list of Event) by the event key.

```
1
2
   public class Event implements Serializable {
4
5
       private static final long serialVersionUID =
6
7
       private long eventId;
8
       private String eventKey;
9
       private String eventValue1;
10
       private String eventValue2;
11
       private boolean inActiveFlag;
12
13
       public Event(long eventId, String eventKey,
14
           super();
15
           this.eventId = eventId;
16
           this.eventKey = eventKey;
17
           this.eventValue1 = eventValue1;
18
           this.eventValue2 = eventValue2;
           this.inActiveFlag = inActiveFlag;
19
20
       }
21
22
         public String getEventKey() {
23
           return eventKey;
24
25
26
       public void setEventKey(String eventKey) {
27
           this.eventKey = eventKey;
28
29
30
       //other getters and setters
31
32
       @Override
33
       public String toString() {
34
           return "Event [eventId=" + eventId + "
```

```
□ Java 8 (24)
      01: ♦ 19 Java 8 I
      02: ♦ Java 8 Stre
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```

```
+ eventValue2 + ", inActiveFlag=
36  }
37 }
```

```
package com.mytutorial;
3
   import java.util.ArrayList;
5
   import java.util.Arrays;
6
   import java.util.HashMap;
   import java.util.List;
8
   import java.util.Map;
9
10 public class Convert {
11
12
        public static void main(String∏ args) {
13
14
             //Arrays.asList(Event....a) takes vararg
15
             List<Event> events = Arrays.asList(
                  new Event(2001,
                                     "EVENT_X"
                                                  "SEMINAR
16
                 new Event(2002, "EVENT_X", "SEMINAR new Event(2003, "EVENT_X", "SEMINAR new Event(2003, "EVENT_Y", "SHOW_B"
                                                 "SEMINAR_
17
18
                                    "EVENT_Z", "SHOW_C"
19
                 new Event(2004,
20
             );
21
22
             Map<String, List<Event>> mapEventsByKey
23
24
             //store it in a map by EvenetKey.
25
             for (Event event : events) {
26
                  String mapKey = event.getEventKey();
                  if(mapEventsByKey .containsKey(mapKe
    List<Event> list = mapEventsByKe)
27
28
29
                      list.add(event);
30
                  } else {
31
                      List<Event> eventsWIthSameKey =
32
                      eventsWIthSameKey.add(event);
33
                      mapEventsByKey .put(mapKey, even
34
                  }
35
             }
36
37
             System.out.println(mapEventsByKey ); //m
38
        }
39 }
40
41
```

The above example is a "Single key and multiple values" scenarios.

## Java 8 onwards using FP (Functional Programming)

```
package com.mytutorial;

import java.util.Arrays;
import java.util.List;
import java.util.Map;
import java.util.stream.Collectors;
```

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```
public class Convert {
9
10
        public static void main(String□ args) {
11
12
              //Arrays.asList(Event....a) takes varara
13
             List<Event> events = Arrays.asList(
                  new Event(2001, "EVENT_X", "EVENT_X", "EVENT_X",
14
                                                      SEMINAR
                  new Event(2002, "EVENI_X", SLUELVE, "SHOW_B" "SHOW_B" "SHOW_C"
                                                    "SEMINAR_
15
                  new Event(2003, "EVENT_Y",
new Event(2004, "EVENT_Z",
16
17
                                                    "SHOW_C",
18
             );
19
20
             Map<String, List<Event>> mapEventsByKey
21
             System.out.println(mapEventsByKey ); //m
22
        }
23
```

Wow, so concise.

### Java 8 onwards: flattening the map back to a list

```
package com.mytutorial;
3
   import java.util.Arrays;
4
   import java.util.List;
   import java.util.Map;
   import java.util.stream.Collectors;
6
8
   public class Convert {
9
10
        public static void main(String[] args) {
11
12
             //Arrays.asList(Event....a) takes varara
13
             List<Event> events = Arrays.asList(
                 new Event(2001, "EVENT_X", new Event(2002, "EVENT_X", new Event(2003, "EVENT_Y", 1000+(2004, "EVENT_Z",
14
                                                  "SEMINAR
                                                 "SEMINAR_
15
                                                 "SHOW_B"
16
                                                 "SHOW_C"
17
18
             );
19
20
             Map<String, List<Event>> mapEventsByKey
21
22
             System.out.println(mapEventsByKey);
23
24
             // mapEventsByKey.values() gives a list
25
             List<Event> flattenedList = mapEventsByK
26
27
28
29
30
             System.out.println(flattenedList);
31
32
        }
33
```

## Java 8 onwards: Get the list of keys sorted

```
1 List<String> listOfKeysSorted = mapEventsByKey.ke
```

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