**Module 8 Portfolio Project**

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CSC450-1: Programming III

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**Performance Issues with Concurrency**

In this code, two threads run concurrently: UpCounter and DownCounter. The CountDownLatch ensures that DownCounter starts only after UpCounter has completed. This coordination avoids potential race conditions and ensures that counting down doesn’t begin until counting up is finished. This approach helps manage CPU resources efficiently by preventing unnecessary waiting or conflicting operations.

**Vulnerabilities Exhibited with Strings**

The code primarily uses strings for output, and since strings are immutable in Java, there are minimal security risks in this context. However, in real-world applications, sanitizing and validating any user input or sensitive data is important to avoid security issues like injection attacks. Here, strings are safely used to display progress.

**Security of Data Types**

The program uses basic data types like int and String. Int is a primitive type that is secure and doesn’t pose security risks by itself. String is also used securely for output purposes. In scenarios involving user data or complex types, additional security measures would be necessary to safeguard against potential threats such as unauthorized data access or manipulation.