Java static keyword

The **static keyword** in [Java](https://www.javatpoint.com/java-tutorial) is used for memory management mainly. We can apply static keyword with [variables](https://www.javatpoint.com/java-variables), methods, blocks and [nested classes](https://www.javatpoint.com/java-inner-class). The static keyword belongs to the class than an instance of the class.

The static can be:

1. Variable (also known as a class variable)
2. Method (also known as a class method)
3. Block
4. Nested class

## **1) Java static variable**

If you declare any variable as static, it is known as a static variable.

* The static variable can be used to refer to the common property of all objects (which is not unique for each object), for example, the company name of employees, college name of students, etc.
* The static variable gets memory only once in the class area at the time of class loading
* //Java Program to demonstrate the use of an instance variable
* //which get memory each time when we create an object of the class.
* **class** Counter{
* **int** count=0;//will get memory each time when the instance is created
* Counter(){
* count++;//incrementing value
* System.out.println(count);
* }
* **public** **static** **void** main(String args[]){
* //Creating objects
* Counter c1=**new** Counter();
* Counter c2=**new** Counter();
* Counter c3=**new** Counter();
* }
* }

## **2) Java static method**

If you apply static keyword with any method, it is known as static method.

* A static method belongs to the class rather than the object of a class.
* A static method can be invoked without the need for creating an instance of a class.
* A static method can access static data member and can change the value of it.
* The static method can not use non static data member or call non-static method directly.

### **Why is the Java main method static?**

Ans) It is because the object is not required to call a static method. If it were a non-static method, [JVM](https://www.javatpoint.com/jvm-java-virtual-machine) creates an object first then call main() method that will lead the problem of extra memory allocation.

## **Java static block**

* Is used to initialize the static data member.
* It is executed before the main method at the time of classloading.

### **Can we execute a program without main() method?**

Ans) 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).

**Can we access static members if no instance of the class is constructed?**

Ans: Yes, we can access the static members if no instance of class exists because they are not tied to a specific instance. They are shared across all instances of the class.

**Can we apply static keyword with a top-level class?**

Ans: No, static keyword cannot be applied with outer or top-level class but an inner class can be static.

**What is the main use of static keyword in java?**

Ans: The main use of java static keyword is as follows:

* The static keyword can be used when we want to access the data, method, or block of the class without any object creation.
* It can be used to make the programs more memory efficient.

**Can we mark a local variable as static?**

Ans: No, we cannot mark a local variable with a static keyword.

**When does a static variable get memory?**

Ans: When a class is loaded into the memory at runtime, the static variable is created and initialized into the common memory location only once.

**In which part of memory static variables are stored?**

Ans: All static variables are stored in PermGen space of the heap memory.

https://www.scientecheasy.com/2021/10/java-static-interview-questions.html/