Visualize WordSearcher.printSuffixSlice()
Learning Objectives in this Part of the Lesson

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

See SimpleSearchStream/src/main/java/search/WordSearcher.java
Visualizing the Word Searcher.printSuffixSlice() Method
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

```java
wordSearcher.printSuffixSlice("La", results);
```

Word "La" appeared at indices [234|417|658|886|991|1207|1247|1269|1291|1339|1361|1742|1847|1863|1909|1949|2161|2254|2276|2283] with max index of 2283


Prints a slice of the stream from "La" to "Ti", while ignoring entries from "Do" to "So".

This method shows the collect(groupingBy()) & dropWhile() aggregate operations
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

List <SearchResults>

Input a list of search results

stream()
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Convert list to a (sequential) stream of search results
Print out results of each map entry (key = word & value = list of search results)
Visuqlizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Input a stream of search results

List
<SearchResults>

Stream
<SearchResults>

stream()

collect(groupingBy(...))
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

List
<SearchResults>

Stream
<SearchResults>

Trigger “intermediate operation” processing
Visualizing the WordSearcher.printSuffixSlice() Method

• Prints a slice of the listOfSearchResults starting at a particular word

Create a map that groups words with the indices where each word was found.
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Output a map of strings & lists of search results

List
<SearchResults>

Stream
<SearchResults>

Map<String, List<SearchResult>>

Map<String, List<Result>>
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Input a map of strings & lists of search results

List <SearchResults>

Stream <SearchResults>

Map<String, List<Result>>

stream()

collect(groupingBy(...))

entrySet().stream()
Visualizing the WordSearcher.printSuffixSlice() Method

• Prints a slice of the listOfSearchResults starting at a particular word

List
<ListOfSearchResults>

Stream
<ListOfSearchResults>

Map<String, List<SearchResults>>

Obtain the entry set from the map & convert it into a stream

Map<String, List<Result>>

stream()
collect(groupingBy(...))
entrySet().stream()
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Output a stream of map entries

List
<ListOfSearchResults>

Stream
<SearchResults>

Map<String, List<Result>>

Stream<Entry<String, List<Result>}>
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

List <SearchResults>
Stream <SearchResults>
Map<String, List<Result>>
Stream<Entry<String, List<Result>>>
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

```
List <SearchResults>
Stream <SearchResults>
Map<String, List<Result>>
Stream<Entry<String, List<Result>>>

Slice the stream to contain remaining elements after dropping subset of elements that don't match `word'.
```

See docs.oracle.com/javase/9/docs/api/java/util/stream/Stream.html#dropWhile
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

```
notEqual() implementation: return !entry.getKey().equals(word)
```
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

List
<List<SearchResults>>

Stream
<Stream<SearchResults>>

Map
<Map<String, List<Result>>>

Stream
<Stream<Entry<String, List<Result>>>>

\textit{dropWhile()} differs from \textit{filter()} since it needn’t examine the entire input stream.

See itnext.io/streams-api-new-features-after-java-8-f2df81bed5ac
• Prints a slice of the listOfSearchResults starting at a particular word

Output a (sub)stream starting at "La".
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

Input a (sub)stream starting at "La".

```
List <SearchResults>
Stream <SearchResults>
Map<String, List <Result>>
Stream<Entry<String, List<Result>>>
Stream<Entry<String, List<Result>>>
```

```
stream()
collect(groupingBy(...))
entrySet().stream()
dropWhile(e -> notEqual(e, word))
forEach(this::printResult)
```
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

List <SearchResults>

Stream <SearchResults>

Map<String, List<Result>>

Stream<Entry<String, List<Result>>>

Stream<Entry<String, List<Result>>>

Iterate thru each element in (sub)stream

See [docs.oracle.com/javase/8/docs/api/java/util/stream/Stream.html#forEach](https://docs.oracle.com/javase/8/docs/api/java/util/stream/Stream.html#forEach)
Visualizing the WordSearcher.printSuffixSlice() Method

- Prints a slice of the listOfSearchResults starting at a particular word

```
List <SearchResults>
Stream <SearchResults>
Map<String, List <Result>>
Stream<Entry<String, List<Result>>>
Stream<Entry<String, List<Result>>>
Void
```

Print out results of each map entry (key = word & value = list of search results)
End of Visualize Word
Searcher.printSuffixSlice()