

Threads

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Summary

Multithreading is a method of having multiple pieces of code running simultaneously. A thread is a program unit that is executed independently of other parts of the program. Each thread will be executed for a short amount of time, and then the next thread will begin, giving the illusion of simultaneity, although only one thread runs at a given time, unless the computer has multiple cores or processors, enabling the threads to actually run in parallel. Multithreading is popular because it is easy to implement, creates better encapsulation, and uses less code.

The Runnable Interface

To create multiple threads, one class should implement the Runnable interface. This interface is designed to be implemented by any class intended to be run by threads. It has one method, run, which will hold code for whatever that thread should be doing. If Runnable is not implemented, the Thread class must be extended instead.

Thread

To actually create a thread, an object of the Runnable type should be constructed, and then a Thread object should be created using the constructor that takes a Runnable object as a parameter. The start method of the Thread class can be used to start the thread, which will begin the run method of the Runnable object. Making multiple threads is as simple as creating more Thread objects and starting them in the same way.

Threads can be paused by using their sleep method. They can also be interrupted with the interrupt method. If it is interrupted, its run method will throw an InterruptedException. It is up to the thread what to do when it is interrupted.