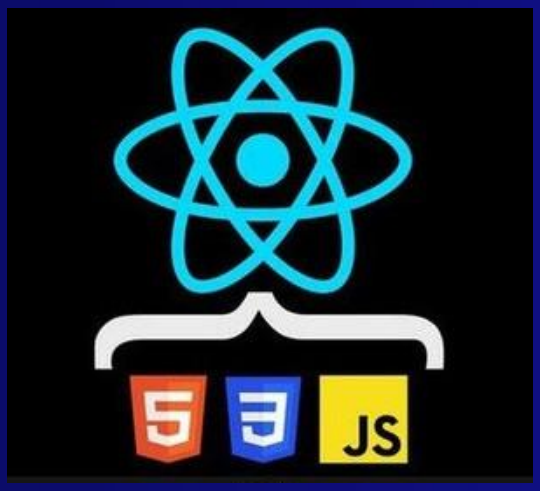
Learn. Build. Grow.

SAI TECH ACADEMY

F ULL STACK JAVA DEVELOPMENT WITH ARTIFICIAL INTELLIGENCE



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Course Overview

This comprehensive training program is designed to transform beginners into job-readyJava FullStack Developers. Learn front-end development, Java programming, Spring Boot, databases, REST APIs, Microservices, version control, cloud deployment, and real-time project implementation through hands-on practical sessions.

Course Objectives

By the end ofthiscourse,participantswillbeableto:

- Master Java programming fundamentals and advanced concepts.
- Build responsive websites using React.js.
- Develop enterprise applications using Spring Framework and Spring Boot .
- Design and consume RESTful APIs.
- Work with MySQL and MongoDB databases.
- Develop secure applications using Spring Security and JWT.
- Build scalable Microservices.
- Use Git & GitHub for version control.
- Deploy applications using Docker, Jenkins,
- Build real-time industry projects.
- Prepare for technical interviews.

Course Syllabus

Module 1: Programming Fundamentals

- Introduction to Java
- Java Installation and IDE Setup
- Variables and Data Types
- Operators
- Input and Output
- Conditional Statements
- Loops (For & While)
- Methods
- Arrays
- Coding Best Practices

Module2: Core Java

- Classes and Objects
- Constructors
- OOP Principles
- Encapsulation
- Inheritance
- Polymorphism
- Abstraction
- Interfaces
- Exception Handling
- Collections Framework
- Multithreading
- File Handling

Module 3: Java 8 Features

- Lambda Expressions
- Functional Interfaces
- Stream API
- Optional Class
- Method References
- Default & Static Methods
- Date & Time API

Module 4: Advanced Java

- JDBC
- Database Connectivity
- Prepared Statements
- Batch Processing
- Servlets
- JSP
- MVC Architecture
- Session Management
- Filters
- Listeners

Module 7: JavaScript

- Variables
- Data Types
- Operators
- Functions
- Arrays
- Objects
- Scope
- Hoisting
- Closures
- DOM Manipulation
- Events
- Form Validation
- ES6+ Features
- JSON
- AJAX
- Fetch API
- Promises
- Async & Await

Module 8: React.js

- **Introduction to React**
- JSX
- Components
- Props
- State
- Event Handling
- Forms
- Hooks
- Context API
- React Router
- Redux Toolkit
- Custom Hooks
- API Integration
- Lazy Loading
- React Query (Introduction)
- Performance Optimization

Module 9: Database (SQL & MongoDB)

- Database Fundamentals
- MySQL Installation
- Database Design
- SUB - LANGUAGES OF SQL
- Clauses
- Joins
- Subqueries
- Constraints
- Indexes
- Stored Procedures
- MongoDB Basics
- CRUD Operations

Module 10: Spring Framework

- Spring Core
- Dependency Injection
- Bean Lifecycle
- Spring Configuration
- Spring MVC
- Validation
- Spring Architecture

Module 11: Spring Boot

- Spring Boot Introduction
- Spring Boot Project Setup
- Spring Boot Starter
- REST API Development
- Spring Data JPA
- CRUD Operations
- Exception Handling
- Validation
- Configuration Properties

Module 12: Hibernate & JPA

- ORM Concepts
- Hibernate Architecture
- Entity Mapping
- CRUD Operations
- Relationships
- Fetch Types
- Cascading
- JPQL
- Criteria API

Module 13: Spring Security

- Authentication
- Authorization
- User Management
- Password Encryption
- JWT Authentication
- Role-Based Security
- OAuth Overview
- Security Best Practices

Module 14: REST API Development

- Authentication
- Authorization
- User Management
- Password Encryption
- JWT Authentication
- Role-Based Security
- OAuth Overview
- Security Best Practices

Module 15: Microservices

- Introduction to Microservices
- Service Communication
- REST Communication
- API Gateway
- Service Discovery Basics
- Configuration Server
- Fault Tolerance Basics
- Load Balancing

Module 16: Spring AI

- Introduction to AI Integration
- LLM Concepts
- Prompt Engineering Basics
- Prompt Templates
- ChatClient
- AI API Integration
- RAG Overview
- Vector Database Introduction

Module 17: Testing

- Unit Testing
- JUnit 5
- Mockito
- Integration Testing
- Test containers (Basics)
- Debugging
- Logging
- Performance Optimization

Module 18: Git & GitHub

- Version Control
- Git Installation
- Repository Creation
- Git Commands
- Commit
- Push
- Branching
- Merging
- Pull Requests
- GitHub Collaboration

Module 19: DevOps & Deployment

- Maven
- Docker
- Docker Compose
- Jenkins CI/CD
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AI Foundations

Module 1: AI Foundations

- AI Fundamentals
- AI vs ML vs DL
- Generative AI
- AI Ethics

Module 2: LLMs & AI Agents

- LLM Basics
- Tokens & Prompts
- Popular LLMs
- Prompt Engineering
- AI Agents, Memory & Tool Calling

Module 3: AI Integration with Java

- Java AI Ecosystem
- REST APIs & LLM APIs
- JSON & API Keys
- Spring AI & LangChain4j

Module 4: MCP & AI Development

- MCP (Model Context Protocol) Overview
- Developing MCP Servers
- Integrating MCP with AI Applications
- Deploying MCP Servers
- OpenAI, Gemini & Ollama Integration

Practical Learning

- Hands-on coding exercises, lab sessions, and real-world enterprise development scenarios throughout the course.
- Build multiple mini projects to strengthen Java programming and problem-solving skills.
- Develop enterprise applications using Java, Spring Boot, React.js, MySQL, MongoDB, Hibernate, Spring Security, REST APIs, Docker, Jenkins, and AWS.
- Work on industry-standard development practices using Git, CI/CD, testing, and deployment pipelines.

THANK YOU

Thank you for your interestinourJavaFullStackDeveloper Training Program.

We are dedicated to empowering aspiring software professionals with the knowledge, skills, and practical experience required to excel in today's technology-driven software development industry.

For course inquiries, admissions, and support, please contact us:

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We look forward to helping you achieve your career goals.

Sai Tech Academy
Building Future Java Full Stack Developers

**********BEST OF LUCK**********