### Stream API Coding Interview Questions and Answers --->

Q.1 Find out the odd-even numbers from the list using stream?

Sol:

List<Integer> numbers = Arrays.asList(1,2,3,4,5,6,7,8);

List<Integer> odd = numbers.stream().filter(n -> n % 2 != 0).collect(Collectors.toList());

List<Integer> even = numbers.stream().filter(n -> n % 2 == 0).collect(collectors.tolist());

System.out.println("Odd numbers: " + odd);

System.out.println("Even numbers: " + even);

Q.2 Find out all the numbers starting with 1 from a list?

Sol:

List<Integer> numbers = Arrays.asList(11,22,3,41,5,6,17,58);

List<Integer> startsWithOne = numbers.stream().map(String::valueOf).filter(n -> n.startsWith("1")).map(Integer::valueOf).collect(Collectors.toList());

System.out.println(Numbers starts with 1 are: " + startsWithOne);

Q.3 find out the sum of given list?

Sol:

List<Integer> numbers = Arrays.asList(1,2,3,4,5,6,7,8);

Integer sum = numbers.stream().mapToInt(n -> n).sum();

System.out.println(sum);

//OR

Integer sum = numbers.stream().reduce(0,(a,b) -> a+b);

System.out.println(sum);

Q.4 Find out the duplicates in a given list of integer?

Sol:

List<Integer> numbers = Arrays.asList(1,2,3,8,1,6,7,8,7);

Set<Integer> unique = new HashSet<>();

List<Integer> duplicates = numbers.stream().filter(n -> !set.add(n)).collect(Collectors.toList());

System.out.println(dublicates);

System.out.println(unique);

Q.5 Find first element in a given list or in an array?

Sol:

List<Integer> numbers = Arrays.asList(11,2,3,4,51,6,7,8);

numbers.stream().findFirst().ifPresent(System.out::println);

//OR

int[] numbers = {11,2,3,4,51,6,7,8};

Arrays.stream(numbers).boxed().findFirst().ifPresent(System.out::println);

Q.6 Find total number of elements present in the list?

Sol:

List<Integer> numbers = Arrays.asList(1,2,3,4,5,6,7,8);

Long countOfNumbers = numbers.stream().count();

System.out.println(countOfNumbers);

//OR

Integer countOfNumbers = numbers.stream().reduce(0,(a,b) -> a+1);

System.out.println(countOfNumbers);

Q.7 Find the maximum and minimum value present in the list?

Sol:

List<Integer> numbers = Arrays.asList(31,2,23,4,5,64,7,8);

Integer max = numbers.stream().mapToInt(n -> n).max().getAsInt();

Integer min = numbers.stream().mapToInt(n -> n).min().getAsInt();

System.out.println(max);

System.out.println(min);

Q.8 Find the second highest and second lowest value in the list?

Sol:

List<Integer> numbers = Arrays.asList(31,2,23,4,5,64,7,8);

Integer secondHighest = numbers.stream().distinct().sorted(Comparator.reverseOrder()).skip(1).findFirst().orElse(null);

System.out.println(secondHighest);

Integer secondLowest = numbers.stream().distinct().sorted().skip(1).findFirst().orElse(null);

System.out.println(secondLowest);

Q.9 Find the kth element from the list?

Sol:

int k = 5;

Integer kTHElement = numbers.stream().skip(k-1).findFirst().orElse(null);

System.out.println(kTHElement);

Q.10 Find the first non repeating character from string?

Sol:

String s = "java is a beautiful language";

Character firstNonRepeating = s.chars().mapToObj(v -> (char) v)

.filter(v -> s.indexOf(v) == s.lastIndexOf(v))

.findFirst()

.orElse(null);

System.out.println(firstNonRepeating);

Q.11 Find the first repeating character from string?

Sol:

String s = "java is a beautiful language";

Character firstRepeating = s.chars().mapToObj(v -> (char) v)

.filter(v -> s.indexOf(v) != s.lastIndexOf(v))

.findFirst()

.orElse(null);

System.out.println(firstRepeating);

Q.12 Sort the elements in a list using stream, ascending and descending?

Sol:

List<Integer> numbers = Arrays.asList(31,2,23,4,5,64,7,8);

List<Integer> ascendingOrder = numbers.stream().sorted().collect(Collectors.toList());

System.out.println(ascendingOrder);

List<Integer> descendingOrder = numbers.stream().sorted(Comparator.reverseOrder()).collect(Collectors.toList());

System.out.println(descendingOrder);

Q.13 Find the frequency/count of each character from a string?

Sol:

String s = "interview";

Map<String, Long> frequency = Arrays.stream(s.split("")).collect(Collectors.groupingBy(str -> str, Collectors.counting()));

System.out.println(frequency);

//OR

Map<Character, Long> frequency = s.chars().mapToObj(str -> (char) str).collect(Collectors.groupingBy(Function.identity(), Collectors.counting()));

System.out.println(frequency);

Q.14 Sort the string using stream?

Sol:

String s = "java";

String sortedString = s.chars().mapToObj(c -> (char) c).sorted().map(String::valueOf).collect(Collectors.joining());

System.out.println(sortedString);

//OR

String sortedString = Arrays.stream(s.split("")).sorted().collect(Collectors.joining());

System.out.println(sortedString);

Q.15 Find out all the numbers ending with 1 from a list?

Sol:

List<Integer> numbers = Arrays.asList(31,2,23,4,5,61,71,8);

List<Integer> endsWithOne = numbers.stream().filter(n -> n % 10 == 1).collect(Collectors.toList());

System.out.println(endsWithOne);

//OR

List<Integer> endsWithOne = numbers.stream().map(String::valueOf).filter(n -> n.endsWith("1")).map(Integer::valueOf).collect(Collectors.toList());

System.out.println(endsWithOne);

Q.16 Merge two list of integer?

Sol:

List<Integer> list1 = Arrays.asList(3,2,7);

List<Integer> list2 = Arrays.asList(4,5,8);

List<Integer> mergedList = Stream.concat(list1.stream(), list2.stream()).collect(Collectors.toList());

System.out.println(mergedList);

//OR

List<Integer> mergedList = Stream.of(list1,list2).flatMap(List::stream).collect(Collectors.toList());

System.out.println(mergedList);

Q.17 Sort an Array and then convert sorted array into stream?

Sol:

int[] arr = {3,2,7,5,4,8};

Arrays.sort(arr);

Arrays.stream(arr).forEach(n -> System.out.println(n + " "));

//OR

Arrays.stream(arr).sorted().forEach(System.out::println);

Q.18 How to use map to convert object into uppercase? //Convert list of string into uppercase?

Sol:

List<String> list = Arrays.asList("aa", "bb", "cc", "dd");

List<String> upperCaseList = list.stream().map(String::toUpperCase).collect(Collectors.toList());

System.out.println(upperCaseList);

//OR

List<String> upperCaseList = list.stream().map(s -> s.toUpperCase()).collect(Collectors.toList());

System.out.println(upperCaseList);

Q.19 Perform cube on list element and filter numbers greater than 50?

Sol:

List<Integer> numbers = Arrays.aslist(3,2,5,9,1,4);

List<Integer> greaterThanFifty = numbers.stream().map(n -> n\*n\*n).filter(n -> n > 50).collect(Collectors.toList());

System.out.println(greaterThanFifty);

Q20. How to check if list is empty in Java 8 using Optional, if not null iterate through the list and print the object?

Sol:

List<Integer> list = Arrays.aslist(3,2,5,9,1,4);

Optional.ofNullable(list).filter(l -> !l.isEmpty()).ifPresent(l -> l.forEach(System.out::println));

Q.21 Find out min,max ,average ,sum and count in a list?

Sol:

List<Integer> numbers = Arrays.aslist(3,2,5,9,1,4);

Integer min = numbers.stream().mapToInt(n -> n).min().getAsInt();

Integer max = numbers.stream().mapToInt(n -> n).max().getAsInt();

Integer avg = numbers.stream().mapToInt(n -> n).average().getAsDouble();

Integer sum = numbers.stream().mapToInt(n -> n).sum();

Long count = numbers.stream().mapToInt(n -> n).count();

System.out.println("Min : " + min);

System.out.println("Max : " + max);

System.out.println("Average : " + avg);

System.out.println("Sum : " + sum);

System.out.println("Count : " + count);

//OR

IntSummaryStatistics stats = numbers.stream().mapToInt(n -> n).summaryStatistics();

int min = stats.getMin();

int max = stats.getMax();

double avg = stats.getAverage();

int sum = stats.getSum();

long count = stats.getCount();

System.out.println("Min : " + min);

System.out.println("Max : " + max);

System.out.println("Average : " + avg);

System.out.println("Sum : " + sum);

System.out.println("Count : " + count);

Q.22 Find out common element from two list?

Sol:

List<Integer> list1 = Arrays.asList(3,2,7,8,1);

List<Integer> list2 = Arrays.asList(1,4,3,8,5);

List<Integer> commonElements = list1.stream().filter(list2::contains).collect(Collectors.toList());

System.out.println(commonElements);

Q.23 Convert first character to uppercase in a Sentence?

Sol:

String s = "convert first character of each word into upperCase";

String[] words = s.split(" ");

String firstUpperCase = Arrays.stream(words).map(w -> w.substring(0,1).toUpperCase() + w.substring(1)).collect(Collectors.joining(" "));

System.out.println(firstUpperCase);

Q.24 Convert last character to uppercase in a Sentence?

Sol:

String s = "convert last character of each word into upperCase";

String[] words = s.split(" ");

String lastUpperCase = Arrays.stream(words).map(w -> w.substring(0,w.length()-1) + w.substring(w.length()-1).toUpperCase()).collect(Collectors.joining(" "));

System.out.println(lastUpperCase);

Q.25 Count the duplicate Strings from a list?

Sol:

List<Integer> list = Arrays.asList("Apple", "Orange", "Apple", "Mango", "Mango");

Map<String, Long> duplicateStringsWithCount = list.stream().filter(l -> Collections.frequency(list, l) > 1).collect(Collectors.groupingBy(l -> l, Collectors.counting()));

System.out.println(duplicateStringsWithCount);

//OR

Map<String, Long> duplicateStringsWithCount = list.stream().collect(Collectors.groupingBy(l -> l, Collectors.counting()));

duplicateStringsWithCount.forEach((k,v) -> {

if(v>1){

System.out.println(k + " : " + v));

Q.26 find the length of each String and print along with it?

Sol:

List<Integer> list = Arrays.asList("Apple", "Orange", "Mango", "Banana");

list.stream().map(s -> s + " = " + s.length()).forEach(System.out::println);

Q.27 Merge two list and sort it?

Sol:

List<Integer> list1 = Arrays.asList(3,2,7);

List<Integer> list2 = Arrays.asList(4,5,8);

List<Integer> mergedSortedList = Stream.concat(list1.stream(), list2.stream()).sorted().collect(Collectors.toList());

Syste,.out.println(mergedSortedList);

Q.28 sum of even and odd numbers?

Sol:

List<Integer> list = Arrays.asList(3,2,7,1,8);

Integer evenSum = list.stream().filter(n -> n % 2 == 0).mapToInt(Integer::valueOf).sum();

Integer oddSum = list.stream().filter(n -> n % 2 != 0).mapToInt(n -> n).sum();

System.out.println(evenSum);

System.out.println(oddSum);

Q.29 Reverse each word in a given sentence?

Sol:

String str = "We are learning Java";

String[] words = str.split(" ");

String reverseStr = Arrays.stream(words).map(word -> new StringBuilder(word).reverse()).collect(Collectors.joining(" "));

System.out.println(reverseStr);

Q.30 Fibonacci series using stream?

Sol:

Stream.iterate(new int[] {0, 1}, fib -> new int[] {fib[0], fib[0] + fib[1]}).limit(10).map(fib -> fib[0]).forEach(System.out::println);