Use Cases

Java Threads Real World Use Cases

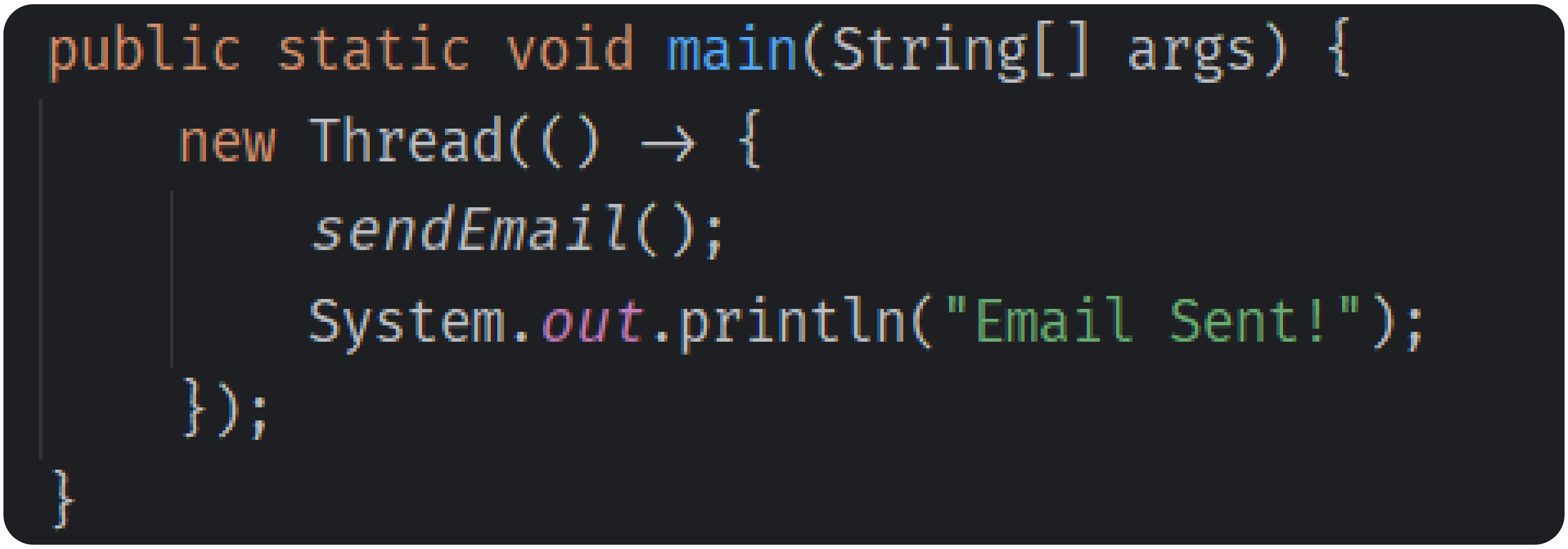
Palmurugan C
@palmuruganc

Java Threads Use Cases

1. Asynchronous Tasks

- Offload time-consuming operations to background threads.

- **Example:** Sending emails or processing large files while the main app remains responsive.



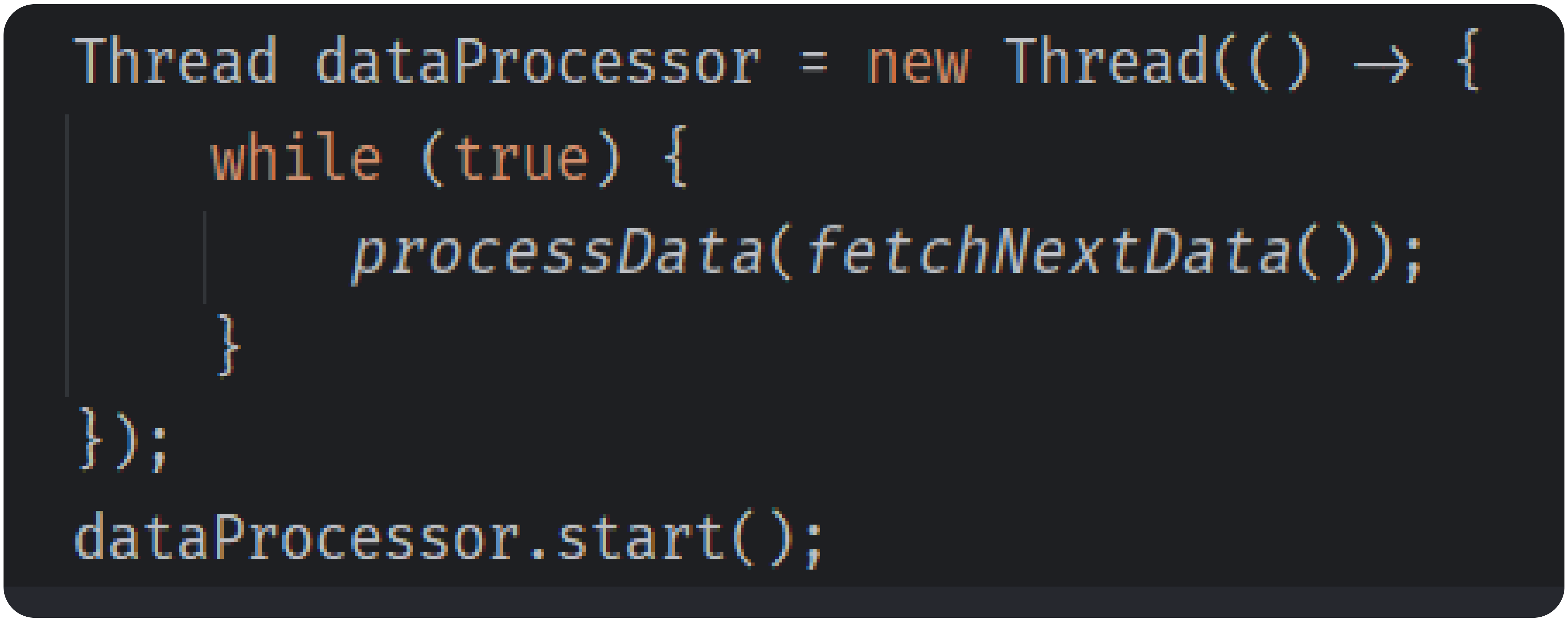
```java
public static void main(String[] args) {
    new Thread(() -> {
        sendEmail();
        System.out.println("Email Sent!");
    });
}
```

Java Threads Use Cases

2. Real-Time Data Processing

- Use threads for continuous data streams.

- **Example:** Processing stock market data or IoT sensor readings in real-time.

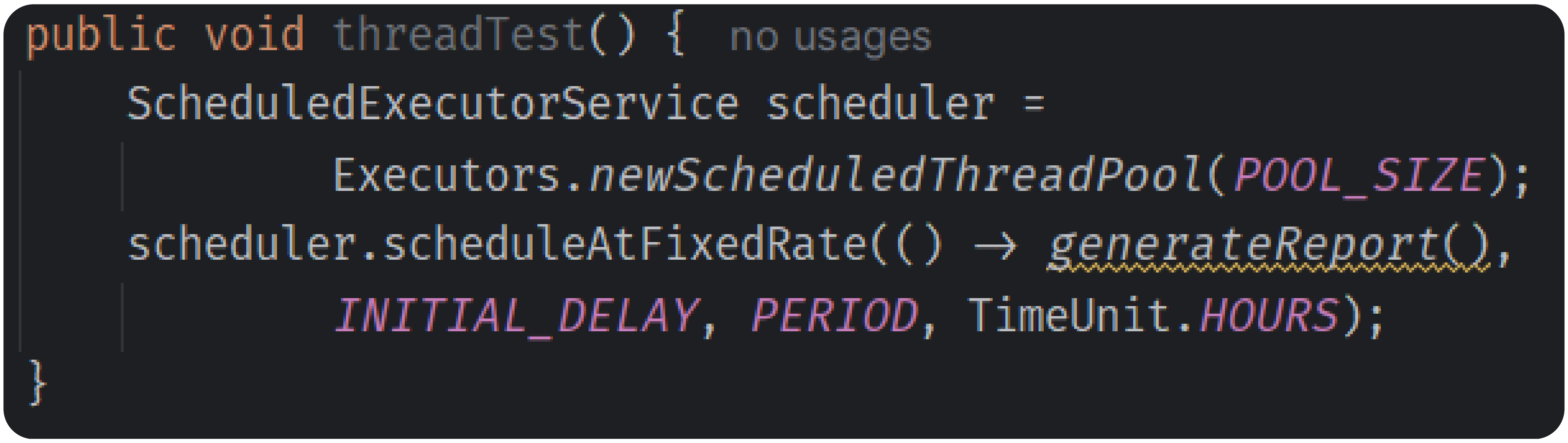


```java
Thread dataProcessor = new Thread(() -> {
    while (true) {
        processData(fetchNextData());
    }
});
dataProcessor.start();
```

Java Threads Use Cases

3. Task Scheduling

- Use threads to schedule periodic tasks.
- **Example:** Generating reports every hour or syncing data.



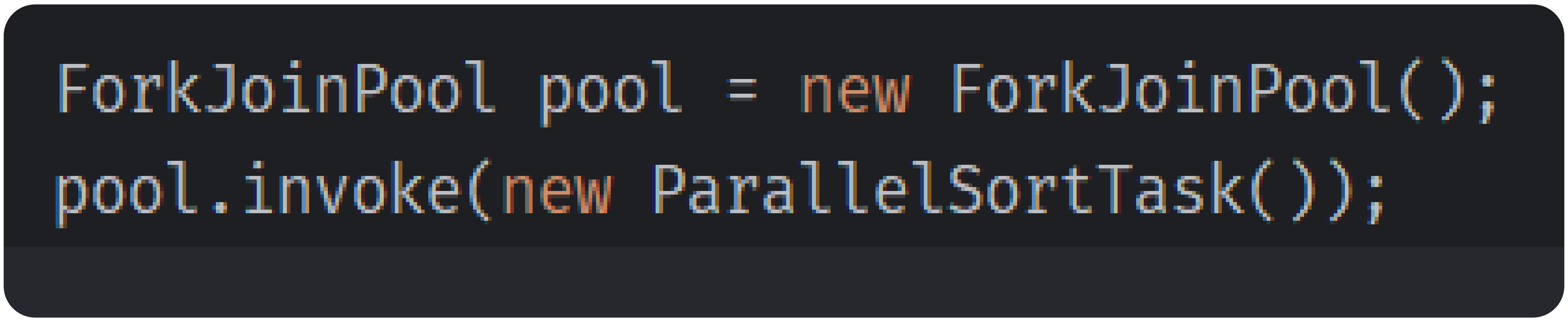
```
public void threadTest() {  no usages
    ScheduledExecutorService scheduler =
            Executors.newScheduledThreadPool(POOL_SIZE);
    scheduler.scheduleAtFixedRate(() → generateReport(),
            INITIAL_DELAY, PERIOD, TimeUnit.HOURS);
}
```

Java Threads Use Cases

4. Parallel Processing

- Divide tasks across threads to leverage multi-core processors.

- **Example:** Sorting large datasets or Import large data in to the system.



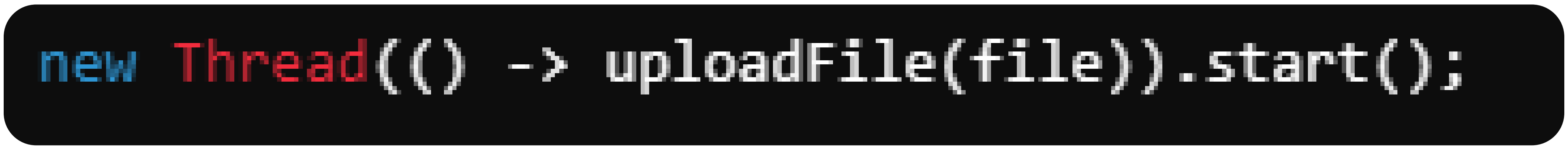
```java
ForkJoinPool pool = new ForkJoinPool();
pool.invoke(new ParallelSortTask());
```

Java Threads Use Cases

5. File Upload/Download

- Enable users to upload or download files without blocking other activities.

- **Example:** Multithreaded file transfer applications.



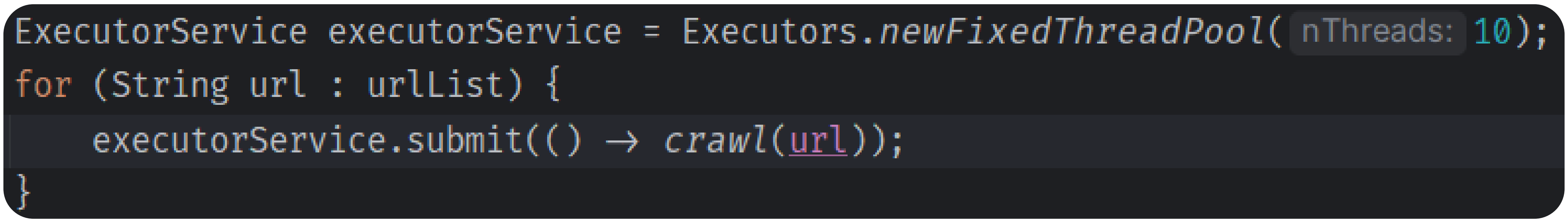
```
new Thread(() -> uploadFile(file)).start();
```

Java Threads Use Cases

6. Web Crawlers

- Use threads to fetch multiple web pages simultaneously.

- **Example:** Crawling and indexing websites efficiently.



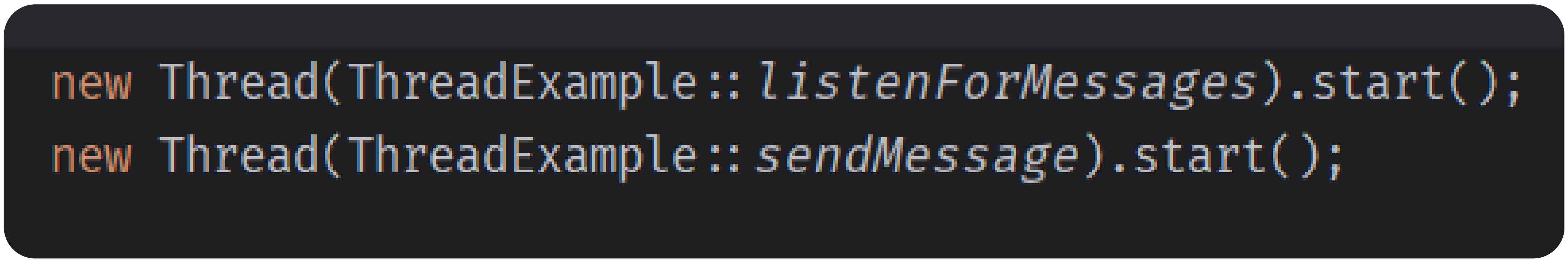
```java
ExecutorService executorService = Executors.newFixedThreadPool( nThreads: 10);
for (String url : urlList) {
    executorService.submit(() -> crawl(url));
}
```

Java Threads Use Cases

7. Chat Applications

- Separate threads for listening to messages and sending them.

- **Example:** Building a real-time chat client/server.



```java
new Thread(ThreadExample::listenForMessages).start();
new Thread(ThreadExample::sendMessage).start();
```

Follow Me

"Stay ahead with cutting-edge technical tips and best practices—follow me on LinkedIn today!"

in @palmuruganc