Java Interview Questions:

comparator, collection, inheritance, interfaces

Given a huge file with ids, how will you sort the ids?

2D matrix problem. Given a 2d array, each cell is filled with some numbers. A robot can move either upwards or right direction. You need to find the maximum sum that he can get on traversing through the matrix.

Given list of list with student name and marks. Return student with maximum average in O(n)

Group anagrams together.

Good.. preparation is the key... Prepare well about resume..

hackerrank : positional element and string reduce

coder pad: given a dictionary, find if anagram of a string is present

Know about investment banking

Consider a game where a player can score 3 or 5 or 10 points in a move. Given a total score n, find number of ways to reach the given score.

**Interview Questions**

* 1. SQL joins  
  2. Maths questions.  
  3. Puzzles

**Interview Questions**

* Design DS that can do push() pop() lastElement() minElement() in O(1) [DS follow LIFO]  [Answer Question](https://www.glassdoor.co.in/Interview/Design-DS-that-can-do-push-pop-lastElement-minElement-in-O-1-DS-follow-LIFO-QTN_3147422.htm)
* Repeating character present first in string (CodePad), asked many times in CoderPad round  [Answer Question](https://www.glassdoor.co.in/Interview/Repeating-character-present-first-in-string-CodePad-asked-many-times-in-CoderPad-round-QTN_3147423.htm)
* Calculate the average of student scores given I/p is {{“John”, 85},{“Charlie, 60},{John, 70},{Bob,100}} and return the highest average score, asked many times in CoderPad round  [Answer Question](https://www.glassdoor.co.in/Interview/Calculate-the-average-of-student-scores-given-I-p-is-John-85-Charlie-60-John-70-Bob-100-and-return-the-high-QTN_3147424.htm)
* Longest same character sequence e.g aabbbbcc -> b has longest sequence (CodePad)  [Answer Question](https://www.glassdoor.co.in/Interview/Longest-same-character-sequence-e-g-aabbbbcc-b-has-longest-sequence-CodePad-QTN_3147425.htm)
* pair from array that is equal to a sum (in Telephonic Round)  [Answer Question](https://www.glassdoor.co.in/Interview/pair-from-array-that-is-equal-to-a-sum-in-Telephonic-Round-QTN_3147426.htm)
* Find the number which has occured more than half time in array, use binarySearch in this for Best complexity of O(logN) (in Telephonic Round)  [Answer Question](https://www.glassdoor.co.in/Interview/Find-the-number-which-has-occured-more-than-half-time-in-array-use-binarySearch-in-this-for-Best-complexity-of-O-logN-i-QTN_3147427.htm)
* Rat Maze problem (in Telephonic Round)  [Answer Question](https://www.glassdoor.co.in/Interview/Rat-Maze-problem-in-Telephonic-Round-QTN_3147428.htm)

**Interview Questions**

* longest palindrome in a string  
  alternative odd even nos by 2 threads  
  lift question - less starvation and max utilisation  
  longest sub array having unique characters  
  stock prices of different vendors are coming in then get the best prices at any point of time. What would happen if a new price of vendor comes up, it should still give the best price at that time. - USE 2 stacks - 1 stack for the input at every input in stack 1 place the min element at that time in another stack. If the same vendor comes again with some new price just place it on stack 1 and get the min value at that time and place it in stack 2.

Software Development Engineer In Test (SDET) at Microsoft was asked...

24 May 2012

|  |
| --- |
| In a sequence of alphabets (like aaabbddaabbcc) write a program to find the number of the consecutive alphabets in and print the alphabet and number. example :if input is aaabbddaabbcc then output should be 3a, 2b, 2d, 2a, 2b, 2c |

Software Development Engineer In Test (SDET) at Microsoft was asked...

24 May 2012

|  |
| --- |
| Write a program to find out in a sorted array the sum of any two numbers present in the array is closest to the a number given. if you have an array 4, 6, 8,24,36 and the given number is 31 then output should be 24 + 6 = 30 |

Software Development Engineer In Test at TechChefs Software was asked...

9 Dec 2017

|  |
| --- |
| Program: Let's say U1,U2 are friends and vice versa. So given a list of friends, you need to find unique set of friends. For eg: U1,U2 U2,U3 U4,U5, U2,U1, U4,U5 Should return: U1,U2; U2,U3; U4,U5 |

Software Test Engineer at IQVIA was asked...

13 Jul 2019

|  |
| --- |
| Print the second largest salary of an employee from employee tabe? |

Software Test Engineer at IQVIA was asked...

13 Jul 2019

|  |
| --- |
| SQL query to combine and display data from employee table and salary table for all employee whose name starts with 'S'? |

# **Goldman Sachs Interview Experience**

Super Day Process

* **1st Round** – Written test to be completed in 1hour 20 mins containing questions on C++, SQL and Aptitude questions. The questions were really tough and considering the level of questions one might feel that the company is really technically sound. But believe me, as you read you are going to get shocked. (Hint: For Aptitude questions, Please do a reverse solving, because you get 30 mins for 15 apti questions)
* **2nd Round** –
  1. [Given a matrix with row sorted and column sorted, find the number given](https://practice.geeksforgeeks.org/problems/search-in-a-matrix/0)
  2. What is head and tail command in UNIX? How does it work?
  3. What is copy constructor? Write its syntax? Brief about virtual functions and real-time use case of it.
  4. Different storage class and scope of variables.

This round is the funniest – Believe me the interviewer was the Vice-President of the company and he did not know the basics of Operating system. It was kind of very irritating to talk to such people in the interview. If their package wouldn’t have been good, I would have made him realize the current era

* **3rd Round –**
  1. Lots of discussion on the project.
  2. Write a code to crash OS ( After listening to this question, I was shocked ? What does he actually want ?) I tried to answer this. Then finally he says write calloc in an infinite loop ( Now you all get and believe me this is a technical answer from the vice president of the technology division of Goldman Sachs and in the US they compare them with Google. LOL)
  3. Discussion on threading framework.

This is not it. This was actually the super day where they filter people from the crowd.

Now the actual interview with the team starts.

* **4th Round –**
  1. Implement a max stack using one stack(Hint: Use amortized analysis) and don’t use two stacks to solve it( I solved using two stacks and finally optimized space and he told me to write the complete code
  2. Question on Trie data structure – I don’t remember the question but it was a direct question
* **5th Round-**
  1. Find the number ABCD such that when multiplied by 4 gives DCBA.
  2. How would you implement const member function of C++ in C?
  3. What is copy constructor?
  4. There were many questions from C++ and design of my projects.
  5. The intersection of linked list
* **6th Round –**
  1. Pirates and Gold Coin Puzzle
  2. Take the 4 men across the bridge and only 2 can cross(simple puzzle)
  3. Measure 90 and 50 kg of sugar using 7 and 2kg of weight and you can use the beam balance only thrice.
  4. [Reverse a string](https://practice.geeksforgeeks.org/problems/reverse-the-string/0) code
  5. Again many questions on C++ in this round too
* **7th Round –**
  1. Final Round by the manager of the team
  2. Asks the puzzle of heavy coin and told me to generalize the same. I solved the puzzle and generalized it.

Again the manager was the vice president, who didn’t know what a ceil function was since the generalized version of this puzzle was ceil(log n to the base 3)

Finally, after so many rounds, he says will you join the support profile? I was like what a support profile. I told him no and believe me my interview was 95% correct. So please be aware of GS, they call for C++ and they finally offer support role.

1. Pangram question:

You have given a string =”This is ram”, you need to find all those letters that are missing in the string out of all 26 a-z letters present in alphabets

2. Given a sum, find the length of smallest subarray that has sum atleast to a given sum.

**Round 3:**

Telephonic discussion

1.What are you doing in your current project

2.Spring boot why should not we use autowiring

3.beanxmlfactory and application context difference

4.What is the ORM being used in your project

5.difference between abstract classes and interfaces

6. Different level of inheritance

7.What is method hiding

8.What is Polymorphism

9.Which datastructure should you use if you have given a repoistry and multiple rows are retrived in your process service class and you need to find the latest version of the data that is being retrieved out of all rows based on the timestamp filed present in the repoistry

Answer : Priority queue

10.Why JDBC template being used in your project

11. If you need to change design of your current project what changes will you do.

12. What other methods of dependency injection are there except autowiring.

13. What data structures should be used in order to form dictionary

Answer: Trie

14. Why not binary tree is being used in place of true.

**Java Interview Preparation**

Java

Sorting program

Java 8 features

String s=“TESTENVIRONMENT”

Replace All T with W

Reverse string

Count Number of T’s

How to detect memory leak in Java.

This is the most tricky Java interview question, there is no sure sort answer but you can use profile and memory dump to find memory leak in Java. JConsole can also help to provide graph of memory usage which can show pattern for memory leak.

3) How to detect deadlock and fix it?

when two or more threads waiting for each other to release lock and get stuck for infinite time , situation is called deadlock check here for detailed answer

2) Why multiple inheritances are not supported in Java?

Short answer is because of diamond pattern, diamond pattern creates ambiguity and make problem for compiler. Anyway java supports multiple inheritances via interfaces.I think more convincing reason for not supporting multiple inheritance is complexity involved in constructor chaining, casting etc rather than diamond problem

4. Which Design Patterns have You Used in Your Java Project?

Always expect some design patterns related question for Core Java Interview of senior developer position. It's a better strategy to mention any GOF design pattern rather than Singleton or MVC, which almost every other Java developer use it.

Your best bet can be Decorator pattern or may be Dependency Injection Pattern, which is quite popular in Spring Framework. It's also good to mention only the design patterns which you have actually used in your project and knows it's tradeoffs.

It's common that once you mention a particular design pattern say Factory or Abstract Factory, Interviewer's next question would be, have you used this pattern in your project? So be ready with proper example and why you choose a particular pattern. You can also see this article for more advanced design pattern questions from Java interviews.

public class DeadLockDemo {  public void method1() { synchronized (String.class) { System.out.println("Aquired lock on String.class object"); synchronized (Integer.class) { System.out.println("Aquired lock on Integer.class object"); } } } /\* \* This method also requests same two lock but in exactly \* Opposite order i.e. first Integer and then String. \* This creates potential deadlock, if one thread holds String lock \* and other holds Integer lock and they wait for each other, forever. \*/ public void method2() { synchronized (Integer.class) { System.out.println("Aquired lock on Integer.class object"); synchronized (String.class) { System.out.println("Aquired lock on String.class object"); } } } }

Read more: https://javarevisited.blogspot.com/2018/08/how-to-avoid-deadlock-in-java-threads.html#ixzz68WoyIJDm

Java 8 features:

Functional interface: interface having only one abstract method is a functional interface, example Runnable, Clonable, Coparable etc interfaces. Functional interface can have any number of default and static methods definition in interface.

Static and default methods: these methods are introduced in interface from java8

Lamda expression:

Lambda expression provides implementation of functional interface.

## **Why use Lambda Expression**

1. To provide the implementation of Functional interface.
2. Less coding.

Syntax:

1. () -> {
2. //Body of no parameter lambda
3. }

forEach method: Java provides a new method forEach() to iterate the elements.

This method takes a single parameter which is a functional interface. So, you can pass lambda expression as an argument.

forEach(x -> System.out.println(x));

StringJoiner class: Java added a new final class StringJoiner in java.util package. It is used to construct a sequence of characters separated by a delimiter.

You can also pass prefix and suffix to the char sequence.

StringJoiner strjoiner= **new** StringJoiner(",","{","}");

strjoiner.add("hari");

strjoiner.add("harry");

strjoiner.add("Prasad");

strjoiner.add("hariiiii");

System.***out***.println(strjoiner);

Stream API:

Stream does not store elements.

Stream is functional in nature. Operations performed on a stream does not modify it's source.

Stream pipeline consists of a Source, followed by zero or more intermediate operations, and a terminal operation

Source -> filter / Sort / Map ->Collect(forEach/ collect/reduce)

//Stream of rows from test file, sort, filter with more than 80 characters, and print

Stream<String> fileData=Files.*lines*(Paths.*get*("D:\\Uber\\Personal\\Leave Details.txt"));

fileData.sorted()

.filter(x -> x.length() > 80)

.forEach(System.***out***::println);

fileData.close();

How Many ways we can create Object:

## **Java new Operator**

A obj=**new** A();  //creating object using new keyword

## **Java Class.newInstance() method**

1. //creating object of class
2. NewInstanceExample obj= NewInstanceExample.**class**.newInstance();

## **Java Object.clone() method**

CloneExample obj1 = **new** CloneExample();     //creating object of class

CloneExample obj2 = (CloneExample) obj1.clone();