

Java Streams: Visualizing `WordSearcher.printResults()`

Douglas C. Schmidt

d.schmidt@vanderbilt.edu

www.dre.vanderbilt.edu/~schmidt

Professor of Computer Science

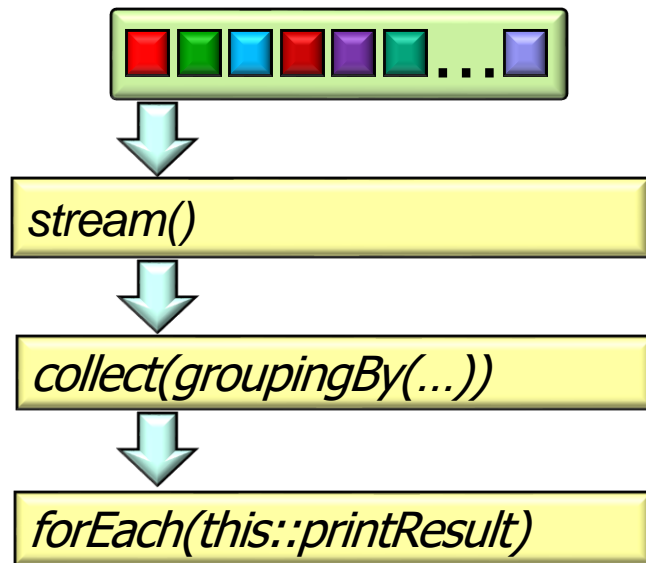
**Institute for Software
Integrated Systems**

**Vanderbilt University
Nashville, Tennessee, USA**



Learning Objectives in this Part of the Lesson

- Visualize aggregate operations in SimpleSearchStream's WordSearcher.printResults() method



Visualizing the Word Searcher.printResults() Method

Visualizing the WordSearcher.printResults() Method

- Prints the index locations of any/all of the found words

```
wordSearcher.printResults(results) ;
```

Word "Do" appeared at indices [128|138|148|199|209|219|503|972|976|997|1004|1022|1204|1216|1231|1244|1256|1266|1275|1281|1288|1297|1303|1336|1348|1358|1367|1373|1828|1832|1853|1857|1879|1919|2251|2263|2273|2302|2309] with max index of 2309

Word "Re" appeared at indices

[131|141|151|202|212|222|979|1025|1219|1259|1278|1300|1351|1370|1835|1875|1899|1939|2266|2295] with max index of 2295

Word "Mi" appeared at indices[134|144|154|205|215|225|982|1028|1213|1253|1345|1838|1872|1882|1885|1889|1922|1925|1929|2260|2292] with max index of 2292

Word "Fa" appeared at indices

[228|985|1031|1210|1250|1342|1841|1869|1902|1905|1942|1945|2257|2279|2289] with max index of 2289

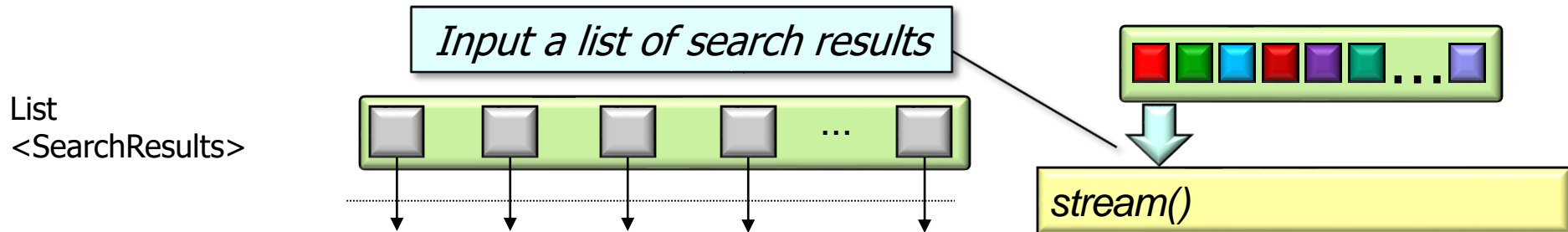
Word "So" appeared at indices[231|988|1001|1034|1041|1201|1241|1263|1285|1333|1355|1413|1844|1866|1892|1895|1932|1935|2248|2270|2286|2306] with max index of 2306

...

This method shows the collect(groupingBy()) terminal operation

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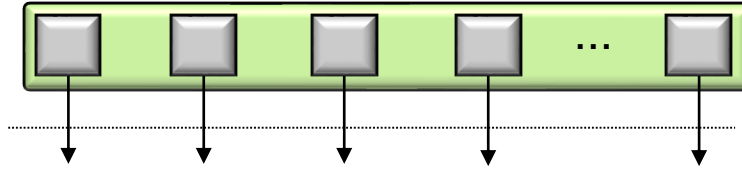


The search results correspond to words to find: "do", "re", "mi", "fa", "so", "la", "ti".

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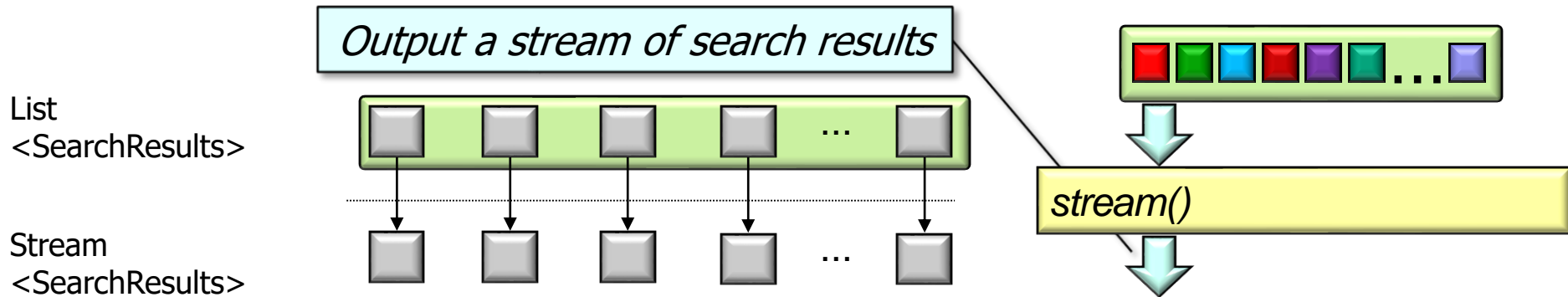
List
<SearchResults>



Convert list to a (sequential) stream of search results

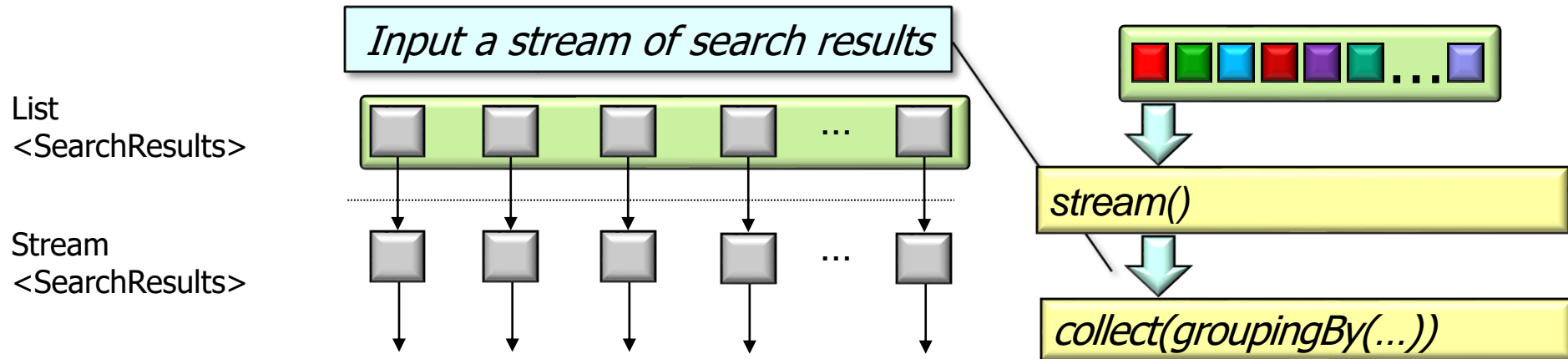
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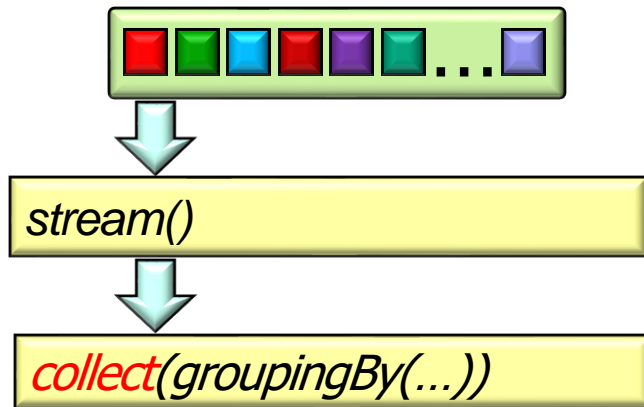
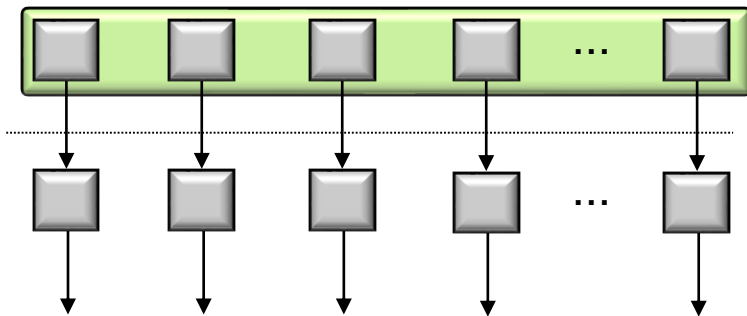


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List
<SearchResults>

Stream
<SearchResults>



Trigger "intermediate operation" processing

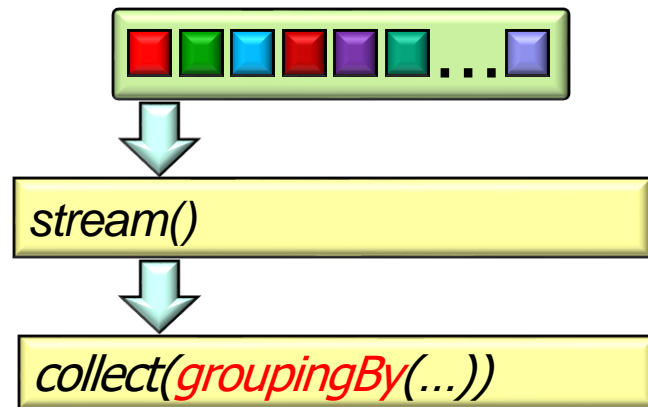
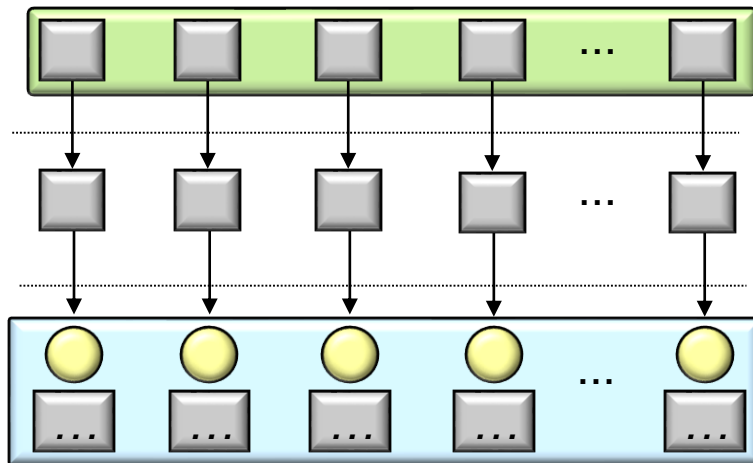
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List
<SearchResults>

Stream
<SearchResults>

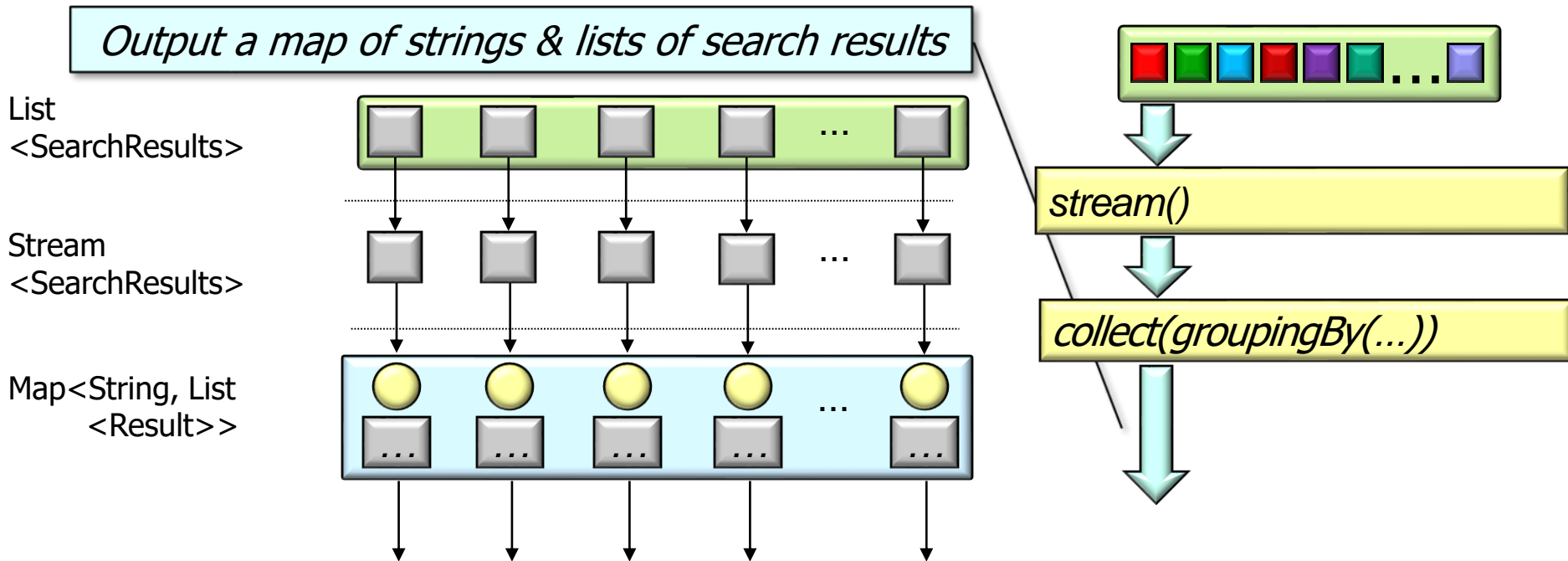
Map<String, List
<Result>>



Create a map that groups words with the indices where they were found

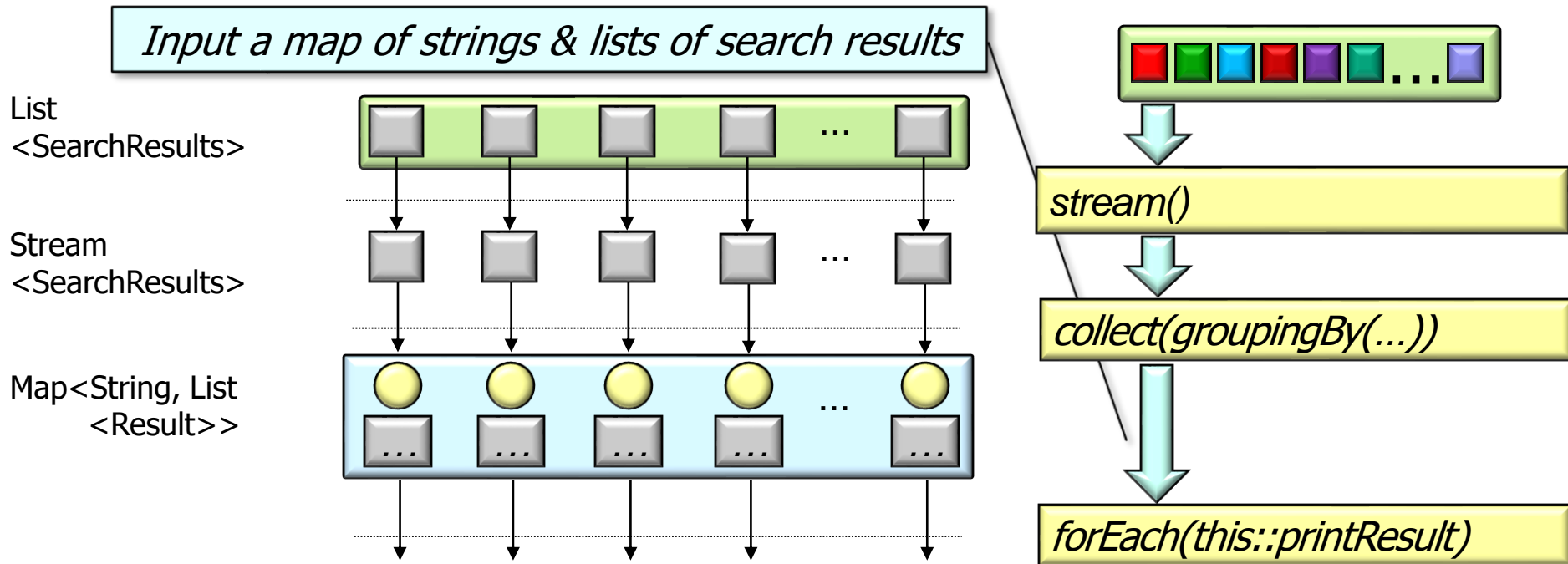
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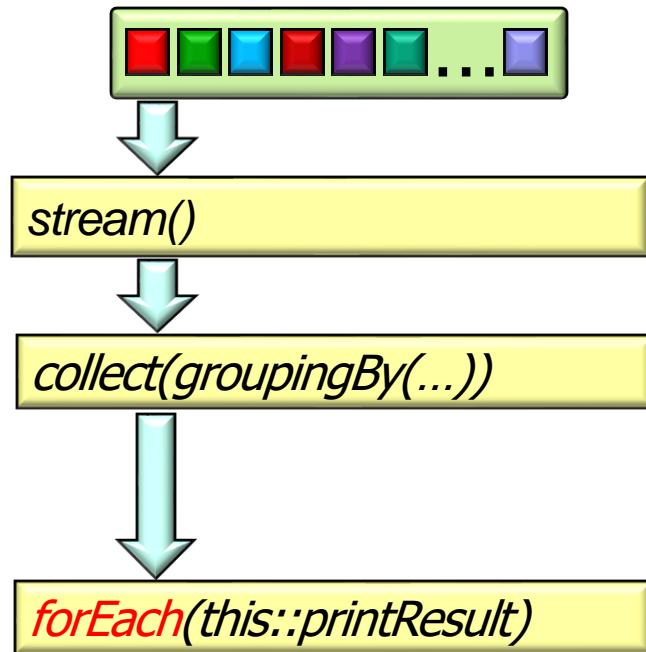
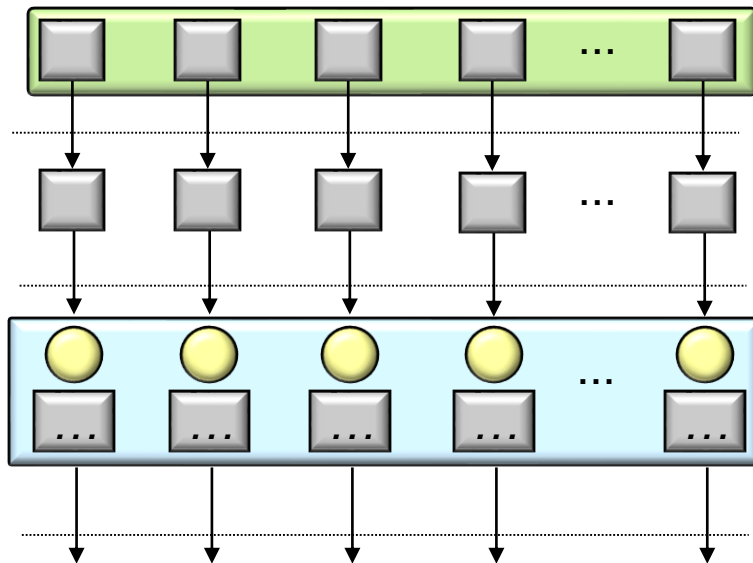
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List
<SearchResults>

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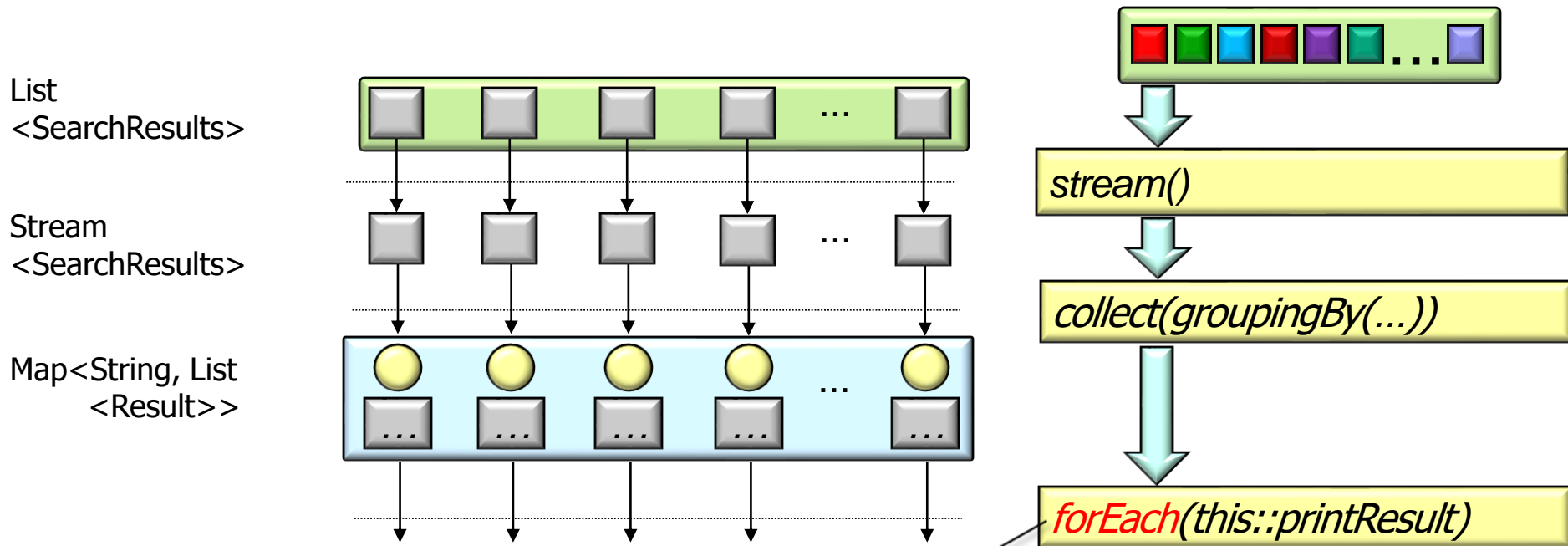
Map<String, List
<Result>>



Iterate through all the key/value pairs in the map

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This is the Map forEach() method, not the Stream forEach() method

See docs.oracle.com/javase/8/docs/api/java/util/Map.html#forEach

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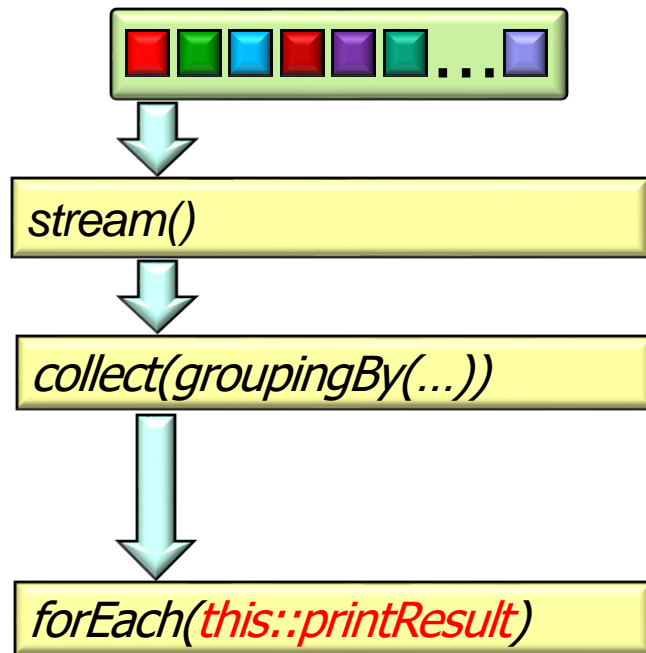
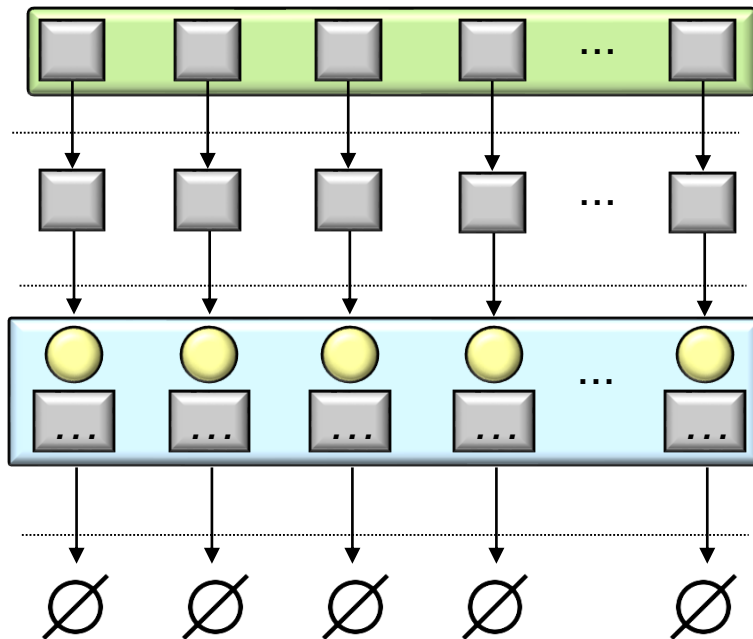
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List
<SearchResults>

Stream
<SearchResults>

Map<String, List
<Result>>

Void



Print out results of each map entry (key = word & value = list of search results)

End of Java Streams: Visualizing Word Searcher.printResults()