# String

1. What is String in Java? Is String is data type?
2. Why is String final in Java?
3. What is the difference between String and StringBuffer and StringBuilder in Java?
4. Why char array is better than String for storing password?
5. How do you compare two String in Java?
6. Can we compare String using == operator? What is the risk?
7. How does substring method work in Java?
8. What is String pool in Java?
9. What does the intern() method do in Java?
10. Is string thread-safe in Java?
11. Why are strings immutable?
12. Matching Regular expressions?
13. String comparison with equals() and '=='?
14. Memory leak issue in String class

A **Memory Leak** is a situation when there are objects present in the heap that are no longer used, but the garbage collector is unable to remove them from **memory** and, thus they are unnecessarily maintained. A **memory leak** is bad because it blocks **memory** resources and degrades system performance over time

1. How does String work in Java?
2. What are different ways to create String Object?
3. Is String thread-safe in Java
4. Why String is popular HashMap key in Java
5. Explain the difference between below statements:
6. String str = new String("abc");
7. String str = "abc";
8. How will you create an immutable class in java?
9. How to Split String in java?
10. Explain the difference between str1.equals("abc") and "abc".equals(str1), where str1 is any String object?
11. If str1 value is "abc" then both statements will give the result true. Main difference between the two statement arises when we pass str1 value as NULL. If the str1 is null then first statement will throw null pointer exception while second statement will return false.
12. Why is String final in Java?
13. How does the substring method work in Java?
14. When you execute String str = new String("abcd")? how many String objects are created?

**Coding Questions**

1. Write a Java program to reverse String in Java without using any API?
2. Write a Program to check if a String is a palindrome or not?
3. Write a Java program to check if two String are Anagram or not?
4. Write a method in Java to remove any character from String?
5. Write a method to split a comma separated String in Java?
6. Write Java program to print all permutations of a String e.g. passing "ABC" will print all permutations like "BCA", "CBA" etc
7. How to convert Date to String in Java
8. How to convert Enum to String in Java
9. How to create comma separated String from Collection in Java
10. How to convert String to Double in Java
11. How to reverse String in Java with recursion
12. How to format String in Java
13. How to remove or replace characters from String.
14. How to make String upper case or lower case?
15. How to compare two Strings in java program?
16. Can we use String in the switch case?
17. Write a program to print all permutations of String?
18. Write a java program to reverse each word of a given string??
19. How to Split String in java?
20. How to concatenate multiple strings.
21. How many objects will be created with string initialization code?
22. How do you count the number of occurrences of each character in a string?
23. Write a java program to reverse a string?
24. How do you reverse a given string in place?
25. How do you print duplicate characters from a string?
26. How do you check if a string contains only digits?
27. How do you find duplicate characters in a given string?
28. How do you count a number of vowels and consonants in a given string?
29. How do you count the occurrence of a given character in a string?
30. How do you print the first non-repeated character from a string?
31. How do you convert a given String into int like the atoi()?
32. How do you reverse words in a given sentence without using any library method?
33. How do you check if two strings are a rotation of each other?
34. How do you find the length of the longest substring without repeating characters?
35. Given string str, How do you find the longest palindromic substring in str?
36. How to convert a byte array to String?
37. how to remove the duplicate character from String?
38. How to find the maximum occurring character in given String?
39. How do you remove a given character from String?
40. Given an array of strings, find the most frequent word in a given array, I mean, the string that appears the most in the array. In the case of a tie, ​the string that is the smallest (lexicographically) ​is printed.
41. Find out if String has all Unique Characters?
42. How to Count number of words in the String? [Solution]
43. Write a java program to remove all the white-spaces in the String.
44. Print all permutations of the String ?
45. Write a java program to calculate total number of characters in the String.
46. Write a java program to calculate total number of vowels in String .

for example if the original string : " Alive is awesome "then the number of vowels is : 8

1. String concatenation in java?
2. Write different ways for String concatenation in java?

Input: “Java” and “Hungry”Output: “JavaHungry” Input: “1234” and “5678”Output: “12345678”

1. Find all possible combinations of String?
2. How does substring() method works in java?
3. How to Count occurrences of each character in a String in java?[Solution]
4. Write a java program to count occurrences of each character in String in java. If the String is
5. "Java Hungry" then the answer should be{ =1, a=2, r=1, u=1, v=1, g=1, H=1, y=1, J=1, n=1}
6. Convert Lowercase to Uppercase in java and Uppercase to Lowercase without using built in method ?
7. How to Convert Signed Integer to String?
8. Find the length of the String without using length() method?

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# Collection

1. What is Java Collections Framework? List out some benefits of Collections framework?
2. What is the benefit of Generics in Collections Framework?
3. What are the basic interfaces of Java Collections Framework?
4. Why Collection doesn’t extend Cloneable and Serializable interfaces?
5. Differentiate between Collection and Collections?
6. Why Map interface doesn’t extend Collection interface? What is the hashCode()?
7. What is ArrayList in Java?
8. Explain the method to convert ArrayList to Array and Array to ArrayList
9. What are the two ways to remove duplicates from ArrayList?
10. Explain methods to remove elements from ArrayList?
11. What are similarities and difference between ArrayList and Vector?
12. What is difference between Array and ArrayList? When will you use Array over ArrayList?
13. What is difference between ArrayList and LinkedList?
14. Which one you will prefer between Array and ArrayList for Storing object and why?
15. What is CopyOnWriteArrayList, how it is different than ArrayList and Vector?
16. Why can’t we write code as List<Number> numbers = new ArrayList<Integer>();?
17. Why can’t we create generic array? or write code as List<Integer>[] array = new ArrayList<Integer>[10];
18. What is LinkedList in Java?
19. How does LinkedList is implemented in Java, is it a Singly or Doubly linked list?
20. Explain linked list supported by Java? Singly and Doubly
21. What is an Iterator?
22. What is the difference between Enumeration and Iterator interface?
23. Why there is not a method like Iterator.add() to add elements to the collection?
24. Why Iterator don’t have a method to get next element directly without moving the cursor?
25. What is different between Iterator and ListIterator?
26. Why there are no concrete implementations of Iterator interface?
27. How to iterate map?
28. Explain override equals() method
29. What is the difference between Comparable and Comparator?
30. Explain equals() with example
31. Define LinkedHashSet in the Java Collection framework?
32. What is the difference between failfast and failsafe?
33. List collection views of a map interface :Collection views of map interface are: 1) key set view, 2) value set view, and 3) entry set view.
34. What is a good way to sort the Collection objects in Java?
35. What is the difference between Set and Map?
36. What is IdentityHashMap?
37. What is WeakHashMap?
38. What are the methods to make collection thread-safe?
39. What is CopyOnWriteArrayList?
40. Differentiate between List and Set.
41. Explain for each loop with example
42. What is the difference between Hashmap and Hashtable?
43. Explain the internal working of HashSet in Java
44. Explain the internal working of HashMap in Java
45. What are Collection related features in Java 8?
46. What are different ways to iterate over a list?
47. How to avoid ConcurrentModificationException while iterating a collection?
48. What is UnsupportedOperationException?
49. What is the importance of hashCode() and equals() methods?
50. Can we use any class as Map key?
51. What are different Collection views provided by Map interface?
52. How to decide between HashMap and TreeMap?
53. Which collection classes provide random access of its elements?
54. What is EnumSet?
55. Which collection classes are thread-safe?
56. What are concurrent Collection Classes?
57. What is BlockingQueue?
58. What is Queue and Stack, list their differences?
59. What is Collections Class?
60. What is Comparable and Comparator interface?
61. What is difference between Comparable and Comparator interface?
62. How can we sort a list of Objects?
63. While passing a Collection as argument to a function, how can we make sure the function will not be able to modify it?
64. How can we create a synchronized collection from given collection?
65. What is Java Priority Queue?
66. What is the difference between poll() and remove() method of Queue interface?
67. What is the difference between fail-fast and fail-safe Iterators?
68. How do you remove an entry from a Collection? and subsequently what is the difference between the remove() method of Collection and remove() method of Iterator, which one you will use while removing elements during iteration?
69. What is the difference between Synchronized Collection and Concurrent Collection?
70. What is the difference between Iterator and Enumeration?
71. How does HashSet is implemented in Java, How does it use Hashing?
72. What do you need to do to use a custom object as a key in Collection classes like Map or Set?
73. When do you use ConcurrentHashMap in Java?
74. What is the difference between Set and List in Java?
75. How do you Sort objects on the collection?
76. What is the difference between HashMap and HashSet?
77. What is NavigableMap in Java? What is a benefit over Map?
78. Can we replace Hashtable with ConcurrentHashMap?

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<https://www.guru99.com/java-collections-interview-questions-answers.html>

# Final

1. What is the use of the final keyword in Java?
2. Can we make a variable final in Java? What is different between a normal variable and final variable?
3. Can we make a method final in Java? explain the difference between normal method and final method
4. Can we make local variable final in Java?
5. What is a blank final field or variable in Java?
6. Can you change the state of the object to which a final reference variable is pointing?
7. Can we make an array final in Java? Can you change its elements?
8. Can you make a Collection final in Java e.g. ArrayList? What is the impact?
9. What is the difference between abstract method and final method in Java?
10. What is the use of final class in Java? Can we create object for final class?
11. Can you overload a final method in Java?
12. Can you override a final method in Java?
13. Can we make a static method final in Java?
14. Can we make an abstract method final in Java?
15. Can we use non-final local variables inside an Anonymous class?
16. Can you declare Constructor as final in Java?
17. What is constant in Java?
18. Are static final variables are thread-safe?
19. Can a class be abstract and final at the same time?
20. When to make a method final in Java?
21. When to make a class final in Java?
22. Can we change the value of an interface field? If not, why?
23. Where all we can initialize a final non-static global variable if it is not initialized at the time of declaration?
24. Where all we can initialize a final static global variable if it is not initialized at the time of declaration?
25. Can we use non-final local variables inside a local inner class?
26. Can we declare constructors as final?
27. Can we declare final variable without initialization?
28. Can a main() method be declared final?
29. Can we declare an interface as final?
30. Can Final Variable be serialized in Java?
31. What will happen if you add final to a List / ArrayList?
32. What is effectively final in Java?
33. What is the difference between abstract class and final class?
34. Can we make an abstract method final in Java?
35. What is the difference between static and final in Java?
36. What is a Static Final variable in Java?
37. Can we make an array final in Java? Can you change its elements after initializing?
38. What will happen if we try to extend final class in java ?

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<https://www.javainterviewpoint.com/java-interview-questions-on-final-keyword/>

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# Static

1. What is static keyword in Java?
2. What is a static variable?
3. What is a static method?
4. Can a static block exist without a main() method?
5. Can we Overload static methods in Java
6. Can we Override static methods in Java
7. Why main() method is declared as static?
8. What is a static block?What is the need of static block ?
9. Can we have multiple static blocks in our code?
10. What is a static class?
11. Can constructors be static in Java?
12. Why abstract method cannot be static in Java?
13. Can Interface in Java have static methods in it ?
14. Can abstract class have static variable in it ?
15. non-static method cannot be referenced from a static context ?
16. What is nested static class in Java?
17. When nested static class is required?
18. Can a static nested class access instance members of enclosing class?
19. Difference between static nested class and inner class.
20. Explain illegal forward reference error in static block.
21. Order of execution of static block, initializer block and constructor during inheritance.
22. How are static variables treated in clustered environment?
23. Static variables are always in the scope of the ClassLoader, in most cases per JVM. Each JVM will have its own instance.

<https://www.javapedia.net/static-keyword#qanda2448>

<https://www.javainterviewpoint.com/top-10-java-interview-questions-on-static-keyword/>

## Immutable

1. What is immutable class?
2. What are steps for creating an immutable class?
3. Do immutable classes thread safe? If yes then how?
4. What precautions you need to take if you are working with mutable instance variables?
5. Why immutable objects are considered to be good keys for HashMap?
6. Which Java built in classes are immutable?
7. How to make an object immutable?
8. What are the advantages of making objects immutable in Java?
9. How does making string as immutable helps with securing information ? How does String Pool pose a security threat ?
10. How is string object immutable if we can concat a string to it ?
11. How to implement an immutable class ?
12. Does Declaring an object "final" makes it immutable ?
13. Does it make sense to clone an object which is supposed to be immutable ?
14. What is the difference between being final and being immutable ? Are string final or immutable in Java ?
15. Which immutable classes have you worked with ? Can you name some immutable Collections ? How to make an immutable collection ?
16. What are the drawbacks of creating immutable objects ? Why don't we create all object immutable if mutability possesses so much threat ?

<https://java2blog.com/immutable-class-interview-questions/>

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<https://javasearch.buggybread.com/InterviewQuestions/questionSearch.php?searchOption=label&keyword=Immutable>

## Exception

1. What Is an Exception?
2. What Is the Purpose of the Throw and Throws Keywords?
3. Differentiate between throw, throws and throwable in Java.
4. How Can You Handle an Exception?
5. How Can You Catch Multiple Exceptions?
6. What are the types of exceptions? Explain them.
7. What Is the Difference Between a Checked and an Unchecked Exception? examples
8. What Is the Difference Between an Exception and Error?
9. What Is Exception Chaining?Define chained exceptions in Java.
10. What Is a Stacktrace and How Does It Relate to an Exception?
11. Why Would You Want to Subclass an Exception?
12. What Are Some Advantages of Exceptions?
13. Can You Throw Any Exception Inside a Lambda Expression's Body?
14. What Are the Rules We Need to Follow When Overriding a Method That Throws an Exception?
15. Is There Any Way of Throwing a Checked Exception from a Method That Does Not Have a Throws Clause?
16. Is finally block always get executed in the java program?
17. Is it possible to keep other statements in between ‘try’, ‘catch’, and ‘finally’ blocks?
18. Will it be possible to only include a ‘try’ block without the ‘catch’ and ‘finally’ blocks?
19. Will it be possible to keep the statements after the ‘finally’ block if the control is returning from the finally block itself?
20. Explain an unreachable catch block error.
21. Differentiate between NoClassDefFoundError and ClassNotFoundException in Java.
22. Is it possible to throw an exception manually? If yes, explain how?
23. What are customized exceptions in java?
24. What do you mean by rethrowing an exception in Java?
25. How would you differentiate between final, finally and finalize in Java?
26. How would you explain a ClassCastException in Java?
27. What is StackOverflowError in Exception Handling?
28. When do we use printStackTrace() method in java?
29. List the Methods in the Throwable class?
30. List some important methods of Java Exception class?
31. Is it possible to override a super class method that throws an unchecked exception with checked exceptions in the sub class?
32. What is try-with-resources concept in java? How it differs from an ordinary try statement?
33. What will happen if an exception is thrown by the main method?
    1. ?

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<https://www.baeldung.com/java-exceptions-interview-questions>

<https://javahungry.blogspot.com/2019/11/exception-handling-interview-questions-and-answers.html>

## Wrapper Class

1. What are the Wrapper Classes?
2. Why do we need Wrapper classes?
3. What is the hierarchy of the Wrapper classes?
4. What is boxing?
5. What is unboxing?
6. What is autoboxing?
7. What is auto Unboxing?
8. What is casting?
9. What is Downcasting?
10. What Design pattern Wrapper Classes implement?
11. Is string a wrapper class?
12. Can a Byte object be cast to a double value?
13. Why are java Wrapper classes immutable?

<https://www.softwaretestingo.com/wrapper-classes-interview-questions/>

<https://codepumpkin.com/interview-questions-wrapper-classes/>

## Opps Concepts

1. What is method overloading in OOP or Java?
2. What is the method overriding in OOP or Java?
3. What is the method of hiding in Java?
4. Is Java a pure object-oriented language? if not why?
5. What are the rules of method overloading and overriding in Java?
6. The difference between method overloading and overriding?
7. Can we overload a static method in Java?
8. Can we override the static method in Java?
9. Can we prevent overriding a method without using the final modifier?
10. Can we override a private method in Java?
11. What is the covariant method overriding in Java?
12. Can we change the return type of method to subclass while overriding?
13. Can we change the argument list of an overriding method?
14. Can we override a method that throws runtime exception without throws clause?
15. How do you call a superclass version of an overriding method in a subclass?
16. Can we override a non-static method as static in Java?
17. Can we override the final method in Java?
18. What is an abstract class?
19. Can you create an instance of an abstract class?
20. Can we have a non-abstract method inside an interface?
21. What is the default method of Java 8?
22. What is an interface in Java? What is the real user of an interface?
23. The difference between Abstract class and interface?
24. Can we make a class abstract without an abstract method?
25. Can we make a class both final and abstract at the same time?
26. Can we overload or override the main method in Java?
27. What is the difference between Polymorphism, Overloading, and Overriding?
28. Can an interface extend more than one interface in Java?
29. Can a class extend more than one class in Java?
30. What is the difference between abstraction and polymorphism in Java?
31. What problem is solved by the Strategy pattern in Java?
32. Which OOP concept Decorator design Pattern is based upon?
33. When to use the Singleton design pattern in Java?
34. What is the difference between State and Strategy Patterns?
35. What is Association?
36. What is Aggregation?
37. What is Composition?
38. What is the difference between Association, Aggregation, and Composition in OOP?
39. What is the difference between Decorator, Proxy and Adapter pattern in Java?
40. What is the 5 objects oriented design principle from SOLID?
41. What is the difference between Composition and Inheritance in OOP?
42. What is Abstraction?
43. How to achieve data abstraction?
44. What is the difference between Abstraction and Encapsulation?
45. What is Encapsulation?
46. What is Polymorphism?
47. What is static polymorphism?
48. What is dynamic polymorphism?
49. What is Inheritance?
50. What is multiple inheritance?
51. What is the diamond problem in inheritance?
52. Why Java does not support multiple inheritance?
53. What is Static Binding and Dynamic Binding?
54. What is the meaning of “IS-A” and “HAS-A” relationship?
55. What is Dependency?
56. What is the difference between a class and a structure?
57. Can you call the base class method without creating an instance?
58. What is the difference between a class and an object?
59. What is a superclass?
60. What is a subclass?
61. What are ‘access specifiers’?
62. What is the difference between public, private and protected access modifiers?
63. What are virtual functions?
64. What are pure virtual functions?
65. What is the use of ‘finalize’?
66. What is Garbage Collection(GC)?
67. Differentiate between a class and a method.

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<https://www.edureka.co/blog/interview-questions/oops-interview-questions/>

<https://www.journaldev.com/12492/oops-interview-questions-answers>

## Constructor

1. What is a Constructor?
2. What are the Rules for defining a constructor?
3. Do we have Copy Constructor in Java?
4. What is Constructor Chaining ?
5. Can we call sub class constructor from super class constructor?
6. What happens if you keep a return type for a constructor?
7. Why constructor does not have a return type?
8. What is No-arg constructor?
9. What are private constructors and where are they used?
10. When do we need Constructor Overloading?
11. Do we have destructors in Java?
12. Can we have a Constructor in an Interface?
13. Can we have this and super in the same constructor?
14. Will compiler create the Default Constructor when we already have a Constructor defined in the class ?
15. Can an abstract class in Java have a constructor?
16. What happens when a Constructor is defined as “protected” ?
17. Why constructors cannot be final in Java?
18. Why constructors cannot be abstract in Java?
19. Why constructors cannot be static in Java?

<https://www.geeksforgeeks.org/java-interview-questions-constructors/>

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<https://medium.com/@writuparnabanerjee/constructor-in-java-df7136f81059>

## Super and This

1. What is super keyword in java?When Need of super keyword ?
2. Write some points about super keyword in java?
3. Can we access parent class variables in child class by using super keyword?
4. Can we call parent class method in sub class by using super keyword.
5. Can we call parent class constructor in sub class constructor i.e constructor chaining by using super keyword?
6. Can we use both "this" and "super" in constructor?
7. What is difference between this() and super()?
8. Can we use both "this" and "super" in a constructor ?
9. What are usage of java super Keyword ?
10. What is this keyword ?
11. Why use this keyword ?
12. What are the uses of this keyword in constructor?
13. Can we call methods using this keyword?
14. Can we call method on this keyword from constructor?
15. Is it possible to assign reference to this ?
16. Can we return this from a method?
17. Can we pass this as parameter of method?
18. Can we use this to refer static members?
19. Is it possible to use this in static blocks?
20. Can we use this in static methods?
21. What are all the differences between this and super keyword?
22. What is the difference between this. (this dot) and this() (this off). ?
23. What is difference between super(), super(..), this() and this(..) ?
24. Whether it is possible to invoke one constructor from another constructor in the same class

<https://javatutorial95.blogspot.com/2017/10/interview-questions-on-super-keyword-in-java.html>

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