

# What is Volatile Variable in Java? When to Use it? Example

## What is a Volatile variable in Java?

the `volatile` variable in Java is a special variable that is used to signal threads, a compiler that the value of this particular variable is going to be updated by multiple threads inside the Java application. By making a variable volatile using the `volatile` keyword in Java, the application programmer ensures that its value should always be read from the **main memory** and the thread should not use the cached value of that variable from their own stack.

With the introduction of the Java memory model from Java 5 onwards along with the introduction of **CountDownLatch**, **CyclicBarrier**, **Semaphore**, and **ConcurrentHashMap**.

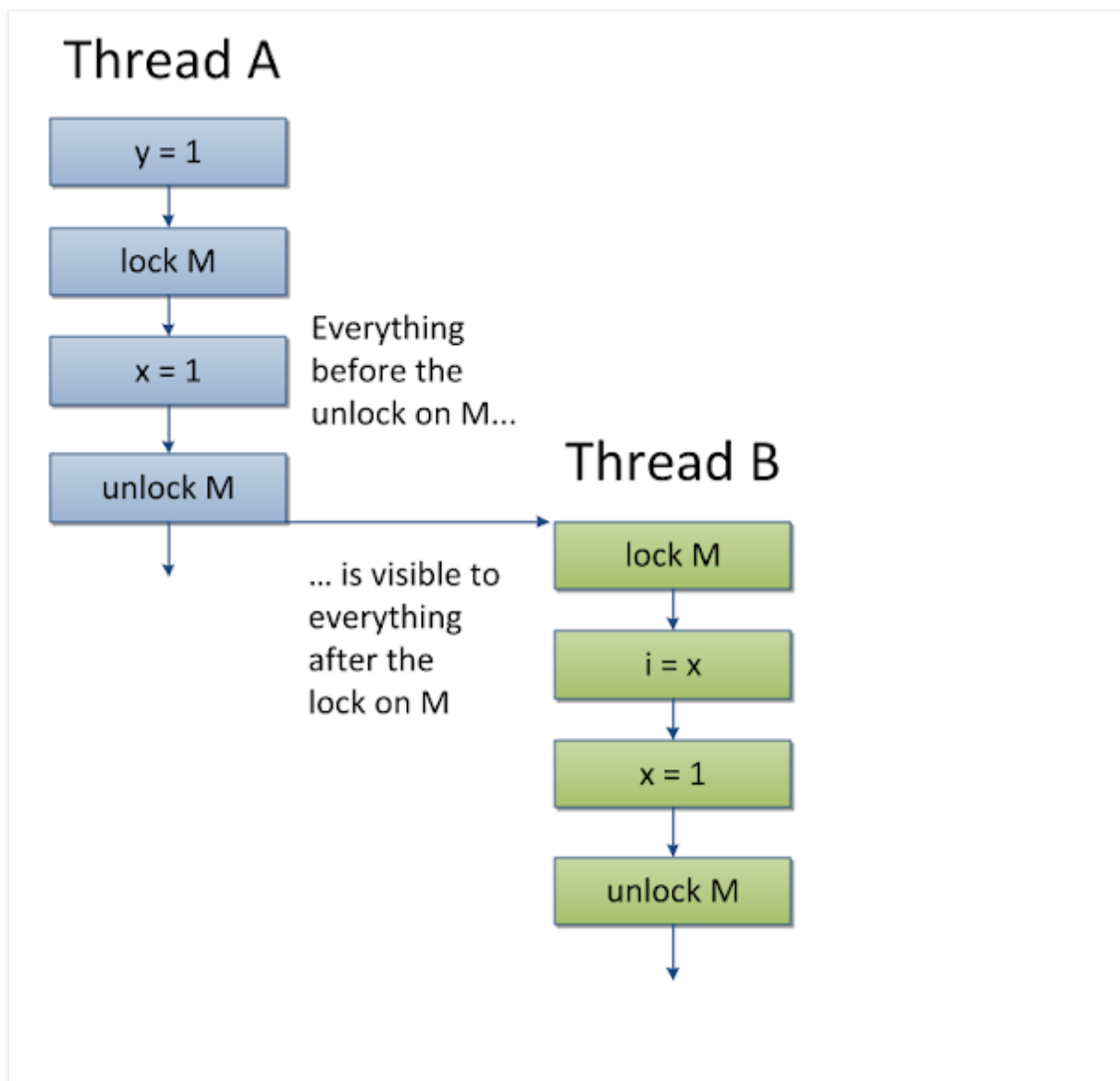
The volatile variable also guarantees "happens-before" relationship, which means not only another thread has visibility of the latest value of the volatile variable but also all the variable is seen by the thread which has updated value of the volatile variable before these threads see it. What is a volatile variable and when to use it is always a **popular Java threading question?**

## **When to use Volatile variable in Java? Answer**

This is the most important thing to learn while learning about the *volatile variable in Java*.

When to use a volatile variable in Java is also a famous multi-threading interview question in Java. here are some of the scenarios where you can use a volatile variable in Java :

1. Any variable which is shared between multiple threads should be made variable, in order to ensure that all thread must see the latest value of the volatile variable.
2. A signal to compiler and JIT to ensure that compiler does not change ordering or volatile variable and moves them out of synchronized context.
3. You want to save the cost of synchronization as volatile variables are less expensive than synchronization. If you want to learn more then you can also check out these [Multithreading and currency courses](#) to learn more about volatile modifiers in Java.



## Important points about the volatile keyword in Java

Since a volatile keyword is used to make any variable volatile in the Java environment, it's good to know more about *What is a volatile keyword*, what is its limitation, and How to use the volatile keyword in Java.

1. The volatile keyword can only be applied to a variable, it can not be applied to class or method. using volatile keywords along with class and method is a compiler error.
2. A volatile is also referred to as a modifier in Java.

That's all on what is a volatile variable in Java and when to use a volatile variable in Java. a volatile variable is an important concept to understand and use. It's also very important in terms of the Java interview point of view.