Java Topics

Basic, Mid-level Topics:

1. OO vs Procedural
2. Basic Console Input Output
3. Class and Object. Fields and Methods
4. Constructors
5. Getters/Setters and why?
6. Inner-Outer Classes
7. Class diagrams (Fully supported by IntelliJ)
8. Types: Reference Types and Primitives
9. Java Casting, Boxing-Unboxing
10. Java Packages, Imports
11. Access modifiers
12. Non-access modifiers:
    a. Final,
    b. Static
    c. Abstract
    d. (The rest are optional)
13. Inheritance (and overriding)
14. Is-A and has-A relationship
15. this and super
16. Java Collections Framework
    a. ArrayList,
    b. LinkedList (List)
    c. HashMap (Map)
    d. HashSet (Set)
17. Interfaces, Implementation (overriding)
18. Java Serialization
19. Java Object Cloning, Deep copy – Shallow Copy
20. Mutability – Immutability. Special case of String types. StringBuilder, StringBuffer
21. Passing arguments by value (which are references) (be careful)
22. Object instantiation, anonymous objects, anonymous classes, anonymous classes implementing interfaces
23. Exception handling
24. Java Generics
25. Basic GUI programming
26. Basic DB, connection, CRUD operations

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27. Special Topics:
    a. Ternary Operator
    b. Java Labeled Statements
    c. Method Chaining
28. Java Enums (?)
29. Java Annotations (?)
30. Java Records (?)
31. Event Driven Programming (Observer pattern) (?)
32. Java Initializers – Object Initialization (?)
33. Simple Java Threading (?)
34. Java Lambda Expressions (?)

Mid-level, Advanced Topics:

35. Advanced DB operations, no-sql databases
36. Threading – Synchronization
37. Reflection
38. Design Patterns
39. Lambda Expressions
40. Built-in Functional Interfaces
41. Stream API
42. Unit Testing
43. Benchmarking (JMH)
44. Frameworks – ORMs (Spring Boot, JPA, Hibernate)