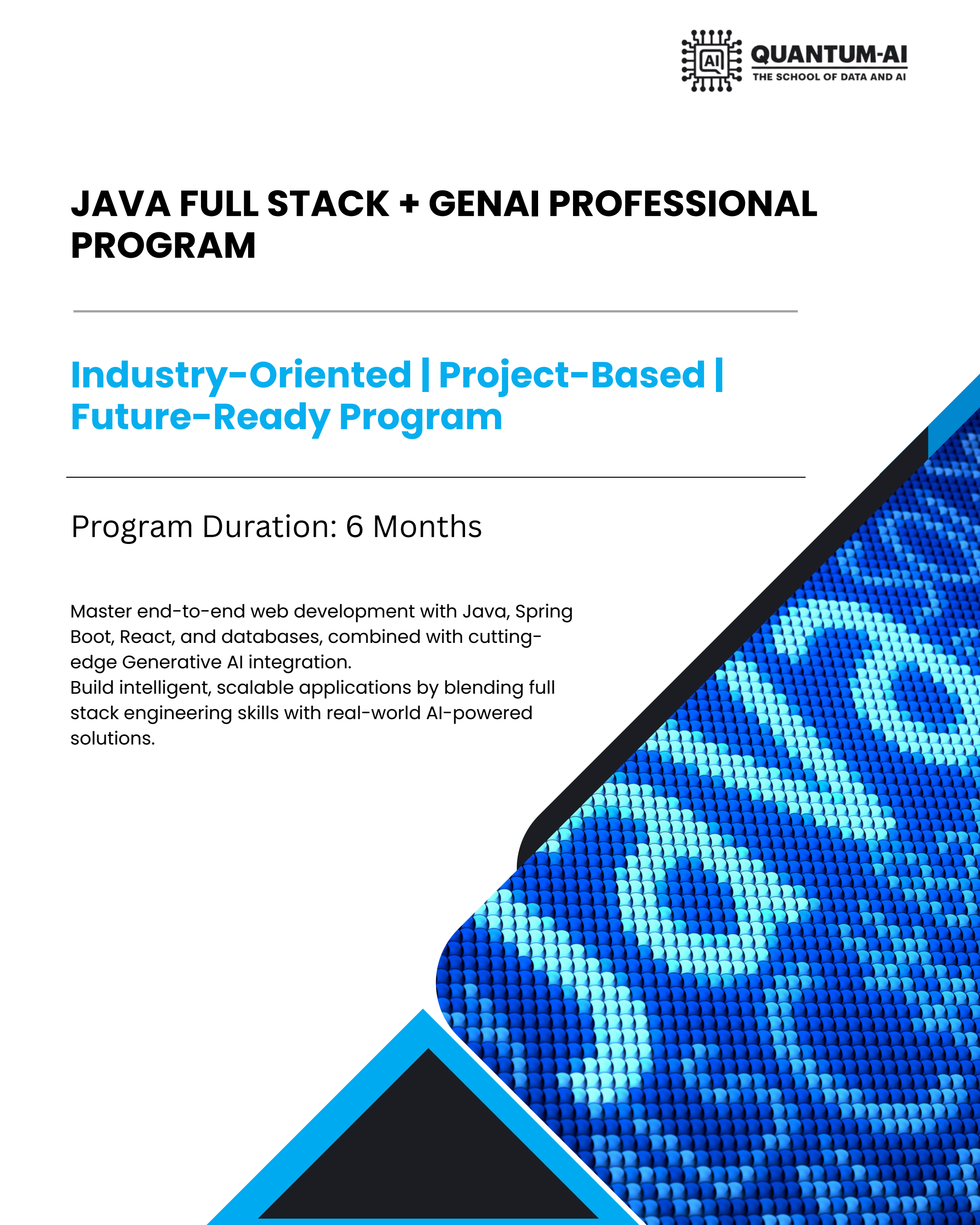
QUANTUM-AI
THE SCHOOL OF DATA AND AI

JAVA FULL STACK + GENAI PROFESSIONAL PROGRAM

Industry-Oriented | Project-Based | Future-Ready Program

Program Duration: 6 Months

Master end-to-end web development with Java, Spring Boot, React, and databases, combined with cutting-edge Generative AI integration.
Build intelligent, scalable applications by blending full stack engineering skills with real-world AI-powered solutions.



WHY CHOOSE QUANTUM-AI

QUANTUM-AI
THE SCHOOL OF DATA AND AI

QuantumAI delivers a practical,job-focused curriculum with hands-on projects using real datasets.Led by industry experts, the program provides exposure to modern tools and cloud technologies,making it suitable for both beginners and professionals looking to grow or transition into Java full stack + GENAI.

COURSE OVERVIEW

This course provides comprehensive training in Java Full Stack development, covering Core Java, Spring Boot, REST APIs, databases, and modern frontend technologies like React.
You will learn to design, develop, and deploy scalable, end-to-end web applications using industry best practices.
The program also introduces Generative AI concepts and teaches how to integrate AI APIs into real-world applications.
Hands-on projects and case studies help you build intelligent, production-ready solutions.
By the end of the course, you will be equipped with both strong full stack development skills and practical AI integration expertise.



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WHAT YOU WILL LEARN

Module 1: Core Java

1.1 Java Fundamentals

- Introduction to Java
- Installation & Setup
- Programming Elements
- First Java Application
- Data Types
- Operators
- Control Statements
- Access Modifiers
- Wrapper Classes
- Packages

1.2 Object-Oriented Programming (OOPS)

- OOPS Concepts
- Object Casting
- Inner Classes
- Reflection API

1.3 Advanced Core Java

- Exception Handling
- Multi-Threading
- Garbage Collection
- Java I/O
- File Handling
- String Handling
- Arrays
- Collection Framework
- Map Interface
- JDK 8 Features
- JDK 10 & 11 Features

Module 2: Advanced Java

2.1 JDBC (Java Database Connectivity)

- Introduction to JDBC
- Establishing Database Connection
- Statement
- PreparedStatement
- CallableStatement
- ResultSet Interface & Metadata
- Batch Updates
- Transaction Management

2.2 Servlets

- Introduction to Servlets
- Developing & Deploying Servlet Applications
- ServletRequest & ServletResponse
- ServletConfig & ServletContext
- HttpServlet
- HttpServletRequest & HttpServletResponse
- HTML to Servlet Communication
- Servlet to Database Communication
- Request Dispatching & Redirecting
- Attributes
- State & Session Management
- URL Rewriting
- Hidden Form Fields
- Cookies
- HttpSession
- Filters & Listeners
- Annotations in Servlet Programming
- Authentication & Authorization (Security)
- Error Handling & Welcome File Configurati

2.3 JSP (Java Server Pages)

- Introduction & JSP Tags
- Scripting Elements & Implicit Objects
- Directives
- Standard Actions
- Java Beans in JSP
- Expression Language (EL) & JSTL
- Custom Tags
- MVC Architecture
- Deploying Project using MVC

Module 3: Database – Oracle

- Database Fundamentals
- RDBMS Concepts
- Oracle Introduction
- DDL, DML, DRL
- Functions
- Integrity Constraints
- Joins
- Subqueries
- Transactions
- Views
- Indexes
- PL/SQL
- Error Handling
- Procedures
- Functions
- Triggers

Module 4: Frontend Development

4.1 HTML & HTML5

- Web & Internet Basics
- Introduction to HTML
- Formatting Tags
- Images
- Anchor Tag
- Tables
- Lists
- Frames & Div
- Forms & Form Controls
- HTML5 Features
- Canvas & Graphics (2D & 3D)
- SVG
- Multimedia
- Geolocation

4.2 CSS & CSS3

- Introduction to CSS
- CSS Selectors
- CSS Attributes
- Lists & Tables Styling
- Advanced CSS
- Borders, Text & Backgrounds
- CSS3 2D & 3D Transforms
- CSS3 Transitions & Animations
- Multiple Columns & UI Properties

4.3 JavaScript

- Introduction to Scripting
- History of JavaScript
- Operators
- Conditional Statements
- Looping Statements
- Arrays
- Functions
- JavaScript Objects
- Date, Time & Math
- Error & Exception Handling
- JavaScript OOP
- HTML DOM
- Events
- Regular Expressions
- Window & History Objects
- Cookies
- Web Hosting

4.4 Bootstrap

- Responsive Design
- Grid System
- Components & Utilities

Module 5: ReactJS & Redux

5.1 ReactJS

- React Introduction
- Features & Syntax
- Components, Props & State
- Styling Components
- Debugging
- Component Lifecycle
- React Hooks
- HTTP Requests / AJAX
- Routing (V5 & V6)
- Forms & Validation
- Deploying React Applications
- Material UI
- Error Handling
- React 18 Features
- Unit Testing
- Webpack

- Server-Side Rendering
- Cloud Deployment
- 5.2 React Redux
- State Management
- Redux Architecture
- Integration with React

5.2 React Redux

- State Management
- Redux Architecture
- Integration with React

Module 6: Spring Boot & Microservices

- 6.1 Spring Boot
- Introduction
- Building Spring Boot Applications
- REST APIs with In-Memory Database
- REST APIs with Relational Database
- JPA Repository
- Actuator
- Custom Logging
- Profiles
- Auto Configuration
- Thymeleaf
- Spring Web Integration
- Spring Boot Security

6.2 Microservices Architecture

- Microservices Concepts
- Design Considerations
- Spring Cloud
- Spring Cloud Config
- Netflix OSS
- Fault Tolerance
- API Gateway
- Messaging Queue (Cloud Bus)
- OAuth2
- Swagger API
- Cloud Hosting

Module 7: DevOps & Testing Tools

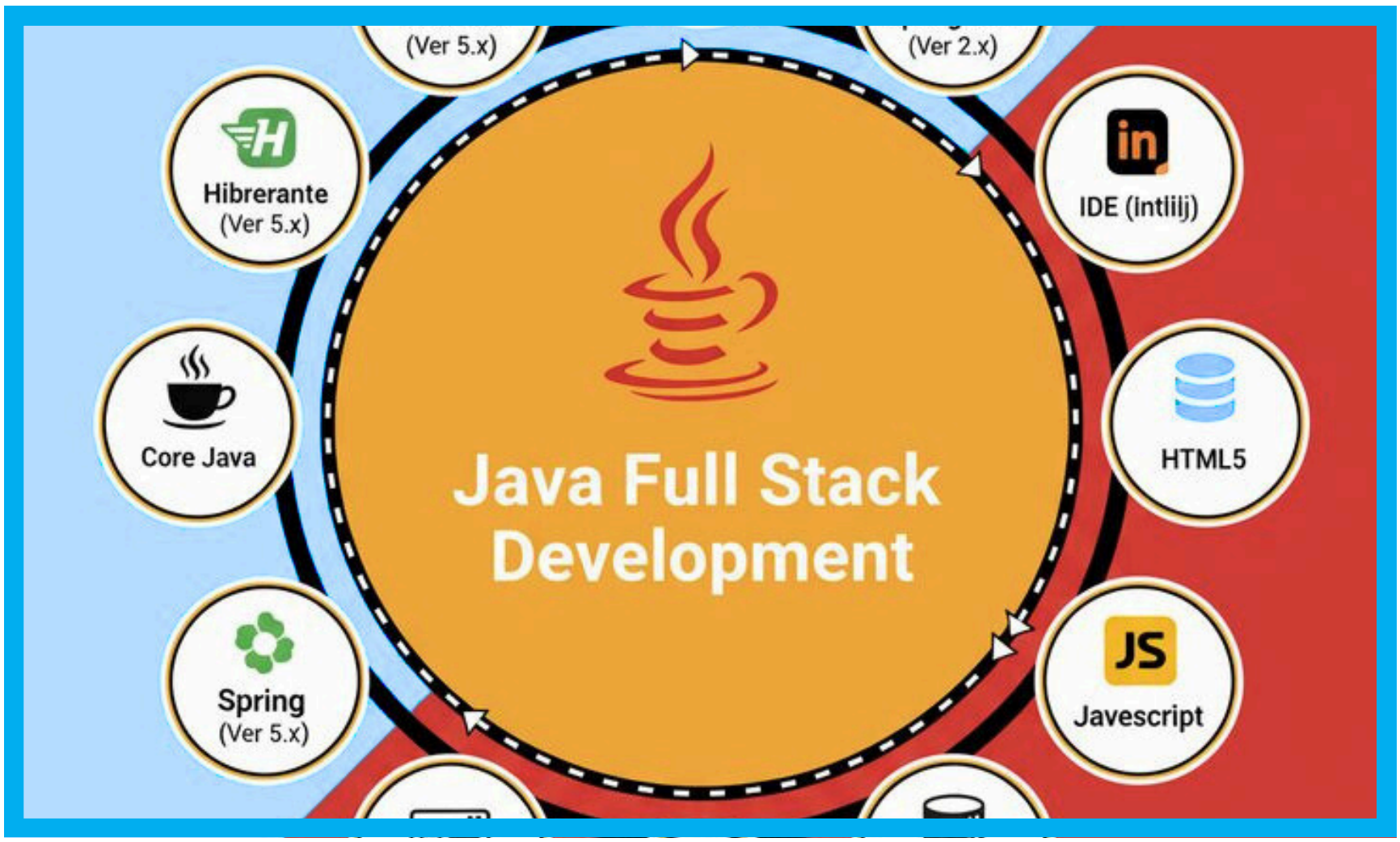
- Git
- GitHub
- Jenkins
- Docker
- Datadog
- JUnit
- Mockito
- JMeter
- Maven

- Jira
- SonarQube
- SLF4J
- ELK Stack
- Heroku
- Chef



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Start your journey toward becoming a complete Full Stack Developer and build a career that stands ahead in today's competitive IT world.



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