JAVA Interview Q&A

1) Program for constructor/Program for no argument constructor

package com.test;

public class Test2 {

String name;

public Test2() {

name = "yash";

}

public static void main(String[] args) {

Test2 test2 = new Test2();

System.out.println("Name is>>" + test2.name);

}

}

Output-

Name is>>yash

2) What is parameterized constructor? Program for same

**Parameterized constructor-**

A constructor with arguments is called as parameterized constructor.

Program for parameterized constructor

package com.test;

public class Test2 {

int id;

String name;

String city;

public Test2(int userId, String userName, String userCity) {

id = userId;

name = userName;

city = userCity;

System.out.println("id>>" + id);

System.out.println("name>>" + name);

System.out.println("city>>" + city);

}

public static void main(String[] args) {

Test2 test2 = new Test2(10, "ram", "pune");

}

}

3) What is public static void main?

* It is the main method of any program.
* In Java programs, the point from where the program starts its execution or simply the entry point of Java programs is the main() method.
* Hence, it is one of the most important methods of Java and having a proper understanding of it is very important.
* The Java compiler or JVM looks for the main method when it starts executing a Java program.
* The signature of the main method needs to be in a specific way for the JVM to recognize that method as its entry point. If we change the signature of the method, the program compiles but does not execute.

4) What is constructor chaining?

* A constructor is called from another constructor in the same class this process is known as constructor chaining.
* It occurs through inheritance.
* When we create an instance of a derived class, all the constructors of the inherited class (base class) are first invoked,after that the constructor of the calling class (derived class) is invoked.

5) Why constructor is not declared in interface?

* An Interface is a complete abstraction of class. All data members present in the interface are by default public, static, and final.
* All the static final fields should be assigned values at the time of declaration,
* otherwise it will throw compilation error saying “variable variable\_Name not initialized in default constructor”.
* The methods inside the interface are by default public abstract which means the method implementation cannot be provided by the interface itself,

it has to be provided by the implementing class. Therefore, there is no need of having a constructor inside the interface.

6) Can we make the constructor as final? Why?

* No, we cannot make constructor as final.
* In inheritance, whenever you extends a class, the child class inherits all the members of the parent class except the constructor.
* In other words, constructor cannot be inherited in java & thus you cannot **override** constructor.
* So, writing final before constructor makes no sense.
* Even if we try to make so, compile time error will be generated saying “modifier final not allowed here”.

7) What is static?

* It is used for memory management.
* It can be applied to variable, method, inner class and static block.
* It means single copy storage.

**Static variable-**

* A variable which is defined with static keyword called as “static variable.”
* This is also known as class variables.
* It is stored into Metaspace area.
* It is used to refer the common property of all the objects.
* Static variables get loaded into memory at the time of class loading.

**How to access static variable.**

There are two ways to access the static variables.

1. By using class name

2. By using object name.

**Static method-**

* If you define any method with static keyword then it is called as static method.
* It is known as class method.
* It belongs to class rather than object of class.
* It loads into memory before object creation.
* It can access only static data member only.

**Static block-**

* It is group of statements that are executed when class is loading into memory by Classloader.
* It is widely used to create the static resource.
* We cannot access non-static variable into static block.
* It is always executed first.

8) Can we execute a program without main() method?

No, one of the ways was the static block, but it was possible till JDK 1.6. Since JDK 1.7, it is not possible to execute a Java class without the [main method](https://www.javatpoint.com/java-main-method).

9) Why main method is static ?

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.
* If the main() is allowed to be non-static, then while calling the main() method JVM has to instantiate its class.
* While instantiating it has to call the constructor of that class, There will be ambiguity if the constructor of that class takes an argument.
* Static method of a class can be called by using the class name only without creating an object of a class.
* The main() method in Java must be declared public, static and void. If any of these are missing, the Java program will compile but a runtime error will be thrown

10) What is the use of private constructor in singleton class?

* If we declare a constructor by using private access specifier, then we cannot create object of the class.
* Also it restricts the creation of object outside of class.
* Now the singleton class in Java is defined as the class which restricts the instantiation of a class and ensure that only one instance of the class exists in the JVM.
* In order to create a singleton class we could use the concept of the private constructor as it also restricts the instantiation of class in defining class only.
* In singleton class, we use private constructor so that any target class could not instantiate our class directly by calling constructor, however, the object of our singleton class is provided to the target class by calling a static method in which the logic to provide only one object of singleton class is written/defined.

11) Class having constructor, static block & static method then what is flow of execution ?

**a) Constructor:**

* In Java, the [**constructor**](https://www.javatpoint.com/java-constructor) is a special type of method that has the same name as the class name.
* It is generally used to initialize the instance variables of a class.
* It have no return type.

**b) Static block:**

* A **static block** is a block of code with a static keyword. In general, these are used to initialize the static members of a class.
* JVM executes static blocks before the main method at the time loading a class.

**c) Static method:**

* If you define any method with static keyword then it is called as static method.
* It is known as class method.
* It belongs to class rather than object of class.
* It loads into memory before object creation.

**Order of execution-** When you have all the three in one class, the static blocks are executed first, followed by constructors and then the instance methods.

12) Can we call constructor from child class?

* When a class inherits the properties of another class, it is called a **child**class and the class whose properties are inherited is called the **parent**class and the whole process is called **Inheritance**.
* In Inheritance, the child class acquires the properties of the base class or parent class.
* You can call the base class constructor from the child class by using the [**super()**](https://www.geeksforgeeks.org/javascript-super-keyword/) which will execute the constructor of the base class.

13) Difference between static & non-static variable?

| **Sr. No.** | **Key** | **Static** | **Non-Static** |
| --- | --- | --- | --- |
| 1 | Access | A static variable can be accessed by static members as well as non-static member functions. | A non-static variable can not be accessed by static member functions. |
| 2 | Sharing | A static variable acts as a global variable and is shared among all the objects of the class. | A non-static variables are specific to instance object in which they are created. |
| 3 | Memory allocation | Static variables occupies less space and memory allocation happens once. | A non-static variable may occupy more space. Memory allocation may happen at run time. |
| 4 | Keyword | A static variable is declared using static keyword. | A normal variable is not required to have any special keyword. |

13) Can we call non-static method from static method?

* We cannot call non-static member from static member because static variables stored into memory before object creation and non-static variables stored into memory after object creation.

14) Advantages of inner/nested classes in java?

* Nested classes represent a particular type of relationship that is it can access all the members (data members and methods) of the outer class, including private.
* Nested classes are used to develop more readable and maintainable code because it logically group classes and interfaces in one place only.
* Code Optimization: It requires less code to write.

15) What is static is called single copy storage?

* Memory allocation for a static variable happens only once in the class area when the class is loaded in the memory.
* It is also known as a class variable.
* It is common to all the objects of the class. In this, a single copy of a static variable is created and shared among all the objects of the class.