

Advanced Java Programming Cheat Sheet

Quick Reference for Advanced Concepts

Generics

- Generic Class: `class Box<T> { T value; }`
- Generic Method: `<T> void method(T param) { ... }`

Streams API

- Stream Creation: `List.stream()`, `Stream.of()`
- Operations: `filter()`, `map()`, `reduce()`

JVM Internals

- Memory Management: Heap, Stack, Garbage Collection
- Class Loading: `ClassLoader`, dynamic loading

Java Security

- Cryptography: `KeyPairGenerator`, `Cipher`
- Secure Communication: `SSL/TLS`, `HTTPS`

Lambda Expressions

- Syntax (parameters) -> expression
- Functional Interface: `interface MyFunc { void apply(); }`

Concurrency Utilities

- Executor Service: `Executors.newFixedThreadPool()`
- Concurrent Collections: `ConcurrentHashMap`, `CopyOnWriteArrayList`

Performance Tuning

- Profiling Tools: `JProfiler`, `VisualVM`
- Optimization Tips: Avoid unnecessary object creation, use `StringBuilder` for string concatenation

Advanced Collections

- Queue: `PriorityQueue`, `ArrayDeque`
- Custom Comparator: `Comparator.comparing()`