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COIMBATORE

FULL STACK JAVA COURSE

SYLLABUS

www.appincoimbatore.com | +91 77080 40308 | +91 90256 20238

Why Choose Appin Technology for Learning Java?

Java continues to be one of the most powerful and in-demand programming languages across industries. At Appin Technology, Coimbatore, we go beyond teaching syntax—we equip you with full-stack Java development skills that make you job-ready. Our career-focused training covers everything from Core Java to advanced modules like Spring Boot, Hibernate, React, DevOps, Testing, Deployment, and AI integration, ensuring you're ready to build real-world applications and succeed in interviews.

Learn from the No 1 Java Training Institute in Coimbatore with 100% Placement Support.

Course Highlights

- 100% Practical Training
- Industry-Trained Mentors
- Beginner to Advanced Level
- Real-Time Projects
- Course Completion, Project Experience and Internship Certificate
- Internship & Placement Support
- Classroom + Practice Lab Environment
- 10000+ Students Trained Successfully
- 50+ Active Hiring Partners

Who Can Join?

- College Students
- Job Seekers
- Non-IT to IT Career Switchers

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Full Stack Java Course Syllabus 2hrs

Introduction to Full Stack Development

- What is Full Stack Development?
- Frontend vs Backend vs Database
- Overview of Technologies (Java, HTML/CSS, JS, SQL, Spring, etc.)
- Development Lifecycle & Version Control (Git/GitHub)

Backend Development with Java

- OOPs Concepts (Inheritance, Polymorphism, Encapsulation, Abstraction)
- Exception Handling
- Collections Framework (List, Set, Map, etc.)
- Generics & Wrapper Classes
- Multithreading & Concurrency
- File Handling
- Java 8 Features (Streams, Lambdas, Functional Interfaces)

JDBC (Java Database Connectivity)

- Connecting Java App with Database
- CRUD Operations
- PreparedStatements
- Transaction Management
- Connection Pooling

Servlets & JSP

- HTTP Protocol (GET, POST)
- Servlet Lifecycle & Deployment
- Request Dispatching & Form Handling
- JSP Lifecycle
- JSTL & Expression Language (EL)
- Sessions, Cookies, and Hidden Fields

Spring Framework (Core)

- Introduction to Spring
- Dependency Injection (Constructor/Setter)
- Spring Bean Lifecycle
- Autowiring
- Spring Profiles
- Annotation-based Config vs XML Config

Spring MVC

- DispatcherServlet
- Controllers & View Resolvers
- ModelAndView
- Form Handling
- Exception Handling (ControllerAdvice)

Spring Boot

- Creating REST APIs
- Spring Initializer
- Spring Boot Starter Dependencies
- Configuration (application.properties/yaml)
- Swagger/OpenAPI Integration
- Validation using @Valid, @NotNull, etc.
- Global Exception Handling (@ControllerAdvice)
- Logging (SLF4J, Logback)

Spring Data JPA & Hibernate

- ORM Concepts
- Entity Mapping (@Entity, @Table, etc.)
- Relationships (@OneToMany, @ManyToOne, @ManyToMany)
- Repository Layer (JpaRepository, CrudRepository)
- JPQL and Native Queries
- DTO Pattern
- Pagination and Sorting
- Projections

Spring Security

- Authentication and Authorization
- In-memory & JDBC Authentication
- Securing REST APIs
- JWT Token-based Authentication
- CORS Configuration
- Method-level Security (@PreAuthorize)

Database

SQL (PostgreSQL / MySQL)

CRUD Operations

- SELECT, INSERT, UPDATE, DELETE

Joins, Subqueries

- INNER JOIN, LEFT JOIN, RIGHT JOIN
- Nested queries and aliasing

DDL, DML

- DDL: CREATE, ALTER, DROP
- DML: INSERT, UPDATE, DELETE

MongoDB Basics

- MongoDB Architecture (Database > Collection > Document)
- Data Representation using BSON / JSON
- Mongo Shell vs MongoDB Compass (GUI)

Core CRUD Operations

- insertOne(), insertMany()
- find(), findOne() with filter, projection, sort
- updateOne(), updateMany() with operators like $set, $inc
- deleteOne(), deleteMany()

Querying Features:

- Filtering with comparison operators ($eq, $gt, $lt, $in)
- Logical operators ($and, $or, $not)
- Sorting, Pagination using limit() and skip()
- Indexing: Creating and using indexes

MongoDB in Java

Connecting MongoDB with Java

Using MongoDB Java Driver

- MongoClient, MongoDatabase, MongoCollection
- Inserting and retrieving documents using POJOs

Using Spring Data MongoDB

- @Document, @Id, @Field annotations
- MongoRepository for CRUD operations
- Query Methods and Custom Queries
- Aggregation Framework

Deployment

Deploying Springboot App

- Deploying application on anyone platform (Heroku, Render, or AWS Ec2)
- Running migrations in production

Environment Variables

- Using .env files
- Keeping secrets secure (API keys, DB creds)

Cloud (AWS)

- **AWS EC2** – Hosting Springboot apps on virtual servers
- **AWS S3** – Storing static and media files
- **AWS RDS** – Managed relational databases like PostgreSQL or MySQL

DevOps, Deployment

Version Control

Git & GitHub

- Initializing repo, commits, branches
- Pull/push/clone
- GitHub collaboration (pull requests, issues)

Other Must-Know Concepts

REST API Concepts with Spring Boot
- REST Architectural Style
- HTTP Methods: GET, POST, PUT, DELETE, PATCH
- RESTful Resource Naming Conventions
- HTTP Status Codes (200, 201, 400, 404, 500, etc.)
- Using @RestController, @RequestMapping, @GetMapping, etc.

JSON Handling in Spring Boot
- Automatic Serialization/Deserialization using Jackson (ObjectMapper)
- Annotations: @JsonIgnore, @JsonProperty, @JsonInclude
- Customizing JSON responses
- Content negotiation with @ResponseBody / @RequestBody

Integration (Frontend + Spring Boot)
- Making asynchronous API calls using fetch() or Axios (from React/Angular)
- Updating the UI without page reload
- Handling JSON responses from REST APIs
- Error handling in frontend for API failures

Postman for API Testing
- Testing Spring Boot REST APIs:
    1. Setting headers, query params, path variables
    2. Sending form data or JSON payload
- Authentication testing using Bearer Tokens (JWT)
- Automating tests using Postman Collections
- Environment variables for dynamic testing

CORS (Cross-Origin Resource Sharing)
- CORS Issues between Frontend and Backend
- Enabling CORS in Spring Boot:
    1. @CrossOrigin annotation
    2. Global CORS config using

WebMvcConfigurer
- Configuring allowed origins, methods, headers, credentials

Web Security (CSRF, XSS Basics)

1. CSRF (Cross-Site Request Forgery)
- Enabled by default in Spring Security
- CSRF tokens in forms (if using Thymeleaf or form-based login)
- Disabling CSRF for stateless APIs (.csrf().disable() in REST APIs)

2. XSS (Cross-Site Scripting)
- Understanding injection vectors
- Output sanitization in frontend
- Setting security headers using Spring Security

JWT Authentication / OAuth2 (Spring Security)

1. Stateless Authentication with JWT:
- Generating and signing JWT tokens
- Sending JWT via Authorization headers
- Verifying and parsing JWT in filters

2. Role-Based Access Control:
- Using @PreAuthorize, @Secured, or hasRole() in configuration
- Custom UserDetailsService for user roles

3. Introduction to OAuth2 (Optional Advanced)
- Using Spring Security OAuth2 Client or Resource Server

FRONTEND

HTML (HyperText Markup Language)
HTML is the backbone of web pages used to structure content.

HTML Tags and Attributes
- Basic tags: div, span, h1 to h6, p, a, img, ul, ol, li, table, etc.
- Global attributes: id, class, style, title, alt
- Structural tags: header, nav, main, section, footer
- Inline vs block-level elements

Forms and Validation
- Creating input forms using form, input, textarea, select, button
- Input types: text, email, password, date, number
- Built-in validations: required, minlength, pattern, etc.
- Form submission using action and method

Semantic HTML
- Using meaningful tags for better accessibility and SEO
- Tags: article, aside, section, figure, figcaption, time, mark, etc.

CSS (Cascading Style Sheets)
CSS styles the HTML structure for appearance, layout, and responsiveness.

Selectors, Box Model, Positioning
- Element, class, ID, attribute selectors
- Box model: margin, border, padding, content
- Positioning: static, relative, absolute, fixed, sticky

Flexbox, Grid
- Flexbox: one-dimensional layout control

Properties: display: flex, justify-content, align-items, flex-direction, etc.
- CSS Grid: two-dimensional layout system

Properties: grid-template-columns, grid-gap, grid-area

Media Queries (Responsive Design)
- Creating responsive designs for mobile, tablet, and desktop
- Mobile-first and desktop-first approaches

JavaScript (JS)
JS is the programming language of the web, enabling interactivity and logic.

Variables, Data Types, Operators
- Declaring variables using var, let, and const
- Primitive types: string, number, boolean, null, undefined
- Objects and arrays
- Arithmetic, logical, and comparison operators

DOM Manipulation
- Accessing elements using getElementById, querySelector, etc.
- Changing content: innerText, innerHTML
- Modifying styles and attributes
- Creating and removing elements dynamically

Functions, Events
- Function declarations, expressions, arrow functions
- Event handling: onclick, addEventListener
- Event types: click, change, input, mouseover, keypress

ES6 Features
- let and const
- Arrow functions (=>)
- Template literals (Hello ${name})
- Destructuring, spread/rest operators
- Promises and async/await
- Modules: import/export

Fetch API / Axios
- Making HTTP requests to external APIs
- Handling responses with Promises
- GET, POST, PUT, DELETE requests
- Error handling and loading states

Form Validation
- Client-side form validation using JS
- Custom validation rules
- Real-time feedback with events like on input or on blur

Single Page Applications (SPA) Basics
- Concept of SPAs: dynamic page updates without full reload
- History API and URL handling
- Benefits of SPA over traditional MPA

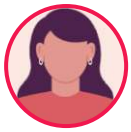
Testimonials

Magudapathi

Appin Technology's Python Development Course is a comprehensive training program that offers a solid foundation in Python programming. The instructors are knowledgeable and provide hands-on experience, making it perfect for beginners. However, some advanced topics could be covered in more depth.

Varun Karthick

I recently completed the Python course at Appin Technology, and it was an incredible experience! The curriculum was comprehensive and well-structured, covering everything from basic syntax to advanced concepts. This course has given me a strong foundation in Python programming.

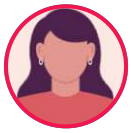


Kiruthika

Appin Technology's Python course exceeded my expectations in every way. The hands-on projects and practical exercises were especially helpful in reinforcing my learning. The faculty members were patient and skilled at explaining complex topics in a way that was easy to understand. Thank you

Santhosh

The projects and assignments were challenging but rewarding, helping me to gain a solid understanding of Python programming. I now feel prepared to apply these skills in my career and continue learning. Thank you, Appin Technology!



Sujitha

The Python course at Appin Technology was an incredible experience. The curriculum was comprehensive, and the instructors were knowledgeable and approachable. The hands-on projects and real-world applications helped me grasp the concepts quickly.

Muthu Selvam

Completing the Python course at Appin Technology was a turning point in my career. The hands-on approach and the focus on practical applications made learning enjoyable and effective. The projects and assignments helped me build a strong portfolio. I

About Appin Technology

Appin Technology Coimbatore is a premier Java training institute that offers comprehensive courses designed to equip students with the essential skills required for mastering Java programming. Located in Coimbatore, this institute is renowned for its practical approach to learning, industry-relevant curriculum, and experienced trainers.

The Java training at Appin Technology covers a wide range of topics, from Core Java and object-oriented programming principles to advanced concepts such as Spring Boot, Hibernate, web application development, and microservices architecture. Each module is meticulously designed to ensure students gain hands-on experience through real-world projects and assignments.

In addition to Java, Appin Technology also provides training in various other technologies, making it a hub for aspiring tech professionals. The institute's commitment to quality education, coupled with its state-of-the-art facilities and supportive learning environment, makes it an ideal choice for anyone looking to advance their career in the tech industry.

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