QUANTUM-AI
THE SCHOOL OF DATA AND AI

ADVANCE JAVA

INDUSTRY-ORIENTED | PROJECT-BASED | CAREER-FOCUSED

Welcome to Advance Java

The Advanced Java course focuses on developing dynamic, database-driven web applications using modern Java technologies. Students learn server-side programming with Java Servlet and web page development using JavaServer Pages. The course also covers database connectivity through JDBC and introduces enterprise frameworks like Spring Framework and Hibernate ORM. Through practical training and real-time projects, learners gain hands-on experience to build scalable web applications and prepare for professional roles as Java developers in the software industry.



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WHY QUANTUMAI?

Quantum AI combines advanced computing and artificial intelligence to solve complex problems faster and smarter. We focus on future-ready skills, practical learning, and real-world applications in Data, AI, and emerging technologies. Our industry-oriented training prepares students to lead innovation and build successful careers in tomorrow's technology-driven world.

COURSE OVERVIEW

The Advanced Java course is designed to provide in-depth knowledge of building dynamic and scalable web applications using modern Java technologies. Students learn database connectivity with JDBC and server-side programming using Java Servlet and JavaServer Pages. The course also introduces enterprise frameworks such as Spring Framework and Hibernate ORM to simplify application development and database management. With hands-on practice, real-time examples, and project work, learners gain practical experience in developing secure, efficient, and industry-ready Java web applications. This course helps students strengthen their backend development skills and prepares them for careers as professional Java developers in the IT industry.



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WHAT YOU WILL LEARN

JDBC (Java Database Connectivity)

- Introduction to JDBC
- JDBC Architecture
- Types of Drivers
- Establishing Database Connection
- Statement, PreparedStatement, CallableStatement
- ResultSet handling
- CRUD operations (Create, Read, Update, Delete)
- Transaction Management

Servlets

- Introduction to Java Servlet
- Servlet Architecture & Life Cycle
- Servlet API
- Writing First Servlet Program
- Handling Client Requests & Responses
- ServletConfig and ServletContext
- Session Tracking (Cookies, URL Rewriting, HttpSession)
- RequestDispatcher

JSP (JavaServer Pages)

- Introduction to JavaServer Pages
- JSP Architecture & Life Cycle
- JSP Elements
  - Scriptlet
  - Expression
  - Declaration
- JSP Directives
- JSP Standard Actions
- Implicit Objects
- Error Handling in JSP

JSTL (JSP Standard Tag Library)

- Introduction to JSTL
- Core Tags
- Formatting Tags
- SQL Tags
- XML Tags

Hibernate Framework

- Introduction to Hibernate ORM
- ORM Concepts
- Hibernate Architecture
- Configuration & Mapping
- CRUD Operations using Hibernate
- HQL (Hibernate Query Language)
- Hibernate Annotations

Spring Framework

- Introduction to Spring Framework
- Dependency Injection (DI)
- Inversion of Control (IoC)
- Spring Bean Configuration
- Spring MVC Architecture

Web Services

- Introduction to Web Services
- RESTful Web Services
- SOAP Web Services
- JSON and XML Data Formats

Mini Project

- Developing a Java Web Application using:
  - Servlets
  - JSP
  - Database (MySQL / Oracle)

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BUILD SCALABLE APPLICATIONS

Learn Advance Java with QuantumAI

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