# JAVA Interview Questions PDF

## 1. What is Java?

Java is a general-purpose programming language that is class-based, object-oriented and is very popular. It's one of the most popular programming languages in the world.

Hello World in Java:

```
1    public class FileName {
2      public static void main(String args[]) {
3        System.out.println("Hello World!");
4      }
5    }
```

## 2. How to install Java?

Install Java through command prompt so that it can generate necessary log files to troubleshoot the issue.

Go to java.com and click on the Free Java Download button.

Click on the Save button and save Java software on the Desktop

Verify that Java software is saved on the desktop.

Open Windows Command Prompt window.

Windows XP: Click Start -> Run -> Type: cmd

Windows Vista and Windows 7: Click Start -> Type: cmd in the Start Search field.

cd <Java download directory> (for example Downloads or Desktop etc.)

IRun the installer and follow onscreen instructions.

## 3. How to reverse a string in Java?

```
"String str = ""Hello"";
String reverse(String str){
  StringBuilder sb = new StringBuilder();
  sb.append(str);
  sb.reverse();
  return sb.toString();

}"
```

## 4. What is thread in Java?

Threads allow a program to operate more efficiently by doing multiple things at the same time.

Threads can be used to perform complicated tasks in the background without interrupting the main program.

It can be created by extending the Thread class and overriding its run() method:

Extend Syntax

```
1    public class MyClass extends Thread {
2      public void run() {
3        System.out.println("This code is running in a
4    thread");
5      }
      }
```

## 5. How to take input in Java?

```
"Scanner in = new Scanner(System.in);
        System.out.print(""Please enter hour 1: "");
        int hour1 = in.nextInt();
        System.out.print(""Please enter hour 2: "");
        int hour2 = in.nextInt();
        System.out.print(""Please enter minute 1: "");
        int min1 = in.nextInt();
        System.out.print(""Please enter minute 2: "");

        int min2 = in.nextInt();"
```

# 6. How to set path in Java?

**Windows 10 and Windows 8**

- In Search, search for and then select: System (Control Panel)
- Click the Advanced system settings link.
- Click Environment Variables. In the section System Variables, find the PATH environment variable and select it. Click Edit. If the PATH environment variable does not exist, click New.
- In the Edit System Variable (or New System Variable) window, specify the value of the PATH environment variable. Click OK. Close all remaining windows by clicking OK.
- Reopen Command prompt window, and run your java code.

**Mac OS X**

To run a different version of Java, either specify the full path or use the java_home tool:

% /usr/libexec/java_home -v 1.8.0_73 –exec javac -version

**Solaris and Linux**

To find out if the path is properly set:

In a terminal windows, enter:

% java -version

This will print the version of the java tool, if it can find it. If the version is old or you get the error java: Command not found, then the path is not properly set.

Determine which java executable is the first one found in your PATH

In a terminal window, enter:

% which java

# 7. What is enumeration in Java?

Enumeration means a list of named constant. In Java, enumeration defines a class type. An Enumeration can have constructors, methods and instance variables. It is created using enum keyword. Each enumeration constant is public, static and final by default. Even though enumeration defines a class type and have constructors, you do not instantiate an enum using new. Enumeration variables are used and declared in much a same way as you do a primitive variable.

# 8. What is inheritance in Java?

The process by which one class acquires the properties(data members) and functionalities(methods) of another class is called inheritance. The aim of inheritance in java is to provide the reusability of code so that a class has to write only the unique features and rest of the common properties and functionalities can be extended from another class.

**Child Class:**

The class that extends the features of another class is known as child class, sub class or derived class.

**Parent Class:**

The class whose properties and functionalities are used(inherited) by another class is known as parent class, super class or Base class.

## 9. How to compare two strings in Java?

```
"// These two have the same value
new String("test").equals("test") // --> true

// ... but they are not the same object
new String("test") == "test" // --> false

// ... neither are these
new String("test") == new String("test") // --> false

// ... but these are because literals are interned by
// the compiler and thus refer to the same object

"test" == "test" // --> true "
```
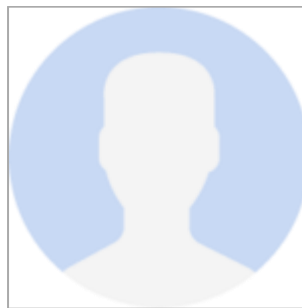
## 10. What is abstraction in Java?

Objects are the building blocks of Object-Oriented Programming. An object contains some properties and methods. We can hide them from the outer world through access modifiers. We can provide access only for required functions and properties to the other programs. This is the general procedure to implement abstraction in OOPS.

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## 11. What is encapsulation in java?

The idea behind encapsulation is to hide the implementation details from users. If a data member is private it means it can only be accessed within the same class. No outside class can access private data member (variable) of other class.

However if we setup public getter and setter methods to update (for example void setName(String Name ))and read (for example String getName()) the private data fields then the outside class can access those private data fields via public methods.

## 12. What is collection in java?

Collections are like containers that group multiple items in a single unit. For example, a jar of chocolates, list of names, etc.

Collections are used in every programming language and when Java arrived, it also came with few Collection classes – Vector, Stack, Hashtable, Array.

## 13. What is api in java?

Java application programming interface (API) is a list of all classes that are part of the Java development kit (JDK). It includes all Java packages, classes, and interfaces, along with their methods, fields, and constructors. These pre-written classes provide a tremendous amount of functionality to a programmer.

## 14. How to initialize array in java?

```
"int[] arr = new int[5];  // integer array of size 5 you can
also change data type

String[] cars = {""Volvo"", ""BMW"", ""Ford"", ""Mazda""};"
```

## 15. How to take input from user in java?

```
"import java.util.Scanner;
  Scanner console = new Scanner(System.in);
  int num = console.nextInt();
  console.nextLine() // to take in the enter after the nextInt()

  String str = console.nextLine();"
```

## 16. What is static in java?

In Java, a static member is a member of a class that isn't associated with an instance of a class. Instead, the member belongs to the class itself. As a result, you can access the static member without first creating a class instance.

## 17. What is package in java?

A package in Java is used to group related classes. Think of it as a folder in a file directory. We use packages to avoid name conflicts, and to write a better maintainable code. Packages are divided into two categories:

Built-in Packages (packages from the Java API)

User-defined Packages (create your own packages)

## 18. How to sort an array in java?

```
"import java. util. Arrays;

Arrays. sort(array);"
```

## 19. What is an abstract class in java?

A class that is declared using the "abstract" keyword is known as abstract class. It can have abstract methods(methods without body) as well as concrete methods (regular methods with body). A normal class(non-abstract class) cannot have abstract methods.

## 20. What is method in java?

A method is a block of code which only runs when it is called. You can pass data, known as parameters, into a method. Methods are used to perform certain actions, and they are also known as functions.

## 21. How to check java version?

Execute java -version on a command prompt/terminal.

## 22. What is a class in java?

A class–the basic building block of an object-oriented language such as Java–is a template that describes the data and behaviour associated with instances of that class. When you instantiate a class you create an object that looks and feels like other instances of the same class. The data associated with a class or object is stored in variables; the behaviour associated with a class or object is implemented with methods.

## 23. What is core java?

"Core Java" is Sun's term, used to refer to Java SE, the standard edition and a set of related technologies, like the Java VM, CORBA, et cetera. This is mostly to differentiate from, say, Java ME or Java EE. Also, note that they're talking about a set of libraries rather than the programming language.

## 24. How to enable java in chrome?

- In the Java Control Panel, click the Security tab
- Select the option Enable Java content in the browser
- Click Apply and then OK to confirm the changes
- Restart the browser to enable the changes

## 25. What is string in java?

String is a sequence of characters, for e.g. "Hello" is a string of 5 characters. In java, string is an immutable object which means it is constant and cannot be changed once it has been created.

## 26. What is exception in java?

An exception is an event, which occurs during the execution of a program, that disrupts the normal flow of the program's instructions.

When an error occurs within a method, the method creates an object and hands it off to the runtime system. The object, called an exception object, contains information about the error, including its type and the state of the program when the error occurred. Creating an exception object and handing it to the runtime system is called throwing an exception.

After a method throws an exception, the runtime system attempts to find something to handle it. The set of possible "somethings" to handle the exception is the ordered list of methods that had been called to get to the method where the error occurred. The list of methods is known as the call stack.

## 27. Why multiple inheritance is not supported in java?

Java supports multiple inheritance through interfaces only. A class can implement any number of interfaces but can extend only one class. Multiple inheritance is not supported because it leads to a deadly diamond problem.

## 28. How to take string input in java?

```
"import java.util.Scanner;  // Import the Scanner class

class MyClass {
  public static void main(String[] args) {
    Scanner myObj = new Scanner(System.in);  // Create a Scanner object
    System.out.println(""Enter username"");
```

```
    String userName = myObj.nextLine();   // Read user input
    System.out.println(""Username is: "" + userName);   // Output
user input
  }

}"
```

## 29. What is singleton class in java?

The singleton design pattern is used to restrict the instantiation of a class and ensures that only one instance of the class exists in the JVM. In other words, a singleton class is a class that can have only one object (an instance of the class) at a time per JVM instance.

## 30. What is array in java?

An array is a container object that holds a fixed number of values of a single type. The length of an array is established when the array is created. After creation, its length is fixed. You have seen an example of arrays already, in the main method of the "Hello World!" application. This section discusses arrays in greater detail.

Illustration of an array as 10 boxes numbered 0 through 9; an index of 0 indicates the first element in the array.

An array of 10 elements.

Each item in an array is called an element, and each element is accessed by its numerical index. As shown in the preceding illustration, numbering begins with 0. The 9th element, for example, would therefore be accessed at index 8.

## 31. What is garbage collection in java?

Java garbage collection is an automatic process. The programmer does not need to explicitly mark objects to be deleted. The garbage collection implementation lives in the JVM. Each JVM can implement garbage collection however it pleases; the only requirement is that it meets the JVM specification. Although there are many JVMs,

Oracle's HotSpot is by far the most common. It offers a robust and mature set of garbage collection options.

## 32. Why we need encapsulation in java?

Encapsulation in Java is a mechanism of wrapping the code and data (variables)acting on the data (methods) together as a single unit. In encapsulation, the variables of a class will be hidden from other classes and can be accessed only through the methods of their current class.

## 33. What is jvm in java?

A Java virtual machine (JVM) is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to Java bytecode. The JVM is detailed by a specification that formally describes what is required in a JVM implementation.

## 34. What is java programming?

Java is a powerful general-purpose programming language. It is used to develop desktop and mobile applications, big data processing, embedded systems, and so on. According to Oracle, the company that owns Java, Java runs on 3 billion devices worldwide, which makes Java one of the most popular programming languages.

## 35. How hashmap works internally in java?

HashMap in Java works on hashing principles. It is a data structure which allows us to store object and retrieve it in constant time O(1) provided we know the key. In hashing, hash functions are used to link key and value in HashMap.

## 36. Who invented java?

Java was originally developed by James Gosling at Sun Microsystems (which has since been acquired by Oracle) and released in 1995 as a core component of Sun Microsystems' Java platform.

## 37. How to execute a java program?

Open a command prompt window and go to the directory where you saved the java program (HelloWorld. java). …

Type 'javac HelloWorld. java' and press enter to compile your code.

Now, type ' HelloWorld ' to run your program.

You will be able to see the result printed on the window.

## 38. How to get input from user in java?

```
"import java.util.Scanner;  // Import the Scanner class

class MyClass {
  public static void main(String[] args) {
    Scanner myObj = new Scanner(System.in);  // Create a Scanner
object
    System.out.println(""Enter username"");

    String userName = myObj.nextLine();  // Read user input
    System.out.println(""Username is: "" + userName);  // Output
user input
  }

}"
```

## 39. What is bytecode in java?

Bytecode is the compiled format for Java programs. Once a Java program has been converted to bytecode, it can be transferred across a network and executed by Java Virtual Machine (JVM). Bytecode files generally have a .class extension.

## 40. How to set classpath in java?

- Select Start, select Control Panel, double click System, and select the Advanced tab.
- Click Environment Variables. In the section System Variables, find the PATH environment variable and select it.
- In the Edit System Variable (or New System Variable) window, specify the value of the PATH environment variable. Click OK.

## 41. How to connect database in java?

- Install or locate the database you want to access.
- Include the JDBC library.
- Ensure the JDBC driver you need is on your classpath.
- Use the JDBC library to obtain a connection to the database.
- Use the connection to issue SQL commands.

## 42. What is enum in java?

An enum is a special "class" that represents a group of constants (unchangeable variables, like final variables). To create an enum, use the enum keyword (instead of class or interface), and separate the constants with a comma.

## 43. How to uninstall java?

- Click Start
- Select Settings
- Select System
- Select Apps & features
- Select the program to uninstall and then click its Uninstall button
- Respond to the prompts to complete the uninstall

## 44. How to find duplicate characters in a string in java?

```
"public class Example {
   public static void main(String argu[]) {
      String str = ""beautiful beach"";
      char[] carray = str.toCharArray();
      System.out.println(""The string is:"" + str);
```

```
      System.out.print(""Duplicate Characters in above string
are: "");
      for (int i = 0; i < str.length(); i++) {
          for (int j = i + 1; j < str.length(); j++) {
              if (carray[i] == carray[j]) {
                  System.out.print(carray[j] + "" "");
                  break;
              }
          }
      }
   }
}"
```

## 45. How to take character input in java?

```
"import java.util.Scanner;
public class CharacterInputExample1
{
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
System.out.print(""Input a character: "");
// reading a character
char c = sc.next().charAt(0);
//prints the character
System.out.println(""You have entered ""+c);
}

}   "
```

## 46. how to read string in java?

```
"import java.util.Scanner;  // Import the Scanner class

class MyClass {
  public static void main(String[] args) {
    Scanner myObj = new Scanner(System.in);  // Create a Scanner
object
```

```
    System.out.println(""Enter username"");

    String userName = myObj.nextLine();  // Read user input
    System.out.println(""Username is: "" + userName);  // Output
user input
  }

}"
```

## 47. How to round off numbers in java?

```
"import java.lang.Math; // Needed to use Math.round()

class Program {
    public static void main( String args[] ) {
       double num1 = 74.65;
       System.out.println(Math.round(num1));

       float num2 = 1337.345523f;
       System.out.println(Math.round(num2));
    }

}"
```

## 48. How to get current date in java?

```
"DateFormat df = new SimpleDateFormat(""dd/MM/yy HH:mm:ss"");
Date dateobj = new Date();

System.out.println(df.format(dateobj));"
```

## 49. What is dao in java?

Dao is a simple java class which contains JDBC logic. The Java Data Access Object (Java DAO) is an important component in business applications. Business applications almost always need access to data from relational or object databases and the Java platform offers many techniques for accessing this data.

## 50. What is awt in java?

The Abstract Window Toolkit (AWT) is Java's original platform-dependent windowing, graphics, and user-interface widget toolkit, preceding Swing. The AWT is part of the Java Foundation Classes (JFC) — the standard API for providing a graphical user interface (GUI) for a Java program. AWT is also the GUI toolkit for a number of Java ME profiles. For example, Connected Device Configuration profiles require Java runtimes on mobile telephones to support the Abstract Window Toolkit.

## 51. What is framework in java?

Frameworks are large bodies (usually many classes) of prewritten code to which you add your own code to solve a problem in a specific domain. Perhaps you could say that the framework uses your code because it is usually the framework that is in control. You make use of a framework by calling its methods, inheritance, and supplying "callbacks", listeners, or other implementations of the Observer pattern.

## 52. How to update java?

Manually updating Java on Windows is typically done through the Java Control Panel.

Windows 10: Type "java" into the Windows/Cortana search box, located in the lower left-hand corner of your screen. When the pop-out menu appears select Configure Java, located in the Apps section.

## 53. How to run java program in command prompt?

```
execute java <programName.java>
```

## 54. What is variable in java?

A Java variable is a piece of memory that can contain a data value. A variable thus has a data type. Data types are covered in more detail in the text on Java data types.

Variables are typically used to store information which your Java program needs to do its job.

## 55. What is the difference between java and javascript?

The main differences between JavaScript and Java are:

1. JavaScript is used for Front End development while java is used for Back End Development. i.e.

JavaScript is responsible for the dynamic behaviour of a webpage. Mainly, JavaScript handles events, cookies, ajax (Asynchronous JavaScript and XML), etc. in a website. JavaScript is the heart of a Dynamic User Interface of a Web Page while Java is the best programming language for software engineers and can be used with JSP (Java Server pages) for handling back end.

2. Java Script is dynamically typed language and Java is Statically typed language: i.e

In JavaScript, datatype of one variable can be changed:

var string = "hello world";

string = 4;

document.write(string); //OUTPUT IS 4

document.write( ) will now print '4′ on the browser.

But in Java, the datatype of one variable cannot be changed and Java shows the error.

int number = 45;

number = "hello world"; //ERROR!!!!!!!

3. JavaScript is a scripting language while Java is a programming language:

Like other languages, Java also needs a compiler for building and running the programs while JavaScript scripts are read and manipulated by the browser.

4. Java and JavaScript are very different in their SYNTAX.

For example:

Hello World Program in JAVA:

```
public class hello
{
        public static void main(String[] args)
        {
                System.out.println("Hello World");
        }
}
Hello World Program in JavaScript:

<script>
        document.write("Hello World");

</script>
```
5. Both languages are Object Oriented but JavaScript is a Partial Object Oriented Language while Java is a fully Object Oriented Langauge. JavaScript can be used with or without using objects but Java cannot be used without using classes.

## 56. How to count the number of occurrences of a character in a string in java?

```
"import java.util.HashMap;

public class EachCharCountInString
{
    private static void characterCount(String inputString)
    {
        //Creating a HashMap containing char as a key and
occurrences as a value
```

```java
        HashMap<Character, Integer> charCountMap = new
HashMap<Character, Integer>();

        //Converting given string to char array

        char[] strArray = inputString.toCharArray();

        //checking each char of strArray

        for (char c : strArray)
        {
            if(charCountMap.containsKey(c))
            {
                //If char 'c' is present in charCountMap,
incrementing it's count by 1

                charCountMap.put(c, charCountMap.get(c)+1);
            }
            else
            {
                //If char 'c' is not present in charCountMap,
                //putting 'c' into charCountMap with 1 as it's
value

                charCountMap.put(c, 1);
            }
        }

        //Printing inputString and charCountMap

        System.out.println(inputString+"" : ""+charCountMap);
    }

    public static void main(String[] args)
    {
        characterCount(""Java J2EE Java JSP J2EE"");

        characterCount(""All Is Well"");

        characterCount(""Done And Gone"");
    }
```

```
}"
```

# 57. how to read excel file in java?

```
"FileInputStream fis = new FileInputStream(new
File(""WriteSheet.xlsx""));

  XSSFWorkbook workbook = new XSSFWorkbook(fis);
  XSSFSheet spreadsheet = workbook.getSheetAt(0);
  Iterator < Row >  rowIterator = spreadsheet.iterator();

  while (rowIterator.hasNext()) {
      row = (XSSFRow) rowIterator.next();
      Iterator < Cell >  cellIterator = row.cellIterator();

      while ( cellIterator.hasNext()) {
          Cell cell = cellIterator.next();

          switch (cell.getCellType()) {
              case Cell.CELL_TYPE_NUMERIC:
                  System.out.print(cell.getNumericCellValue() + ""
\t\t "");
                  break;

              case Cell.CELL_TYPE_STRING:
                  System.out.print(
                  cell.getStringCellValue() + "" \t\t "");
                  break;
          }
      }
      System.out.println();
  }

  fis.close();"
```

# 58. What is a method in java?

Functions are also known as methods in java.

## 59. How to read csv file in java?

```
"public static void readDataLineByLine(String file)
{

    try {

        // Create an object of filereader
        // class with CSV file as a parameter.
        FileReader filereader = new FileReader(file);

        // create csvReader object passing
        // file reader as a parameter
        CSVReader csvReader = new CSVReader(filereader);
        String[] nextRecord;

        // we are going to read data line by line
        while ((nextRecord = csvReader.readNext()) != null) {
            for (String cell : nextRecord) {
                System.out.print(cell + ""\t"");
            }
            System.out.println();
        }
    }
    catch (Exception e) {
        e.printStackTrace();
    }

} "
```

## 60. How to check java version in windows?

type java -version on command prompt.

## 61. What is public static void main in java?

This is the access modifier of the main method. It has to be public so that java runtime can execute this method. Remember that if you make any method non-public then it's not allowed to be executed by any program, there are some access restrictions applied.

So it means that the main method has to be public. Let's see what happens if we define the main method as non-public.

When java runtime starts, there is no object of the class present. That's why the main method has to be static so that JVM can load the class into memory and call the main method. If the main method won't be static, JVM would not be able to call it because there is no object of the class is present.

Java programming mandates that every method provide the return type. Java main method doesn't return anything, that's why it's return type is void. This has been done to keep things simple because once the main method is finished executing, java program terminates. So there is no point in returning anything, there is nothing that can be done for the returned object by JVM. If we try to return something from the main method, it will give compilation error as an unexpected return value.

## 62. Why we use interface in java?

It is used to achieve total abstraction. Since java does not support multiple inheritance in case of class, but by using interface it can achieve multiple inheritance . It is also used to achieve loose coupling. Interfaces are used to implement abstraction.

## 63. What is the purpose of serialization in java?

Object Serialization is a process used to convert the state of an object into a byte stream, which can be persisted into disk/file or sent over the network to any other running Java virtual machine. The reverse process of creating an object from the byte stream is called deserialization.

## 64. What is functional interface in java?

A functional interface in Java is an interface that contains only a single abstract (unimplemented) method. A functional interface can contain default and static methods which do have an implementation, in addition to the single unimplemented method.

## 65. What is this keyword in java?

The this keyword refers to the current object in a method or constructor. The most common use of the this keyword is to eliminate the confusion between class attributes and parameters with the same name (because a class attribute is shadowed by a method or constructor parameter).

## 66. How was java initially named?

The language was at first called Oak after an oak tree that remained external Gosling's office. Later the task passed by the name Green and was at last renamed Java, from Java , a coffee brand, the coffee from Indonesia.

## 67. How to remove duplicate elements from array in java?

```
"public class Change
{
   public static int removeDuplicate(int[] arrNumbers, int num)
   {
      if(num == 0 || num == 1)
      {
         return num;
      }
      int[] arrTemporary = new int[num];
      int b = 0;
      for(int a = 0; a < num - 1; a++)
      {
         if(arrNumbers[a] != arrNumbers[a + 1])
         {
            arrTemporary[b++] = arrNumbers[a];
         }
      }
      arrTemporary[b++] = arrNumbers[num - 1];
      for(int a = 0; a < b; a++)
      {
         arrNumbers[a] = arrTemporary[a];
      }
      return b;
   }
   public static void main(String[] args)
   {
```

```
      int[] arrInput = {1, 2, 3, 3, 4, 5, 5, 6, 7, 8};
      int len = arrInput.length;
      len = removeDuplicate(arrInput, len);
      // printing elements
      for(int a = 0; a < len; a++)
      {
          System.out.print(arrInput[a] + "" "");
      }
   }
}

"
```

## 68. What is difference between throw and throws in java?

Throw is a keyword which is used to throw an exception explicitly in the program inside a function or inside a block of code. Throws is a keyword used in the method signature used to declare an exception which might get thrown by the function while executing the code.

## 69. What is classpath in java?

The CLASSPATH variable is one way to tell applications, including the JDK tools, where to look for user classes. (Classes that are part of the JRE, JDK platform, and extensions should be defined through other means, such as the bootstrap class path or the extensions directory.)

## 70. Why is Java Platform Independent?

At the time of compilation, the java compiler converts the source code into a JVM interpretable set of intermediate form, which is termed as byte code. This is unlike the compiled code generated by other compilers and is non-executable. The java virtual machine interpreter processes the non-executable code and executes it on any specific machine. Hence the platform dependency is removed.

## 71. What is Method overloading? Why is it used in Java?

Method overriding is a process in which methods inherited by child classes from parent classes are modified as per requirement by the child class. It's helpful in hierarchical system design where objects share common properties.

Example: Animal class has properties like fur colour, sound. Now dog and cat class inherit these properties and assign values specific to them to the properties.

```
class Animal {
    void sound(){
    }
}
 class Cat extends Animal{
     void sound(){
         System.out.println("Meow");
     }
}

class Dog extends Animal{
    void sound(){
        System.out.println("Bark");
    }
}

public class OverRide{
    public static void main(String args[]){
        Cat c=new Cat();
        c.sound();

        Dog d=new Dog();
        d.sound();
    }

}
```

## 72. What is Method overloading? Why is it used in Java?

If multiple functions in a class have the same name but different function definitions it is called method overloading.

It is used to make a java function serve multiple purposes making the code cleaner and API less complex.

**Example:**

```
println() prints any data type passed to it as a string.

public class Add_Overload {
    void add(int x, int y){
        System.out.println(x+y);
    }
    void add(double x, double y){
        System.out.println(x+y);
    }
    void add(double x, int y){
        System.out.println(x+y);
    }
    public static void main(String args[]){
        Add_Overload a= new Add_Overload();
        a.add(10,20);
        a.add(20.11,11.22);
        a.add(20.11,2);



    }
```

# 73. Why is Java Robust?

Java is termed as robust because of the following features:

– Lack of pointers: Java does not have pointers which make it secure

– Garbage Collection: Java automatically clears out unused objects from memory which are unused

– Java has strong memory management.

– Java supports dynamic linking.

## 74. Why is Java Secure?

Java does not allow pointers. Pointers give access to actual locations of variables in a system. Also, java programs are bytecode executables that can run only in a JVM. Hence java programs do not have access to the host systems on which they are executing, making it more secure. Java has its own memory management system, which adds to the security feature as well.

## 75. What is the difference between JDK, JRE, and JVM?

JDK is a software environment used for the development of Java programs. It's a collection of libraries that can be used to develop various applications. JRE (Java Runtime Environment) is a software environment that allows Java programs to run. All java applications run inside the JRE. JVM (java virtual machine) is an environment that is responsible for the conversion of java programs into bytecode executables. JDK and JRE are platform-dependent whereas JVM is platform-independent.

## 76. What are the features of Java?

Java is a pure Object Oriented Programming Language with the following features:

– High Performance

– Platform Independent

– Robust

– Multi-threaded

– Simple

– Secure

## 77. Does Java Support Pointers?

Pointers are not supported in java to make it more secure.

*You can also go through this Java Tutorial to understand better*.

## 78. Why are Static variables used in Java?

Static methods and variables are used in java to maintain a single copy of the entity across all objects. When a variable is declared as static it is shared by all instances of the class. Changes made by an instance to the variable reflect across all instances.

```java
public class static_variable {

    static int a;
    static int b;
    static_variable(){
        a=10;
    }
    int calc_b(){
        b=a+10;
        return b;
    }
void print_val(){
    System.out.println(this.b);
}
public static void main(String args[]){
    static_variable v=new static_variable();
    v.calc_b();
    v.print_val();
    static_variable v1=new static_variable();
    v1.print_val();
}

}
```

## 79. What are static methods, static variables, and static blocks?

Static methods are methods that can be called directly inside a class without the use of an object.

Static variables are variables that are shared between all instances of a class.

Static blocks are code blocks that are loaded as the class is loaded in memory.

## 80. What's the use of static methods?

Static methods are used when there is no requirement of instantiating a class. If a method is not going to change or overridden then it can be made static.

## 81. What's the use of static variables?

Static variables are used for maintaining a common state of certain data which is modifiable and accessible by all instances of a class.

## 82. What are the interfaces?

An interface is a collection of constants, static methods, abstract methods, and default methods. Methods in an interface do not have a body.

## 83. How is Abstraction achieved in Java?

Abstraction is achieved in Java by the use of abstract class and abstract methods.

## 84. Why are strings immutable in Java?

Strings in java are frequently used for hashmap keys. Now if someone changes the value of the string it will cause severe discrepancies. Hence strings are made immutable.

## 85. What are wrapper classes in Java?

Wrapper classes are a functionality supported by java to accept primitive data types as inputs and then later convert those into string objects so that they can be compared to other objects.

## 86. Can interfaces in Java be inherited?

Yes, interfaces can be inherited in java. Hybrid inheritance and hierarchical inheritance are supported by java through inheritable interfaces.

## 87. Are static methods allowed in a Java interface?

Yes, static methods are allowed in java interfaces. They are treated as default methods so they need not be implemented.

## 88. How is garbage collection done in Java?

Java has an automatic built-in garbage collection mechanism in place. Apart from the built-in mechanism, manual initiation of garbage collection can also be done by using the gc() of system class.

## 89. Can there be two main methods in a class?

Yes, there can be two main methods. This also means that the main method is overloaded. But at the time of execution, JVM only calls the original main method and not the overloaded main method.

## 90. Can private variables be inherited?

Private variables have a class-specific scope of availability. They can only be accessed by the methods of the class in which they are present. Hence when the class is inherited, private variables are not inherited by the subclass.

## 91. Can the size of an array be increased after declaration?

The size of a java array cannot be increased after declaration. This is a limitation of Java arrays.

## 92. What is the size of the below array in memory?

## int a[]=new int[10];

Each int block takes a size of 4 bytes and there are 10 such blocks in the array. Hence, the size the array takes in memory is 40 bytes.

## 93. How many data types does java support?

Java supports 8 primitive data types, namely byte, short, int, long, float, double, char, boolean.

## 94. How to find out the ASCII value of a character in java?

int c=char('A') would give the ASCII value of A in java.

## 95. How to get a string as user input from the console?

We have to instantiate an input reader class first. There are quite a few options available, some of which are BufferedReader, InputStreamReader Scanner.

Then the relative functionality of the class can be used. One of the most prevalently used is nextLine() of Scanner class.

## 96. How to check the size of strings?

The size of strings in java can be checked by using the length() function.

## 97. How can we sort a list of elements in Java?

The built-in sorting utility sort() can be used to sort the elements. We can also write our custom functions but it's advisable to use the built-in function as its highly optimized.

## 98. If we sort a list of strings how would be the strings arranged? The strings would be arranged alphabetically in ascending order.

## 99. The difference between throw and throws in Java?

Throw is used to actually throw an instance of java.lang.Throwable class, which means you can throw both Error and Exception using throw keyword e.g.

```
throw new IllegalArgumentException("size must be multiple of 2")
```

On the other hand, throws is used as part of method declaration and signals which kind of exceptions are thrown by this method so that its caller can handle them. It's mandatory to declare any unhandled checked exception in throws clause in Java. Like the previous question, this is another frequently asked Java interview question from errors and exception topic but too easy to answer.

## 100. Can we make an array volatile in Java?

Yes, you can make an array volatile in Java but only the reference which is pointing to an array, not the whole array. What I mean, if one thread changes the reference variable to points to another array, that will provide a volatile guarantee, but if multiple threads are changing individual array elements they won't be having happens before guarantee provided by the volatile modifier.

## 101. Can I store a double value in a long variable without casting?

No, you cannot store a double value into a long variable without casting because the range of double is more than long and we need to type cast. It's not difficult to answer this question but many developer get it wrong due to confusion on which one is bigger between double and long in Java.

## 102. Which one will take more memory, an int or Integer?

An Integer object will take more memory as Integer is an object and it stores metadata overhead about the object but int is a primitive type, so it takes less space.

## 103. The difference between nested static class and top-level class?

A public top-level class must have the same name as the name of the source file, there is no such requirement for a nested static class. A nested class is always inside a top-level class and you need to use the name of the top-level class to refer nested static class e.g. HashMap.Entry is a nested static class, where HashMap is a top-level class and Entry is nested, static class.

## 104. What is the use of the final keyword?

The final keyword is used to declare the final state of an entity in java. The value of the entity cannot be modified at a later stage in the application. The entity can be a variable, class, object, etc.

It is used to prevent unnecessary modifications in a java application.

## 105. What's the difference between deep copy and shallow copy?

Shallow copy in java copies all values and attributes of an object to another object and both objects reference the same memory locations.

Deep copy is the creation of an object with the same values and attributes of the object being copied but both objects reference different memory locations.

## 106. What's the use of default constructor?

The default constructor is a constructor that gets called as soon as the object of a class is declared. The default constructor is un-parametrized. The generic use of default constructors is in the initialization of class variables.

```
class ABC{
    int i,j;
```

```
    ABC(){
        i=0;
        j=0;
    }

}
```
Here ABC() is a default constructor.

## 107. What is object cloning?

Object cloning is the process of creating an exact copy of an object of a class. The state of the newly created object is the same as the object used for cloning.

The clone() method is used to clone objects. The cloning done using the clone method is an example of a deep copy.

## 108. Why are static blocks used?

They serve the primary function of initializing the static variables. If multiple static blocks are there they are executed in the sequence in which they are written in a top-down manner.

## 109. What is the use of this keyword in java?

This keyword is used to reference an entity using the current object in java. It's a multi-purpose keyword which serves various functionalities

## 110. What's the difference between String and String Builder class in java?

Strings are immutable while string Builder class is mutable. The string builder class is also synchronized.

## 111. How to calculate the size of an object?

The size of an object can be calculated by summing the size of the variables of the class the object is instantiated from.

If a class has an integer, a double variable defined in it then the size of the object of the class is size(int)+size(double).

If there is an array, then the size of the object would be the length of array*size of data type of array.

## 112. What's the difference between == and .equals()?

"==" is an operator, whereas .equals() is a function.

"==" checks if the references share the same location, whereas .equals() checks if both object values are the same on evaluation.

# Java Interview Questions for Experienced Professionals

## 1. What is serialization in java?

Object Serialization is a process used to convert the state of an object into a byte stream, which can be persisted into disk/file or sent over the network to any other running Java virtual machine. The reverse process of creating an object from the byte stream is called deserialization.

## 2. What is synchronization in java?

Synchronization is a process of handling resource accessibility by multiple thread requests. The main purpose of synchronization is to avoid thread interference. At times when more than one thread try to access a shared resource, we need to ensure that resource will be used by only one thread at a time. The process by which this is achieved is called synchronization. The synchronization keyword in java creates a block of code referred to as a critical section.

## 3. What is spring in java?

The Spring Framework is an application framework and inversion of control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions for building web applications on top of the Java EE (Enterprise Edition) platform.

## 4. How to create immutable class in java?

- Declare the class as final so it can't be extended.
- Make all fields private so that direct access is not allowed.
- Don't provide setter methods for variables.
- Make all mutable fields final so that its value can be assigned only once.
- Initialize all the fields via a constructor performing the deep copy.
- Perform cloning of objects in the getter methods to return a copy rather than returning the actual object reference.

## 5. What is servlet in java?

A servlet is a Java programming language class that is used to extend the capabilities of servers that host applications accessed by means of a request-response programming model. Although servlets can respond to any type of request, they are commonly used to extend the applications hosted by web servers. For such applications, Java Servlet technology defines HTTP-specific servlet classes.

All servlets must implement the Servlet interface, which defines life-cycle methods. When implementing a generic service, you can use or extend the GenericServlet class provided with the Java Servlet API. The HttpServlet class provides methods, such as doGet and doPost, for handling HTTP-specific services.

## 6. What is xname class in java?

An Expanded Name, comprising of a (discretionary) namespace name and a nearby name. XName examples are changeless and might be shared.

## 7. Can static methods reference non-static variables?

Yes, static methods can reference non-static variables. It can be done by creating an object of the class the variable belongs to.

## 8. How do static blocks get executed if there are multiple static blocks?

Multiple static blocks are executed in the sequence in which they are written in a top-down manner. The top block gets executed first, then the subsequent blocks are executed.

## 9. Can we override static methods?

Static methods cannot be overridden because they are not dispatched to the object instance at run time. In their case, the compiler decides which method gets called.

## 10. Which class do all classes inherit from in java?

All classes in java inherit from the Object class which is the superclass of all classes.

## 11. What is classloader?

ClassLoader is a subsystem of JVM which is used to load class files. Whenever we run the java program, it is loaded first by the classloader. There are three built-in classloaders in Java.

- **Bootstrap ClassLoader**: This is the first classloader which is the superclass of Extension classloader. It loads the rt.jar file which contains all class files of Java Standard Edition like java.lang package classes, java.net package classes, java.util package classes, java.io package classes, java.sql package classes, etc.
- **Extension ClassLoader**: This is the child classloader of Bootstrap and parent classloader of System classloader. It loads the jar files located inside $JAVA_HOME/jre/lib/ext directory.
- **System/Application ClassLoader**: This is the child classloader of Extension classloader. It loads the class files from the classpath. By default, the classpath is set to the current directory. You can change the classpath using "-cp" or "-classpath" switch. It is thus also known as Application classloader.

## 12. Difference between Serializable and Externalizable in Java?

Serializable interface is used to make Java classes serializable so that they can be transferred over a network or their state can be saved on disk, but it leverages default serialization built-in JVM, which is expensive, fragile and not secure. Externalizable allows you to fully control the Serialization process, specify a custom binary format and add more security measure.

## 13. Can we use String in the switch case?

We can use String in switch case but it is just syntactic sugar. Internally string hash code is used for the switch. See the detailed answer for more explanation and discussion.

## 14. What are object serialization and deserialization?

The use of java.io.Serializable to convert an object into a sequence of bytes is known as object serialization. Deserialization is the process of recovering back the state of the object from the byte stream.

## 15. Difference between checked and unchecked exception in Java?

A checked exception is checked by the compiler at compile time. It's mandatory for a method to either handle the checked exception or declare them in their throws clause. These are the ones which are a subclass of Exception but doesn't descend from RuntimeException. The unchecked exception is the descendant of RuntimeException and not checked by the compiler at compile time. This question is now becoming less popular and you would only find this with interviews with small companies, both investment banks and startups are moved on from this question.

## 16. Is ++ operator is thread-safe in Java?

No, it's not a thread-safe operator because it involves multiple instructions like reading a value, incriminating it and storing it back into memory which can be overlapped between multiple threads.

## 17. Which class contains the clone method? Cloneable or Object?

java.lang.Cloneable is a marker interface and doesn't contain any method clone method is defined in the object class. It is also knowing that clone() is a native method means it's implemented in C or C++ or any other native language.

# Java Coding Interview Questions

## 1. What is interface in java?

An interface in the Java programming language is an abstract type that is used to specify a behaviour that classes must implement. They are similar to protocols. Interfaces are declared using the interface keyword, and may only contain method signature and constant declarations.

## 2. How to declare array in java?

```
"To declare an array, define the variable type with square
brackets:

String[] cars;
We have now declared a variable that holds an array of strings.
To insert values to it, we can use an array literal - place the
values in a comma-separated list, inside curly braces:

String[] cars = {""Volvo"", ""BMW"", ""Ford"", ""Mazda""};
To create an array of integers, you could write:


int[] myNum = {10, 20, 30, 40};"
```

# 3. What is polymorphism in java?

Polymorphism is one of the OOPs features that allow us to perform a single action in different ways. For example, let's say we have a class Animal that has a method sound(). Since this is a generic class so we can't give it an implementation like Roar, Meow, Oink etc. We had to give a generic message.

```java
public class Animal{
    ...
    public void sound(){
        System.out.println(""Animal is making a sound"");
    }
}
```

Now lets say we two subclasses of Animal class: Horse and Cat that extends (see Inheritance) Animal class. We can provide the implementation to the same method like this:

```java
public class Horse extends Animal{
...
    @Override
    public void sound(){
        System.out.println(""Neigh"");
    }
}
```

and

```java
public class Cat extends Animal{
...
    @Override
    public void sound(){
        System.out.println(""Meow"");
    }
}
```

As you can see that although we had the common action for all subclasses sound() but there were different ways to do the same action. This is a perfect example of polymorphism (feature that allows us to perform a single action in different ways). It would not make any sense to just call the generic sound() method

as each Animal has a different sound. Thus we can say that the action this method performs is based on the type of object."

## 4. How to convert string to int in java?

```
"class Scratch{
    public static void main(String[] args){
        String str = ""50"";
        System.out.println( Integer.parseInt( str ));    // Integer.parseInt()
    }

}"
```

## 5. How to convert int to string in java?

```
class Convert
{
  public static void main(String args[])
  {
    int a = 786;
    int b = -986;
    String str1 = Integer.toString(a);
    String str2 = Integer.toString(b);
    System.out.println(""String str1 = "" + str1);
    System.out.println(""String str2 = "" + str2);

  }
```

## 6. Why string is immutable in java?

The string is Immutable in Java because String objects are cached in String pool. Since cached String literals are shared between multiple clients there is always a risk, where one client's action would affect all another client. For example, if one client changes the value of String "ABC" to "abc", all other clients will also see that value as explained in the first example. Since caching of String objects was important from performance reason this risk was avoided by making String class Immutable. At the same time, String was made final so that no one can compromise invariant of String class e.g.

Immutability, Caching, hashcode calculation etc by extending and overriding behaviours.

## 7. How to convert integer to string in java?

```
class ABC
{
  public static void main(String args[])
   {
     int a = 789;
     int b = 123;
     String str1 = Integer.toString(a);
     String str2 = Integer.toString(b);
     System.out.println(""String str1 = "" + str1);
     System.out.println(""String str2 = "" + str2);

   }
```

## 8. How to compile java program?

Open a command prompt window and go to the directory where you saved the java program (MyFirstJavaProgram. java). …

Type 'javac MyFirstJavaProgram. java' and press enter to compile your code

## 9. How to convert char to string in java?

```
public class CharToStringExample2{
public static void main(String args[]){
char c='M';
String s=Character.toString(c);
System.out.println(""String is: ""+s);
}}
```

## 10. What is wrapper class in java?

Wrapper classes are used for converting primitive data types into objects, like int to Integer etc.

## 11. How to iterate map in java?

```
import java.util.Map;
import java.util.HashMap;

class IterationDemo
{
    public static void main(String[] arg)
    {
        Map<String,String> m = new HashMap<String,String>();

        // enter name/url pair
        m.put(""a"", 1);
        m.put(""b"", 2);
        m.put(""c"", 3);
        m.put(""d"", 4);

        // using for-each loop for iteration over Map.entrySet()
        for (Map.Entry<String,String> entry : m.entrySet())
            System.out.println(""Key = "" + entry.getKey() +
                                "", Value = "" + entry.getValue());
    }

}
```

## 12. How to convert char to int in java?

```
public class JavaExample{
    public static void main(String args[]){
        char ch = '10';
        int num = Integer.parseInt(String.valueOf(ch));

        System.out.println(num);
    }

}
```

## 13. What is an interface in java?

An interface in Java is similar to a class, but the body of an interface can include only abstract methods and final fields (constants). A class implements an interface by providing code for each method declared by the interface.

## 14. How to split string in java?

```
String string = ""004-034556"";
String[] parts = string.split(""-"");
String part1 = parts[0]; // 004

String part2 = parts[1]; // 034556
```

## 14. How to read a file in java?

```
import java.io.*;
public class Read
{
  public static void main(String[] args)throws Exception
   {
   File file = new File(""C:\\Users\\LBL\\Desktop\\test.txt"");

   BufferedReader br = new BufferedReader(new FileReader(file));

   String st;
   while ((st = br.readLine()) != null)
     System.out.println(st);
   }

}
```

## 15. How to use scanner in java?

```
import java.util.Scanner;

class classname{
  public methodname(){
```

```
    //Scanner declaration
    Scanner s_name = new Scanner(System.in);
    //Use Scanner to take input
    int val = s_name.nextInt();
  }


}
```

## 16. How to reverse a number in java?

```
class Reverse
{
   public static void main(String args[])
    {
        int num=564;
        int reverse =0;
        while( num != 0 )
        {
            reverse = reverse * 10;
            reverse = reverse + num%10;
            num = num/10;
        }

        System.out.println(""Reverse  is: ""+reverse);
    }


}
```

## 17. What is instance in java?

Instance variable in Java is used by Objects to store their states. Variables that are defined without the STATIC keyword and are Outside any method declaration are Object-specific and are known as instance variables. They are called so because their values are instance specific and are not shared among instances.

## 18. How to convert char array to string in java?

```
class CharArrayToString
```

```
{
   public static void main(String args[])
    {
       // Method 1: Using String object
       char[] ch = {'g', 'o', 'o', 'd', ' ', 'm', 'o', 'r', 'n',
'i', 'n', 'g'};
       String str = new String(ch);
       System.out.println(str);

       // Method 2: Using valueOf method
       String str2 = String.valueOf(ch);
       System.out.println(str2);
    }

}
```

# 19. What is maven in java?

Maven is a powerful project management tool that is based on POM (project object model). It is used for project build, dependency and documentation.

It simplifies the build process like ANT. But it is too much advanced than ANT.

# 20. What is an array in java?

An array is a container object that holds a fixed number of values of a single type. The length of an array is established when the array is created. After creation, its length is fixed. You have seen an example of arrays already, in the main method of the "Hello World!" application.

# 21. What is applet in java?

An applet is a special kind of Java program that runs in a Java-enabled browser. This is the first Java program that can run over the network using the browser. An applet is typically embedded inside a web page and runs in the browser.

In other words, we can say that Applets are small Java applications that can be accessed on an Internet server, transported over the Internet, and can be automatically installed and run as apart of a web document.

## 22. What is method overriding in java?

```
class Human{
    //Overridden method
    public void eat()
    {
        System.out.println(""Human is eating"");
    }
}
class Boy extends Human{
    //Overriding method
    public void eat(){
        System.out.println(""Boy is eating"");
    }
    public static void main( String args[]) {
        Boy obj = new Boy();
        //This will call the child class version of eat()
        obj.eat();
    }

}
```

## 22. how to check java is installed or not?

- Click Start
- Select Control Panel
- Select Programs
- Click Programs and Features
- The installed Java version(s) are listed

## 23. How to return an array in java?

```
import java.util.*;
public class Main
{
```

```java
public static String[] return_Array() {
      //define string array
      String[] ret_Array = {""Java"", ""C++"", ""Python"",
""Ruby"", ""C""};
     //return string array
     return ret_Array;
   }

public static void main(String args[]) {
     //call method return_array that returns array
    String[] str_Array = return_Array();
    System.out.println(""Array returned from method:"" +
Arrays.toString(str_Array));

   }

}
```

## 24. How to generate random number in java?

```java
public static double getRandomNumber(){
    double x = Math.random();
    return x;

}
```

## 25. What is generics in java?

Generics enable types (classes and interfaces) to be parameters when defining classes, interfaces and methods. Much like the more familiar formal parameters used in method declarations, type parameters provide a way for you to re-use the same code with different inputs. The difference is that the inputs to formal parameters are values, while the inputs to type parameters are types.

## 26. What is a constructor in java?

A constructor in Java is a special method that is used to initialize objects. The constructor is called when an object of a class is created.

## 27. How to find the length of an array in java?

```
class ArrayLengthFinder {
    public static void main(String[] arr) {
        // declare an array
        int[] array = new int[10];
        array[0] = 12;
        array[1] = -4;
        array[2] = 1;
        // get the length of array
        int length = array.length;
        System.out.println(""Length of array is: "" + length);
    }

}
```

## 28. What is overriding in java?

Method overriding is a process of overriding base class method by derived class method with a more specific definition. Method overriding performs only if two classes have an is-a relationship. It means class must have inheritance. In other words, It is performed between two classes using inheritance relation. In overriding, method of both classes must have the same name and an equal number of parameters.

Method overriding is also referred to as runtime polymorphism because the calling method is decided by JVM during runtime. The key benefit of overriding is the ability to define a method that's specific to a particular subclass type.

## 29. How to create a file in java?

Open a text file, save it with extension .java.

## 30. What is an instance variable in java?

Instance variable in Java is used by Objects to store their states. Variables that are defined without the STATIC keyword and are Outside any method declaration are Object-specific and are known as instance variables. They are called so because their values are instance specific and are not shared among instances.

## 31. How to iterate hashmap in java?

```java
import java.util.Map;
import java.util.HashMap;

class IterationDemo
{
    public static void main(String[] arg)
     {
         Map<String,String> g = new HashMap<String,String>();

         // enter name/url pair
         g.put(""1"":""One"");
          g.put(""2"":""Two"");
         // using for-each loop for iteration over Map.entrySet()
         for (Map.Entry<String,String> entry : g.entrySet())
             System.out.println(""Key = "" + entry.getKey() +
                                 "", Value = "" + entry.getValue());
     }

}
```

## 32. How to split a string in java?

```java
public class JavaExample{
   public static void main(String args[]){
      String s = "" ,ab;gh,bc;pq#kk$bb"";
      String[] str = s.split(""[,;#$]"");

      //Total how many substrings? The array length
      System.out.println(""Number of substrings: ""+str.length);

      for (int i=0; i < str.length; i++) {
          System.out.println(""Str[""+i+""]:""+str[i]);
      }
   }

}
```

## 33. How to sort array in java?

```java
public class InsertSort {
  public static void main (String [] args) {
    int [] array = {10,20,30,60,70,80,2,3,1};
    int temp;
    for (int i = 1; i < array.length; i++) {
     for (int j = i; j > 0; j--) {
      if (array[j] < array [j - 1]) {
        temp = array[j];
        array[j] = array[j - 1];
        array[j - 1] = temp;
      }
     }
    }
    for (int i = 0; i < array.length; i++) {
      System.out.println(array[i]);
    }
  }

}
```

## 34. Why main method is static in java?

Java main() method is always static, so that compiler can call it without the creation of an object or before the creation of an object of the class. In any Java program, the main() method is the starting point from where compiler starts program execution. So, the compiler needs to call the main() method.

## 35. How to reverse a string in java word by word?

```java
import java.util.*;
class ReverseString
{
  public static void main(String args[])
  {
    String original, reverse = """";
    Scanner in = new Scanner(System.in);
```

```
    System.out.println(""Enter a string to reverse"");
    original = in.nextLine();

    int length = original.length();

    for (int i = length - 1 ; i >= 0 ; i--)
       reverse = reverse + original.charAt(i);

    System.out.println(""Reverse of the string: "" + reverse);
  }

}
```

## 36. How to convert string to date in java?

```
String string = ""January 2, 2010"";
DateTimeFormatter formatter = DateTimeFormatter.ofPattern(""MMMM
d, yyyy"", Locale.ENGLISH);
LocalDate date = LocalDate.parse(string, formatter);

System.out.println(date); // 2010-01-02
```

## 37. How to read a string in java?

```
Scanner sc= new Scanner(System.in); //System.in is a standard
input stream.
System.out.print(""Enter a string: "");

String str= sc.nextLine(); //reads string.
```

## 38. How to convert string to integer in java?

```
String string1 = ""100"";
String string2 = ""50"";
String string3 = ""20"";

int number1 = Integer.decode(string1);
int number2 = Integer.decode(string2);
```

```java
int number3 = Integer.decode(string3);

System.out.println(""Parsing String \"""" + string1 + ""\"": ""
+ number2);
System.out.println(""Parsing String \"""" + string2 + ""\"": ""
+ number2);

System.out.println(""Parsing String \"""" + string3 + ""\"": ""
+ number3);
```

## 39. How to sort arraylist in java?

```java
import java.util.*;
public class ArrayListOfInteger  {

    public static void main(String args[]){
        ArrayList<Integer> arraylist = new ArrayList<Integer>();
        arraylist.add(11);
        arraylist.add(2);
        arraylist.add(7);
        arraylist.add(3);
        /* ArrayList before the sorting*/
        System.out.println(""Before Sorting:"");
        for(int counter: arraylist){
                System.out.println(counter);
          }

        /* Sorting of arraylist using Collections.sort*/
        Collections.sort(arraylist);

        /* ArrayList after sorting*/
        System.out.println(""After Sorting:"");
        for(int counter: arraylist){
                System.out.println(counter);
          }
      }

}
```

## 40. How to find the length of a string in java?

To calculate the length of a string in Java, you can use an inbuilt length() method of the Java string class

In Java, strings are objects created using the string class and the length() method is a public member method of this class. So, any variable of type string can access this method using the . (dot) operator.

The length() method counts the total number of characters in a String.

## 41. What is data type in java?

Data type in java specifies the type of value a variable in java can store.

## 42. What is hashmap in java?

HashMap is a Map-based collection class that is used for storing Key & value pairs, it is denoted as HashMap<Key, Value> or HashMap<K, V>. This class makes no guarantees as to the order of the map. It is similar to the Hashtable class except that it is unsynchronized and permits nulls(null values and null key).

## 43. What is stream in java?

A Stream in Java can be defined as a sequence of elements from a source. Streams supports aggregate operations on the elements. The source of elements here refers to a Collection or Array that provides data to the Stream.

Stream keeps the ordering of the elements the same as the ordering in the source. The aggregate operations are operations that allow us to express common manipulations on stream elements quickly and clearly.

## 44. How to convert double to string in java?

```
public class D2S{
public static void main(String args[]){
```

```
double d=1.2222222;
String s=Double. toString(d);
System. out. println(s);


}}
```

## 45. How to declare an array in java?

```
int arr[]=new int[10];
```

## 46. How to replace a character in a string in java?

String replace(char oldChar, char newChar): It replaces all the occurrences of a oldChar character with newChar character. For e.g. "pog pance".replace('p', 'd') would return dog dance.

## 47. What is lambda expression in java?

A lambda expression (lambda) describes a block of code (an anonymous function) that can be passed to constructors or methods for subsequent execution. The constructor or method receives the lambda as an argument. Consider the following example:

System.out.println("Hello")

This example identifies a lambda for outputting a message to the standard output stream. From left to right, () identifies the lambda's formal parameter list (there are no parameters in the example), -> indicates that the expression is a lambda, and System.out.println("Hello") is the code to be executed.

## 48. What is microservices java?

Microservices are a form of service-oriented architecture style (one of the most important skills for Java developers) wherein applications are built as a collection of different smaller services rather than one whole app.

## 49. What is jsp in java?

A JSP page is a text document that contains two types of text: static data, which can be expressed in any text-based format (such as HTML, SVG, WML, and XML), and JSP elements, which construct dynamic content.

The recommended file extension for the source file of a JSP page is .jsp. The page can be composed of a top file that includes other files that contain either a complete JSP page or a fragment of a JSP page. The recommended extension for the source file of a fragment of a JSP page is .jspf.

The JSP elements in a JSP page can be expressed in two syntaxes, standard and XML, though any given file can use only one syntax. A JSP page in XML syntax is an XML document and can be manipulated by tools and APIs for XML documents.

## 50. What is the use of constructor in java?

A constructor is a block of code that initializes the newly created object. A constructor resembles an instance method in java but it's not a method as it doesn't have a return type. In short constructor and method are different(More on this at the end of this guide). People often refer constructor as special type of method in Java.

A constructor has same name as the class and looks like this in java code.

## 51. How to convert list to array in java?

The best and easiest way to convert a List into an Array in Java is to use the .toArray() method.

Likewise, we can convert back a List to Array using the Arrays.asList() method.

The examples below show how to convert List of String and List of Integers to their Array equivalents.

```
Convert List to Array of String
import java.util.ArrayList;
import java.util.List;

public class ConvertArrayListToArray {
```

```
    public static void main(String[] args) {
        List<String> itemList = new ArrayList<String>();
        itemList.add(""item1"");
        itemList.add(""item2"");
        itemList.add(""item3"");

        String[] itemsArray = new String[itemList.size()];
        itemsArray = itemList.toArray(itemsArray);

        for(String s : itemsArray)
            System.out.println(s);
    }

}"
```

## 52. How many ways to create object in java?

There are five different ways to create an object in Java:

- Java new Operator
- Java Class. newInstance() method
- Java newInstance() method of constructor
- Java Object. clone() method
- Java Object Serialization and Deserialization

## 53. Why java is becoming functional (java 8)?

Java 8 adds functional programming through what are called lambda expressions, which is a simple way of describing a function as some operation on an arbitrary set of supplied variables.

## 54. Which inheritance is not supported in java?

Multiple inheritance is not supported in Java.

## 55. How to convert double to int in java?

```
double d=1.2
```

```
int i=int(d)
```

## 56. How to get ASCII value of char in java?

```
char character = 'a';
```

```
int ascii = (int) character;
```
In your case, you need to get the specific Character from the String first and then cast it.

```
char character = name.charAt(0); // This gives the character 'a'
```

```
int ascii = (int) character; // ascii is now 97.
```

## 57. How to declare a string array in java?

```
String[] array = new String[] {"a", "b"};
```

## 58. What is marker interface in java?

An empty interface in Java is known as a marker interface i.e. it does not contain any methods or fields by implementing these interfaces a class will exhibit a special behaviour with respect to the interface implemented. If you look carefully on marker interface in Java e.g. Serializable, Cloneable and Remote it looks they are used to indicate something to compiler or JVM. So if JVM sees a Class is Serializable it done some special operation on it, similar way if JVM sees one Class is implement Clonnable it performs some operation to support cloning. Same is true for RMI and Remote interface. In simplest Marker interface indicate, signal or a command to Compiler or JVM.

–> Practically we can create an interface like a marker interface with no method declaration in it but it is not a marker interface at all since it is not instructing something to JVM that provides some special behaviour to the class when our program is going to execute.

For example Serializable, Cloneable etc..are marker interfaces

When my program gets executed, JVM provides some special powers to my class which has implemented the Marker Interfaces.

## 59. How to take multiple string input in java using a scanner?

```
class MyClass {
    public static void main(String[ ] args) {
        Scanner a = new Scanner(System.in);
        //Scanner b = new Scanner(System.in);
        System.out.println (a.nextLine());
        System.out.println(a.nextLine());
    }
}


Then type this way:
a
b
```

## 60. How to concatenate two strings in java?

s3=s1+s2 where s1 and s2 are java strings.

## 61. How to convert string to char array in java?

```
public class StringToCharArrayExample{
public static void main(String args[]){
String s1=""hello"";
char[] ch=s1.toCharArray();
for(int i=0;i<ch.length;i++){
System.out.print(ch[i]);
}

}}
```

## 62. What is type casting in java?

The process of converting the value of one data type (int, float, double, etc.) to another data type is known as typecasting.

## 63. How to sort a string in java?

```
import java.util.Arrays;

public class Test
{
    public static void main(String[] args)
     {
          String original = ""edcba"";
          char[] chars = original.toCharArray();
          Arrays.sort(chars);
          String sorted = new String(chars);
          System.out.println(sorted);
     }

}
```

## 64. How to input string in java?

```
import java.util.*;
class Inp
{
public static void main(String[] args)
{
Scanner sc= new Scanner(System.in); //System.in is a standard
input stream
System.out.print(""Enter a string: "");
String str= sc.nextLine();                    //reads string
System.out.print(""You have entered: ""+str);
}

}
```

## 65. How to import scanner in java?

```
import java.utils.Scanner
```

```
Scanner sc=new Scanner();
```

## 66. How to remove special characters from a string in java?

```
class New
{
public static void main(String args[])
{
String str= ""This#string%contains^special*characters&."";
str = str.replaceAll(""[^a-zA-Z0-9]"", "" "");
System.out.println(str);
}

}
```

## 67. How to find string length in java?

To figure the length of a string in Java, you can utilize an inbuilt length() technique for the Java string class.

In Java, strings are objects made utilizing the string class and the length() strategy is an open part technique for this class. Along these lines, any factor of type string can get to this strategy utilizing the . (dot) administrator.

The length() technique tallies the all outnumber of characters in a String.

## 68. How to add elements in array in java?

Convert array to arraylist. Then elements can be added.

## 69. What is exception handling in java?

Exception Handling in Java is a way to keep the program running even if some fault has occurred. An exception is an error event that can happen during the execution of a program and disrupts its normal flow. Java provides a robust and object-oriented way to handle exception scenarios, known as Java Exception Handling.

## 70. How to scan string in java?

```
import java.util.*;
public class ScannerExample {
public static void main(String args[]){
Scanner in = new Scanner(System.in);
System.out.print(""Enter your name: "");
String name = in.nextLine();
System.out.println(""Name is: "" + name);

in.close();
```

## 71. When to use comparable and comparator in java with example?

In case one wants a different sorting order then he can implement comparator and define its own way of comparing two instances. If sorting of objects needs to be based on natural order then use Comparable whereas if your sorting needs to be done on attributes of different objects, then use Comparator in Java.

## 72. How to create jar file in java?

The basic format of the command for creating a JAR file is:

jar cf jar-file input-file(s)

The options and arguments used in this command are:

- The c option indicates that you want to create a JAR file

- The f option indicates that you want the output to go to a file rather than to stdout

jar-file is the name that you want the resulting JAR file to have. You can use any filename for a JAR file. By convention, JAR filenames are given a .jar extension, though this is not required.

The input-file(s) argument is a space-separated list of one or more files that you want to include in your JAR file. The input-file(s) argument can contain the wildcard * symbol. If any of the "input-files" are directories, the contents of those directories are added to the JAR archive recursively.

The c and f options can appear in either order, but there must not be any space between them.

# 73. How to call a method in java?

To call a method in Java, write the method's name followed by two parentheses () and a semicolon; The process of method calling is simple. When a program invokes a method, the program control gets transferred to the called method.

# 74. What is the difference between next () and nextline () in java?

next() can read the input only till space. It can't read two words separated by space. Also, next() places the cursor in the same line after reading the input. nextLine() reads input including space between the words (that is, it reads till the end of line \n).

# 75. what is mvc in java?

MVC Pattern represents the Model-View-Controller Pattern. This example is utilized to isolate the application's interests. Model – Model speaks to an item or JAVA POJO conveying information. It can likewise have a rationale to refresh regulator if its information changes.

# 76. How to iterate a map in java?

```
for (Map.Entry<Integer, String> entry : hm.entrySet()) {
    Integer key = entry.getKey();
    String value = entry.getValue();



}
```

# 77. What is the diamond problem in java?

The "diamond problem" is an uncertainty that can emerge as a result of permitting various legacy. It is a significant issue for dialects (like C++) that take into account numerous legacy of the state. In Java, nonetheless, numerous legacy doesn't take into account classes, just for interfaces, and these don't contain state.

# 78. How to swap two strings in java?

```
String a = ""one"";
String b = ""two"";

a = a + b;
b = a.substring(0, (a.length() - b.length()));
a = a.substring(b.length());

System.out.println(""a = "" + a);

System.out.println(""b = "" + b);
```

# 79. How to convert string to date in java in yyyy-mm-dd format?

```
String start_dt = ""2011-01-01"";
DateFormat formatter = new SimpleDateFormat(""yyyy-MM-DD"");
Date date = (Date)formatter.parse(start_dt);
SimpleDateFormat newFormat = new SimpleDateFormat(""MM-dd-
yyyy"");

String finalString = newFormat.format(date);
```

## 80. What is getname in java with example?

```java
import java.io.*;

public class solution {
    public static void main(String args[])
    {

        // try-catch block to handle exceptions
        try {

            // Create a file object
            File f = new File(""new.txt"");

            // Get the Name of the given file f
            String Name = f.getName();

            // Display the file Name of the file object
            System.out.println(""File Name : "" + Name);
        }
        catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
}
```

getName returns the name of the file.

## 81. What is bufferreader in java?

The Java.io.BufferedReader class peruses text from a character-input stream, buffering characters to accommodate the proficient perusing of characters, clusters, and lines. Following are the significant focuses on BufferedReader − The cradle size might be determined, or the default size might be utilized.

## 82. How to create a package in java?

To make a bundle, you pick a name for the bundle (naming shows are talked about in the following area) and put a bundle articulation with that name at the head of each source record that contains the sorts (classes, interfaces, lists, and explanation types) that you need to remember for the bundle.

## 83. What is aggregation in java?

The case of Aggregation is Student in School class when School shut, Student despite everything exists and afterwards can join another School or something like that. In UML documentation, a structure is signified by a filled precious stone, while conglomeration is indicated by an unfilled jewel, which shows their undeniable distinction regarding the quality of the relationship.

## 84. How to use switch case in java?

```
int amount = 9;

switch(amount) {
    case     0 : System.out.println(""amount is  0""); break;
    case     5 : System.out.println(""amount is  5""); break;
    case    10 : System.out.println(""amount is 10""); break;
    default    : System.out.println(""amount is something
else"");

}
```

## 85. What is recursion in java?

Recursion is simply the strategy of settling on a capacity decision itself. This method gives an approach to separate entangled issues into straightforward issues which are simpler to settle.

## 86. How to print array in java?

System.out.println(Arrays.toString(a));

## 87. What is autoboxing and unboxing in java?

Autoboxing is the automatic conversion that the Java compiler makes between the primitive types and their corresponding object wrapper classes. For example, converting an int to an Integer, a double to a Double, and so on. If the conversion goes the other way, this is called unboxing.

## 88. A java constructor returns a value, but what?

Java constructor does not return any values.

## 89. What is method overloading in java?

Method Overloading is a feature that allows a class to have more than one method having the same name if their argument lists are different. It is similar to constructor overloading in Java, that allows a class to have more than one constructor having different argument lists.

## 90. How to create an array of objects in java?

One way to initialize the array of objects is by using the constructors. When you create actual objects, you can assign initial values to each of the objects by passing values to the constructor. You can also have a separate member method in a class that will assign data to the objects.

## 91. When to use abstract class and interface in java?

Java provides four types of access specifiers that we can use with classes and other entities.

#1) Default: Whenever a specific access level is not specified, then it is assumed to be 'default'. The scope of the default level is within the package.

#2) Public: This is the most common access level and whenever the public access specifier is used with an entity, that particular entity is accessible throughout from within or outside the class, within or outside the package, etc.

#3) Protected: The protected access level has a scope that is within the package. A protected entity is also accessible outside the package through inherited class or child class.

#4) Private: When an entity is private, then this entity cannot be accessed outside the class. A private entity can only be accessible from within the class.

## 92. How to create singleton class in java?

Singleton class means you can create only one object for the given class. You can create a singleton class by making its constructor as private so that you can restrict the creation of the object. Provide a static method to get an instance of the object, wherein you can handle the object creation inside the class only. In this example, we are creating an object by using a static block.

```
public class MySingleton {

    private static MySingleton myObj;

    static{
        myObj = new MySingleton();
    }

    private MySingleton(){

    }

    public static MySingleton getInstance(){
        return myObj;
    }

    public void testMe(){
        System.out.println(""Hey.... it is working!!!"");
    }
```

```java
    public static void main(String a[]){
        MySingleton ms = getInstance();
        ms.testMe();
    }

}
```

## 93. What is a static method in java?

Java Programming Java8Object Oriented Programming. The static keyword is used to create methods that will exist independently of any instances created for the class. Static methods do not use any instance variables of any object of the class they are defined in.

## 94. Explain the exception handling mechanism of Java?

Exception class inherits from the Throwable class in java. Java has a try-catch mechanism for handling exceptions without them being generated as errors.

```java
public class Exception_Handling {
    String gender;
    Exception_Handling(String s){
        gender=s;
    }
     void Check_Gender(String s) throws GenderException{
        if (gender!="Male" || gender!="Female")
            throw new GenderException("Gender Invalid");
        else
        System.out.println("Gender valid");
        }
    public static void main(String args[]){
        Exception_Handling n=new Exception_Handling("None");
        try{
            n.Check_Gender("Female");
        }catch (Exception e){
            System.out.println("Exception : "+e);
        }
    }
```

```
    }
class GenderException extends Exception{
    GenderException(String s){
        super(s);
    }

}
```

## 95. When do we use the Array list?

Whenever there is a need for random access of elements in java we use ArrayList. Get and set methods provide really fast access to the elements using the array list.

## 96. What is the use of generics in Java?

Generics allow classes and interfaces to be a type for the definition of new classes in java which enables stronger type checking. It also nullifies the probability of type mismatch of data while insertion.

## 97. What is an iterator?

An iterator is a collection framework functionality which enables sequential access of elements. The access can be done in one direction only. Java supports two types of iterators:

1. Enumeration Iterator

2. List Iterator

## 98. What is a hashmap?

Hashmap is a collection framework functionality which is used for storing data into key-value pairs. To access data we need the key. A hashmap uses linked lists internally for supporting the storage functionality.

## 99. What is a stack?

A stack is a data structure that supports LAST IN FIRST OUT methodology. The element pushed last is at the top of the stack. A stack supports the following functionality:

- Push-operation to push an element into the stack
- Pop-operation to push an element out of the stack
- Peek-An option to check the top element

## 100. What is a treemap?

Treemap is a navigable map interpretation in java which is built around the concepts of red and black trees. The keys of a treemap are sorted in ascending order by their keys.

## 101. What is a vector?

A vector is an ArrayList like data structure in java whose size increases as per the demands. Moreover, it also supports some legacy functions not supported by collections.

You should also know that a vector is more suitable to work with threads, unlike collection objects.

## 102. What is the difference between ArrayList and vector?

An ArrayList is not suitable for working in a thread based environment. A vector is built for thread-based executions. ArrayList does not support legacy functions whereas a vector has support for legacy functions.

## 103. Write a program to calculate the factorial of a number in java.

```
import java.util.Scanner;

public class star {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int fact=1;
```

```
        int n=sc.nextInt();

        for (int i=1;i<=n;i++)
        fact=fact*i;

        System.out.println(fact);


        }


}
```

## 104. Write a program to check if a number is prime.

```java
import java.util.Scanner;
public class star {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int count=0;
        for (int i=1;i<=n;i++)
        {
            if (n%i==0)
            count++;
        }
        if (count==2)
        System.out.println("Prime");
        else
        System.out.println("Not Prime");
        }

}
```

## 105. Write a program to convert decimal numbers to binary.

```java
import java.util.Scanner;

class star
```

```java
{
public static void main(String arg[])
{
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter a decimal number");
    int n=sc.nextInt();
    int  bin[]=new int[100];
    int i = 0;
    while(n > 0)
    {
    bin[i++] = n%2;
        n = n/2;
    }
   System.out.print("Binary number is : ");
    for(int j = i-1;j >= 0;j--)
    {
        System.out.print(bin[j]);
    }
}


}
```

## 106. Write a program to convert decimal numbers to octal.

```java
import java.util.Scanner;
class star
{
  public static void main(String args[])
   {
     Scanner sc = new Scanner( System.in );
     System.out.print("Enter a decimal number : ");
     int num =sc.nextInt();
     String octal = Integer.toOctalString(num);
     System.out.println("Decimal to octal: " + octal);
   }


}
```

## 107. Which utility function can be used to extract characters at a specific location in a string?

The charAt() utility function can be used to achieve the above-written functionality.

## 108. How to get the length of a string in java?

Length of string in java can be found using the .length() utility.

## 109. Which of the following syntax for defining an array is correct?

– Int []=new int[];

– int a[]=new int[];

– int a[] =new int [32]

int a[]=new int[32] is the correct method.

## 110. What will this return 3*0.1 == 0.3? true or false?

This is one of the really tricky questions and can be answered only if your concepts are very clear. The short answer is false because some floating-point numbers can not be represented exactly.

## 111. Write a program to do bubble sort on an array in java.

```
import java.util.Scanner;
class star
{
  public static void main(String args[])
   {
     int arr[] =new int [10];
     Scanner sc = new Scanner( System.in );
```

```java
    System.out.println("Enter size of array");
    int n=sc.nextInt();
    System.out.print("Enter an arry : ");
    for (int i=0;i<n;i++)
        arr[i]=sc.nextInt();
    for (int i=0;i<n;i++)
    {
        for (int j=0;j<n-i-1;j++)
        {
            if (arr[j]>arr[j+1])
            {
                int t=arr[j];
                arr[j]=arr[j+1];
                arr[j+1]=t;
            }
        }
    }
 for (int i=0;i<n;i++)
    {
        System.out.println(arr[i]);
    }
  }

}
```

## 112. Write a program to generate the following output in java?

*

**

****

*****

**\*\*\*\*\*\***

```java
public class star {
    public static void main(String[] args) {
        int i;
        int count=1;
        for (i=1;i<=5;i++){
            for (int j=1;j<=i;j++)
                System.out.print("*");
            System.out.println(" ");

        }

    }

}
```

## 113. Write a program to generate the following output.

**\*\*\*\***

**\*\*\***

**\*\***

**\***

```java
public class star {
    public static void main(String[] args) {
        int i;
        int count=1;
        for (i=5;i>=1;i--){
            for (int j=1;j<=i;j++)
                System.out.print("*");
            System.out.println(" ");
```

```
        }

}

}
```

## 114. Write a program in java to remove all vowels from a string.

```
import java.util.Scanner;

public class star {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        String n=sc.nextLine();
        String n1=n.replaceAll("[AEIOUaeiou]", "");
        System.out.println(n1);

    }

}
```

## 115. Write a program in java to check for palindromes.

```
String str, rev = "";
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter a string:");
    str = sc.nextLine();

    int length = str.length();

    for ( int i = length - 1; i >= 0; i-- )
        rev = rev + str.charAt(i);

    if (str.equals(rev))
        System.out.println(str+" is a palindrome");
    else
```

```
        System.out.println(str+" is not a palindrome");
```

# 116. What is the underlying mechanism in java's built-in sort?

Java's built-in sort function utilizes the two pivot quicksort mechanism. Quicksort works best in most real-life scenarios and has no extra space requirements.

# 117. Which utility function is used to check the presence of elements in an ArrayList?

hasNext() is used for the presence of the next element in an ArrayList.

# 118. How to remove an element from an array?

To remove an element from an array we have to delete the element first and then the array elements lying to the right of the element are shifted left by one place.

# 119. Difference between a = a + b and a += b ?

The += operator implicitly cast the result of addition into the type of the variable used to hold the result. When you add two integral variables e.g. variable of type byte, short, or int then they are first promoted to int and them addition happens. If the result of the addition is more than the maximum value of a then a + b will give a compile-time error but a += b will be ok as shown below

byte a = 127;

byte b = 127;

b = a + b; // error : cannot convert from int to byte

b += a; // ok

# Java OOPS Interview Questions

## 1. What is Class in Java?

In the real world, you often have many objects of the same kind. For example, your bicycle is just one of many bicycles in the world. Using object-oriented terminology, we say that your bicycle object is an instance (in the glossary) of the class of objects known as bicycles. Bicycles have some state (current gear, current cadence, two wheels) and behaviour (change gears, brake) in common. However, each bicycle's state is independent of and can be different from that of other bicycles.

When building bicycles, manufacturers take advantage of the fact that bicycles share characteristics, building many bicycles from the same blueprint. It would be very inefficient to produce a new blueprint for every individual bicycle manufactured.

In object-oriented software, it's also possible to have many objects of the same kind that share characteristics: rectangles, employee records, video clips, and so on. Like the bicycle manufacturers, you can take advantage of the fact that objects of the same kind are similar and you can create a blueprint for those objects. A software blueprint for objects is called a class (in the glossary).

## 2. What is a constructor in java?

```
"A constructor in Java is a special method that is used to
initialize objects. The constructor is called when an object of
a class is created. It can be used to set initial values for
object attributes:

Example
Create a constructor:

// Create a MyClass class
public class MyClass {
  int x;  // Create a class attribute
```

```
  // Create a class constructor for the MyClass class
  public MyClass() {
    x = 5;  // Set the initial value for the class attribute x
  }

  public static void main(String[] args) {
    MyClass myObj = new MyClass(); // Create an object of class
MyClass (This will call the constructor)
    System.out.println(myObj.x); // Print the value of x
  }
}

// Outputs 5
```

## 3. What is object in java?

An object is a software bundle of variables and related methods.

You can represent real-world objects using software objects. You might want to represent real-world dogs as software objects in an animation program or a real-world bicycle as a software object within an electronic exercise bike. However, you can also use software objects to model abstract concepts. For example, an event is a common object used in GUI window systems to represent the action of a user pressing a mouse button or a key on the keyboard.

## 4. How to create object in java?

- Declaration: The code set in bold are all variable declarations that associate a variable name with an object type.
- Instantiation: The new keyword is a Java operator that creates the object.
- Initialization: The new operator is followed by a call to a constructor, which initializes the new object.

## 5. What is an object in java?

Software objects are conceptually similar to real-world objects: they too consist of state and related behaviour. An object stores its state in fields (variables in some programming languages) and exposes its behaviour through methods (functions in some programming languages). Methods operate on an object's internal state and serve as the primary mechanism for object-to-object communication. Hiding internal state and requiring all interaction to be performed through an object's methods is known as data encapsulation — a fundamental principle of object-oriented programming.

## 6. What is oops in java?

Object-oriented programming System(OOPs) is a programming paradigm based on the concept of "objects" that contain data and methods. The primary purpose of object-oriented programming is to increase the flexibility and maintainability of programs. Object-oriented programming brings together data and its behaviour(methods) in a single location(object) makes it easier to understand how a program works. We will cover each and every feature of OOPs in detail so that you won't face any difficultly understanding OOPs Concepts.

## 7. Who executes the byte code in java?

Bytecode is the compiled format for Java programs. Once a Java program has been converted to bytecode, it can be transferred across a network and executed by Java Virtual Machine (JVM).

## 8. Why java is secure?

Java has no concept of pointers. Hence java is secure. Java does not provide access to actual memory locations.

## 9. Why java does not support multiple inheritance?

Java supports multiple inheritance through interfaces only. A class can implement any number of interfaces but can extend only one class.

Multiple inheritance is not supported because it leads to a deadly diamond problem. However, it can be solved but it leads to a complex system so multiple inheritance has been dropped by Java founders.

## 10. Why java doesn't support multiple inheritance?

Java supports multiple inheritance through interfaces only. A class can implement any number of interfaces but can extend only one class. Multiple inheritance is not supported because it leads to a deadly diamond problem.

## 11. Why we can't create the object of abstract class in java?

Because an abstract class is an incomplete class (incomplete in the sense it contains abstract methods without body and output) we cannot create an instance or object; the same way we say for an interface.

## 12. What is Constructor Overloading?

When a class has multiple constructors with different function definitions or different parameters it is called constructor overloading.

```java
import java.io.*;
import java.lang.*;
public class constructor_overloading {
    double sum;
    constructor_overloading(){
        sum=0;
    }
    constructor_overloading(int x,int y){
        sum=x+y;
    }
    constructor_overloading(double x,double y){
        sum=x+y;
    }
    void print_sum(){
        System.out.println(sum);
    }
```

```
    public static void main(String args[]){
        constructor_overloading c=new constructor_overloading();
        c.print_sum();
        constructor_overloading c1=new
constructor_overloading(10,20);
        c1.print_sum();
        constructor_overloading c2=new
constructor_overloading(10.11,20.11);
        c2.print_sum();
    }

}
```

# 13. How many types of Inheritance are possible in Java?

Single, multiple, multilevel, hybrid and hierarchical inheritance are possible in java. Hybrid inheritance and hierarchical inheritance are only possible through interfaces.

# 14. How many types of constructor does Java support?

Java supports the following types of constructors:

– Non-Parameterized or Default Constructors

– Parameterized Constructors

– Copy constructor

# 15. What is a singleton class in Java? What's the benefit of making a class singleton?

A singleton class is a class in Java that can at most have one instance of it in an application. If new instances are created for the same class they point to the first instance created and thus have the same values for all attributes and properties.

Singleton classes are created to create global points of access to objects. Singleton classes find their primary usages in caching, logging, device drivers which are all entities for universal access.

## 16. What is the role of finalize()?

Finalize() is used for garbage collection. It's called by the Java run environment by default to clear out unused objects. This is done for memory management and clearing out the heap.

## 17. Explain encapsulation in Java.

Encapsulation is the process of wrapping variables and functions together into a single unit in order to hide the unnecessary details. The wrapped up entities are called classes in java. Encapsulation is also known as data hiding because it hides the underlying intricacies.

## 18. Explain abstraction in Java.

Abstraction is the process of revealing the essential information and hiding the trivial details across units in java. Java has abstract classes and methods through which it does data abstraction.

## 19. If a child class inherits base class then are the constructor of the base class also inherited by the child class?

Constructors are not properties of a class. Hence they cannot be inherited. If one can inherit constructors then it would also mean that a child class can be created with the constructor of a parent class which can later cause referencing error when the child class is instantiated. Hence in order to avoid such complications, constructors cannot be inherited. The child class can invoke the parent class constructor by using the super keyword.

## 20. What is the use of super?

super() is used to invoke the superclass constructor by the subclass constructor. In this way, we do not have to create different objects for super and subclasses.

## 21. How is encapsulation achieved in Java?

Encapsulation is achieved by wrapping up data and code into simple wrappers called classes. Objects instantiate the class to get a copy of the class data.

## 22. What is an abstract class in Java?

An abstract class is a class that can only be inherited and it cannot be used for object creation. It's a type of restricted class with limited functionality.

## 23. How is polymorphism achieved in Java?

An example of polymorphism is the == operator which can be used to compare both numerics and strings.

## 24. Can the main method be declared as private in Java?

Yes, the main method can be declared as private.

## 25. What is an object in Java?

An object is an instance of a class in java. It shares all attributes and properties of a class.

## 26. What happens if we make the constructor final?

If we make the constructors final then the class variables initialized inside the constructor will become unusable. Their state cannot be changed.

## 27. What is constructor chaining?

constructor chaining is the process of invoking constructors of the same class or different classes inside a constructor. In this way, multiple objects are not required for constructor invocation with constructors having different parameters.

# Java Multithreading Interview Questions

## 1. What is multithreading in java?

Multithreading in Java is a feature that allows concurrent execution of two or more parts of a program for maximum utilization of CPU. Each part of such a program is called a thread. So, threads are light-weight processes within a process.

## 2. What is thread-safe in java?

Thread-safety or thread-safe code in Java refers to code which can safely be used or shared in concurrent or multi-threading environment and they will behave as expected. any code, class, or object which can behave differently from its contract on the concurrent environment is not thread-safe.

## 3. What is a thread in java?

A thread is a lightweight program that allows multiple processes to run concurrently. Every java program has at least one thread called the main thread, the main thread is created by JVM. The user can define their own threads by extending the Thread class (or) by implementing the Runnable interface. Threads are executed concurrently.

```
public static void main(String[] args){//main thread starts here

}
```

## 4. What is volatile in java?

Volatile keyword is used to modify the value of a variable by different threads. It is also used to make classes thread-safe. It means that multiple threads can use a method and instance of the classes at the same time without any problem.

## 5. How to generate random numbers in java within range?

```
import java.util.concurrent.ThreadLocalRandom;

// nextInt is normally exclusive of the top value,
// so add 1 to make it inclusive

int randomNum = ThreadLocalRandom.current().nextInt(min, max +
1);
```

## 6. If we clone objects using the assignment operator does the references differ?

When objects are cloned using the assignment operator, both objects share the same reference. Changes made to the data by one object would also be reflected in the other object.

## 7. Can we start a thread twice in java?

Once a thread is started, it can never be started again. Doing so will throw an IllegalThreadStateException

## 8. How can java threads be created?

Threads can be created by implementing the runnable interface.

Threads can also be created by extending the thread class

This brings us to the end of the Java Interview Questions. Glad to see you are now better equipped to face an interview.

Also Read Top 25 Common Interview Questions

# Java Interview Questions FAQs

## 1. What should I prepare for Java interview?

There is no fixed method through which you can prepare for your upcoming Java Interview. However, understanding the basic concepts of Java is important for you to do well. The next step would be to take up a Java Beginners Course that will help you understand the concepts well, or read the top books for self-learning. Apart from learning the basic concepts through courses, books, and blogs, you can also work on projects that will help you gain a hands-on experience.

## 2. What are the basics of Java?

Java is a object-oriented general-purpose programming language. It is a popular programming language because of it's easy-to-use syntax. The basics of Java include understanding what Java is, how to install Java and Java IDE, variables and data types in Java, Operators in Java, Arrays, Functions, Flow Control Statements, and basic programs. To learn the basics of Java, you can take up a Java for Beginners Course and understand the concepts required for you to build a successful career in Java Programming.

## 3. Why is string immutable in Java?

String is immutable in Java to ensure that the value of the string does not change. Java uses string literals, if there are multiple variables that refer to one object and the value of the object is changed, it would affect all reference variables. Hence, strings are immutable in Java.

## 4. Why pointers are not used in Java?

Java doesn't allow using pointers. Pointers are not used in Java to ensure that it is more secure and robust.

## 5. Is Java 100% object oriented language?

No. Java is not a 100% object oriented language. It follows some principles of object oriented language, but not all.

## 6. What are the features of Java?

The main features of Java include: multithreaded, platform independent, simple, secure, architecture neutral, portable, robust, dynamic, high-performance, and interpreted.

## 7. How can I learn Java easily?

Any method of learning that suits you and your learning style should be considered as the best way to learn. Different people learn well through different methods. Some individuals may prefer taking up online courses, reading books or blogs, watching YouTube videos to self-learn. And some people may also learn through practice and hands-on experience. Choose what works best for you!

## 8. What is API in Java?

In Java, API stands for Application Programming Interface. It is a software that allows two applications to talk to each other. It is a list of classes that is part of a JDK or Java Development Kit and includes interfaces, packages, classes, fields, methods and constructors.

## 9. What is Java full form?

Java is a programming language that is originally developed by James Gosling at Sun Microsystems. While the developers were drinking coffee and brainstorming names for their programming language, they chose to name it Java back in 1995. It does not have any full form.