

# **Java & Spring Boot Interview Revision – Master Notes**

## **1. Core Java Fundamentals & OOP**

- OOP principles: Encapsulation, Inheritance, Polymorphism, Abstraction
- abstract class vs interface
- final, static, this, super
- Stack vs Heap, String Pool
- Practice: Immutable class, equals & hashCode

## **2. Collections Framework**

- List, Set, Map hierarchy
- ArrayList vs LinkedList
- HashMap internal working
- ConcurrentHashMap
- Practice: Custom key, sorting

## **3. Java 8+ Features**

- Lambda expressions
- Functional interfaces
- Streams API
- Optional best practices
- Practice: grouping, reduce

## **4. Exception Handling, JVM & GC**

- Checked vs unchecked exceptions
- try-with-resources
- JVM architecture
- GC algorithms
- Memory leak scenarios

## **5. Multithreading & Concurrency**

- Thread lifecycle
- synchronized vs Lock
- volatile keyword
- ExecutorService
- Producer-Consumer practice

## **6. Spring Boot – Core Concepts**

- Spring vs Spring Boot
- IoC & Dependency Injection
- Bean lifecycle
- Auto-configuration
- Profiles and configuration

## 7. Spring Boot – Advanced Topics

- AOP concepts
- Filters vs Interceptors
- Transactional behavior
- Exception handling
- Scheduling

## 8. Spring Security, JPA & Testing

- JWT authentication flow
- Security filter chain
- JPA entity lifecycle
- N+1 problem
- Testing annotations

## 9. Coding & Interview Readiness

- LRU Cache
- Thread-safe Singleton
- REST API best practices
- Pagination & sorting
- Logging and monitoring