

# Course Outline

## Java Bootcamp Training

### Java evolution

- What is Java?
- The Java Platform
- Obtaining Java
- Editions and Versions of Java
- Java History
- The JDK
- Your First Java Program
- Revisiting the JVM
- API documentation

### Object Oriented concepts and implementation in Java

- Object-Oriented Programming
- Objects vs. Primitives
- Creating (Instantiating) Objects
- Stack and Heap
- Using Objects
- Initializing Data
- Creating Object Types
- Building Constructors
- Default Constructor
- Initialization Block

### Static

- Class vs. Object
- Static Variables
- Static Method
- Static Initialization Block
- "this" Keyword
- Scope

- Garbage Collection (GC)
- Java Memory Leaks

## **Packaging**

- Packages
- Class path
- Java Archive (JAR)

## **Conventions & Primitives**

- Coding standards
- Valid Identifiers
- Comments
- Primitive Data Types
- Primitive Literals
- Primitive Conversion
- Big Numbers

## **Java conditions and loops**

- Enums
- Conditionals
- Operators
- Loops
- Break, Continue, and Labels

## **Strings**

- String Objects
- String Operations and Operators
- Immutable Strings
- Passing by Value

## **Encapsulation & Data Hiding**

- Encapsulation & Data Hiding
- Accessors/Mutators or Getters/Setters

- Access Modifiers
- Encapsulation/Data Hiding Resources

## Inheritance

- Chaining Constructors
- Overloading Methods
- Overriding Methods and Revisiting the Super Reference
- The Three Faces of Final

## Polymorphism

- Polymorphism
- Benefits of Polymorphism
- Object Type Casting
- The Object Class

## Abstract Classes and Interfaces

- Abstract Classes
- Interfaces
- Revisiting Overriding Methods: Covariant Returns

## Exception Handling

- Throwable
- Catching Exceptions
- Finally block
- The Exception Object
- Runtime vs. Checked Exceptions
- Creating Exceptions

## Arrays

- Arrays
- For-Each
- Polymorphism Revisited
- Multi-Dimensional Arrays

- Sorting and Searching Arrays
- Common Array Mistakes

## **Collections**

- When arrays are not enough
- Collections
- The Collection Interface
- Iterator
- Lists
- Sets
- Maps
- HashMap

## **JDBC**

- Why JDBC?
- Driver Manager
- Connections
- Statements
- Inserting Rows
- Updating Rows
- Deleting Rows
- Other Modifying Statements
- Result Set
- Mapping Between SQL & Java Data Types
- PreparedStatement
- SQLException

## **Web programming**

- Introduction to server-side programming
- Introduction to HTTP.
- Creating basic HTML pages
- Building a “hello world” Servlet and JSP

## **Git & GitHub**

- Introduction to GIT
- Basic commands in GIT
- Working with repositories on GitHub (Branches, Merge, Conflicts)
- Advanced commands (Pull Request, Fork, Rebase, Stach, Clean, Cherry-pick, etc.)

## **Java-Spring**

- Introduction to Spring boot
- Spring Data
- API Building an API
- Spring Security
- Deployment of an application

## **Java 8**

- Streams
- Lambdas
- Optionals

## **Requerido:**

- Unit test
- Mockito

## **Deseable:**

- Manejo de códigos HTML
- Creación y manejo de servicios Rest
- Diseño y manejo APIs
- Desarrollo de APIs web
- Lombok
- Manejo de errores de APIs
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