TEMARIO ACADEMIA BACKEND DATA 2026

Java. Spring, Rest y Data con Gen IA Copilot

MÓDULO 1 : Java básico

- Java class structure
- Package declarations and imports
- Creating objects
- Primitive types vs. reference types
- Variable declaration, initialization, and scope
- Garbage collection
- Java operators (arithmetic, unary, assignment, relational, logical)
- Control flow statements (if-then, if-then-else, switch)
- Iteration statements (while, do-while, for)
- Advanced flow control (break, continue, labels)
- String manipulation
- Access modifiers

MÓDULO 2: Herencia y polimorfismo

- StringBuilder and StringBuffer
- Java arrays and ArrayList
- Wrapper classes and autoboxing
- Working with dates and times
- Method design and overloading
- Static methods and fields
- Passing data among methods
- Constructors
- Encapsulation and immutability
- Inheritance
- Abstract classes

- Interfaces Polymorphism
- Casting objects
- Coding equals(), hashCode(), and toString()
- Using instanceof

MÓDULO 3: Excepciones, flujos y patrones de diseño

- Exception types
- Try-catch-finally blocks
- Throwing and handling exceptions
- Using multi-catch and try-with-resources
- Creating custom exceptions
- Creating nested classes (inner classes, anonymous classes, static nested classes)
- Working with Enums
- Designing interfaces and functional interfaces
- Understanding design principles (JavaBeans, is-a and has-a relationships)
- Working with design patterns (Singleton, Immutable Objects, Builder, Factory)
- Dependency Injection

MÓDULO 4: Java Avanzado (Collecciones, hilos, lambdas)

- Advanced use of collections
- Working with generics (classes, interfaces, methods)
- Using Lists, Sets, Maps, and Queues
- Comparing collection types
- Comparator vs. Comparable
- Advanced use of lambdas
- Working with built-in functional interfaces
- Using Optional
- Working with Streams (creating, terminal operations, intermediate operations)
- Working with primitive streams
- Advanced stream pipeline concepts
- Introducing threads and concurrency
- Creating and managing threads
- Using ExecutorService

MÓDULO 5: Framework BBVA 1

- Junit
- Working with assertions
- Mockito
- Spring Core
- Spring MVC
- Spring Boot
- Spring Data JPA

MÓDULO 6: Framework BBVA 2

- Spring Batch
- Git (Command Line and GUI Tool)
- Maven
- Relational Database SQL (mysql, sqlServer, postgress,etc)
- MongoDB NoSQL Documentos
- Understanding HTTP/HTTPS protocols
- URIS and Resources
- HTTP verbs (POST, PUT, GET, DELETE, PATCH)
- Response codes
- REST vs SOAP: differences and advantages
- Creating RESTful services with Java

Módulo 7: Gen IA Copilot

- ¿Qué es la IA?
    a. Término IA.
    b. Áreas de aplicación de la IA: visión, lenguaje, procesamiento de señales, toma de decisiones
    c. Ética en la IA. (Ejemplos)
- Aplicaciones de IA Generativa (copilot)
    a. ¿Qué es copilot?

      b. Requisitos para el uso de copilot

      c. Instalando copilot

      d. Instalación de github

      e. Configuración de entorno

- Casos de uso aplicativo

      a. Sugerencia de código durante la escritura

      b. Generación de clases POJO (DTO)

      c. Inyección de dependencias y anotaciones en Springboot

      d. Generación de instancias mock al crear test cases de clases en los proyectos

      e. Documentación de fragmentos de código

      f. Evaluación y descripción de fragmentos de código.