* Basic Syntax and Data Types:

Introduction to Java syntax

Variables and data types (int, float, char, boolean, etc.)

Operators (arithmetic, relational, logical, etc.)

Control statements (if-else, switch)

* Object-Oriented Programming (OOP):

Classes and objects

Inheritance

Polymorphism

Encapsulation

Abstraction

Interfaces and abstract classes

* Exception Handling:

Try-catch blocks

Finally clause

Throw and throws keywords

Custom exceptions

* Collections Framework:

List (ArrayList, LinkedList)

Set (HashSet, TreeSet)

Map (HashMap, TreeMap)

Queue (PriorityQueue, LinkedList)

Iterators and loops

* Concurrency:

Threads and Runnable interface

Thread lifecycle and states

Synchronization

Executor framework

Concurrent collections

Deadlock, starvation, and race conditions

* File I/O and Serialization:

File handling (File class, InputStream, OutputStream, Reader, Writer)

Serialization and Deserialization

BufferedReader and BufferedWriter

ObjectInputStream and ObjectOutputStream

* Java Standard Library (Java API):

Java.lang package (String, Math, Object, System)

Java.util package (Collections, Date, Optional)

Java.io package (file handling and I/O)

Java.nio package (NIO - non-blocking I/O)

* Java Development Tools:

Java Development Kit (JDK)

Integrated Development Environments (IDEs) like IntelliJ IDEA, Eclipse, NetBeans

Build tools (Maven, Gradle)

Debugging tools and techniques

* Java 8 and Beyond Features:

Lambda expressions

Stream API

Functional interfaces

Default and static methods in interfaces

Optional class

Date and Time API (java.time)

* Advanced Topics:

Generics

Annotations

Reflection

Java Memory Model (JMM) and Garbage Collection

Java Virtual Machine (JVM) internals and tuning

Java 9 modules and beyond (modularity system)