Types of Java Threads (Part 1)

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Learning Objectives in this Part of the Lesson

- Understand how Java threads support concurrency
- Learn how our case study app works
- Know alternative ways of giving code to a thread
- Learn how to pass parameters to a Java thread
- Know the differences between Java platform & virtual threads
- Be aware of how a Java thread starts & runs
- Recognize common thread methods
- Be aware of the different types of Java threads
Types of Java Threads
Types of Java Threads

• There are two types of threads in Java: user threads & daemon threads

See www.geeksforgeeks.org/daemon-thread-java
Types of Java Threads

• There are two types of threads in Java: user threads & daemon threads

• A user thread is a “high-priority” thread

• The Java execution environment waits for user threads to complete their tasks before terminating them
There are two types of threads in Java: user threads & daemon threads

- A user thread is a “high-priority” thread
- A daemon thread is a “low-priority” thread
- Its only purpose is to provide services to user threads
Types of Java Threads

- There are two types of threads in Java: user threads & daemon threads
  - A user thread is a “high-priority” thread
  - A daemon thread is a “low-priority” thread

We’ll employ a running example to demonstrate the differences between user & daemon threads

See [github.com/douglas craigschmidt/LiveLessons/tree/master/UserOrDaemonThread](github.com/douglas craigschmidt/LiveLessons/tree/master/UserOrDaemonThread)
Types of Java Threads

• When a Java program starts it contains a single user thread
Types of Java Threads

- When a Java program starts it contains a single user thread
- Known as the “main thread”

See www.geeksforgeeks.org/main-thread-java
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Types of Java Threads

- User threads & daemon threads differ in what happens when they exit
Types of Java Threads

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• The lifecycle a user thread can outlive the main thread
Types of Java Threads

- User threads & daemon threads differ in what happens when they exit
  - The lifecycle a user thread can outlive the main thread
  - Conversely, all daemon threads terminate automatically when all user threads terminate
Types of Java Threads

- The Java program exits when all user threads have exited & any remaining threads are all daemon threads.
Types of Java Threads

- The Java program exits when all user threads have exited & any remaining threads are all daemon threads
- Unless a thread calls `Runtime.exit()`, which terminates the current Java execution environment by initiating its shutdown sequence

See docs.oracle.com/javase/8/docs/api/java/lang/Runtime.html#exit-int-
Types of Java Threads

- Java uses daemon threads in utility roles in the java.util.concurrent package
- e.g., the ForkJoinPool & Timer classes

See [java/util/Timer.java](java/util/Timer.java) & [java/util/concurrent/ForkJoinPool.java](java/util/concurrent/ForkJoinPool.java)
End of Types of Java Threads (Part 1)