

Top 15 Java Collections Interview Questions for SDET Roles

Prepared by: Ajay Varma

LinkedIn: <https://www.linkedin.com/in/ajay-varma-profile>

Count Frequency of Each Word in a String

Company Asked: Amazon, Walmart, Infosys

Explanation: This question checks if you understand HashMap fundamentals. You must tokenize the string, count occurrences, handle spaces, and maintain correct insertion.

Hint: Split the sentence → loop through words → update map count.

Input/Output:

Input: "java is java and java is easy"

Output: {java=3, is=2, and=1, easy=1}

GFG Link: <https://www.geeksforgeeks.org/dsa/calculate-the-frequency-of-each-word-in-the-given-string/>

Remove Duplicates While Preserving Order

Company Asked: Cognizant, Accenture, Deloitte

Explanation: Tests knowledge of LinkedHashSet which preserves insertion order unlike HashSet.

Hint: Add list elements to LinkedHashSet → convert back to list.

Input/Output:

Input: [1,2,3,2,1,4]

Output: [1,2,3,4]

GFG Link:

<https://www.geeksforgeeks.org/java/how-to-remove-duplicates-from-arraylist-in-java/>

Find First Non-Repeating Character

Company Asked: Amazon, PayPal

Explanation: Checks concept of order-preserving maps (LinkedHashMap).

Hint: Traverse characters → count → return first count 1.

Input/Output:

Input: stress

Output: t

GFG Link: <https://www.geeksforgeeks.org/dsa/given-a-string-find-its-first-non-repeating-character/>

Find Duplicate Elements

Company Asked: TCS, HCL

Explanation: Ensures understanding of Set behavior. HashSet allows unique items only.

Hint: Add each element to HashSet → if add() fails → duplicate.

Input/Output:

Input: [1,2,3,2,4,4]

Output: [2,4]

GFG Link: <https://www.geeksforgeeks.org/dsa/duplicates-elements-in-an-array/>

Sort Map by Values

Company Asked: JP Morgan, Barclays

Explanation: Tests understanding of Map.Entry, Comparator, and sorting.

Hint: Convert entrySet → list → sort by value.

Input/Output:

Input: {A=10,B=5,C=20}

Output: {B=5,A=10,C=20}

GFG Link:

<https://www.geeksforgeeks.org/dsa/sorting-a-hashmap-according-to-values/>

Most Frequent Element in List

Company Asked: Amazon, ServiceNow

Explanation: Checks frequency counting and max comparison logic.

Hint: Use HashMap to count → track highest frequency.

Input/Output:

Input: [1,2,2,3,2,4]

Output: 2

GFG Link: <https://www.geeksforgeeks.org/dsa/frequent-element-array/>

Intersection of Two Lists

Company Asked: Infosys, Tech Mahindra

Explanation: Practical SDET scenario: match UI list vs API list.

Hint: Use retainAll() to keep common items.

Input/Output:

Input: [1,2,3,4] & [3,4,5]

Output: [3,4]

GFG Link: <https://www.geeksforgeeks.org/dsa/intersection-of-two-arrays/>

Compare Two Lists (Missing, Extra, Common)

Company Asked: Product-based SDET

Explanation: Used for data validation between UI vs API vs DB.

Hint: Use removeAll() and retainAll().

Input/Output:

Example:

Missing: [apple,mango]

Extra: [grape]

Common: [banana]

GFG Link:

<https://www.geeksforgeeks.org/python/python-find-missing-additional-values-two-lists/>

Safe Removal Using Iterator

Company Asked: All SDET Interviews

Explanation: Shows knowledge of ConcurrentModificationException.

Hint: Use iterator.remove() instead of list.remove().

Input/Output:

Input: [1,2,3,4,5]

Output: [1,3,5]

GFG Link: <https://www.geeksforgeeks.org/java/how-to-avoid-concurrentmodificationexception-in-java/>

Convert List to Map (String → Length)

Company Asked: Capgemini, Siemens

Explanation: Tests transformation logic + Collectors.toMap.

Hint: Use stream or loop to build map.

Input/Output:

Input: [apple,cat]

Output: {apple=5,cat=3}

GFG Link:

<https://www.geeksforgeeks.org/java/program-to-convert-list-to-map-in-java/>

Sort Map Keys Alphabetically

Company Asked: JP Morgan

Explanation: Tests TreeMap or sorting list of keys.

Hint: Convert keySet to list → sort.

Input/Output:

Input: {dog=1,cat=2,apple=3}

Output: [apple,cat,dog]

GFG Link: <https://www.geeksforgeeks.org/java/conversion-of-java-maps-to-list/>

Kth Largest Element Using PriorityQueue

Company Asked: Amazon, Google

Explanation: Common heap question to test PriorityQueue knowledge.

Hint: Maintain min-heap of size K.

Input/Output:

Input: [3,1,5,12,2,11], k=3

Output: 5

GFG Link: <https://www.geeksforgeeks.org/dsa/kth-largest-element-in-an-array/>

Check Anagrams

Company Asked: TCS Digital

Explanation: Tests sorting and character-frequency logic.

Hint: Sort or use char count comparison.

Input/Output:

Input: listen,silent

Output: true

GFG Link: <https://www.geeksforgeeks.org/java/java-program-to-check-strings-anagram-using-hashmap/>

Group Objects by Attribute

Company Asked: PayPal, Salesforce

Explanation: Common Java Stream question — `groupBy()`.

Hint: Collect objects grouped by attribute key.

Input/Output:

Input: $A \rightarrow IT, B \rightarrow HR, C \rightarrow IT$

Output: $\{IT=[A,C], HR=[B]\}$

GFG Link: <https://www.geeksforgeeks.org/java/collectors-groupingby-method-in-java-with-examples/>

Implement LRU Cache

Company Asked: Amazon, Adobe

Explanation: Tests design + `LinkedHashMap` `accessOrder=true`.

Hint: Override `removeEldestEntry`.

Input/Output:

Capacity: 2 ops: `put(1), put(2), get(1), put(3)`

Output: evict 2

GFG Link: <https://www.geeksforgeeks.org/system-design/lru-cache-implementation/>