Module 1 : Programming Foundations – Java

Master core Java essentials to build a solid programming base

Build your foundational programming skills with Java—one of the most in-demand languages in the industry. This module is designed to get you hands-on with real Java programming, object-oriented principles, and modern Java features from Java 8 to 21.

Key Skills:

- Java Syntax & Control Flow
- Object-Oriented Programming (OOP)
- Collections & Generics
- Multithreading & Memory Management
- Lambda Expressions
- Java 8–21 Features
- Exception Handling & File I/O

Outcome:
By the end of this module, you'll be confident writing clean, efficient Java code and ready to tackle real-world software problems.

Module 2 : Data Structures & Algorithms – Java

Crack coding interviews and build performance-optimized backend systems

This module takes you deep into DSA using Java, structured across beginner to advanced levels. You'll solve real problems, learn how to write optimal code, and build the DSA mindset every backend engineer needs.

Beginner – Foundations of DSA

- Big-O Analysis (Time & Space Complexity)
- Arrays & Strings (1D & 2D)
- String Manipulation, Sliding Window, Two Pointers
- Recursion & Backtracking Patterns
- LeetCode Practice + Do-It-Along Problem Solving Sessions

Intermediate – Core Data Structures

- Searching & Sorting (Linear, Binary, Bubble, Merge, Quick)
- Linked Lists (Fast & Slow Pointers, Cycle Detection, Reversal)
- Stacks & Queues
- Hashing (HashMap, HashSet, Frequency Maps, Custom Hashing)
- Trees & Binary Trees
- Binary Search Trees

- LeetCode Practice + Do-It-Along Problem Solving Sessions

Advanced – Problem Solving at Scale

- Heaps & Priority Queues

- Graphs (BFS/DFS, Dijkstra)

- Greedy Algorithms

- Advanced Sorting & Optimization Patterns

- LeetCode Practice + Do-It-Along Problem Solving Sessions

Outcome:
By the end of this module, you'll be confident in solving complex coding problems, mastering DSA patterns, and excelling in technical interviews for backend roles.

Web Development Mastery

Backend Development - Build scalable backend systems that power real-world applications

Step into the world of backend development—where data meets logic. Learn to build robust, secure, and efficient server-side systems using Java, MySQL, MongoDB, and Spring Boot.

From designing APIs to integrating databases and event-driven architecture, this module equips you with real-world backend engineering skills.

Module : 3 - Databases – MySQL & MongoDB
Learn to design, query, and manage both SQL and NoSQL databases

Master the essentials of working with relational and non-relational databases. From schema design to complex queries and integration, this module builds the core backend skillset every developer needs.

Key SKills

- SQL & NoSQL Fundamentals (MySQL, MongoDB)

- Data Modeling and Schema Design

- CRUD Operations and Query Optimization

- Joins, Aggregation, Indexing, and Filtering

- Transactions, ACID Properties & Normalization

- Backup, Restore, and Access Management

Outcome:

Gain hands-on experience working with both structured and unstructured data systems, and understand when to use SQL vs. NoSQL in real-world applications.

Module 4 : Server - Springboot & Kafka

Build scalable, secure backend systems with real-world architecture

Apply your Java, DSA, and database expertise to develop production-ready backend applications using Spring Boot. Learn how to build APIs, integrate databases, secure your services, and implement asynchronous communication.

Key Skills:

- RESTful API Development with Spring Boot
- MySQL & MongoDB Integration (ORM & Spring Data)
- Authentication, Authorization & API Security
- API Testing, Documentation & Performance Tuning
- Event-Driven Architecture using Kafka

Outcome:
By the end of this module, you'll be able to design and build secure, scalable backend systems with clean architecture, real-time communication, and complete database integration.

Module 5 : System Design for scalable enterprise level Applications

Learn how to architect modern backend systems from the ground up. This module covers both high-level and low-level design essentials used by top tech companies to build performant, maintainable, and scalable applications.

Key Skills:

High-Level Design (HLD)

Key Skills:

- API Design & Service Communication
- Monolithic vs Microservices Architecture
- Caching Strategies & Asynchronous Messaging
- Database Scaling: Sharding, Replication, CAP Theorem

Low-Level Design (LLD)

Key Skills:

- SOLID Principles & Clean Code Practices
- Effective Class Design & Object Relationships
- Writing Testable, Maintainable Code
- UML Class & Sequence Diagrams

Outcome:

By the end of this module, you'll be equipped to design backend systems that are scalable, resilient, and production-ready—an essential skill for system design interviews and real-world engineering.

Module 6 - 8 : Frontend Development

Build responsive, interactive, and modern user interfaces using today's most in-demand frontend technologies.Start from the fundamentals of HTML and CSS, then move into JavaScript for interactivity, and finally master React to build dynamic, component-driven applications.

Key Skills:

- Semantic HTML & Accessible Form Design
- Responsive Layouts using CSS, Flexbox, Grid & Tailwind CSS
- Utility-First Styling with Tailwind (Custom Configs, Components, Animations)
- DOM Manipulation, Events & Async Programming in JavaScript
- Modern JavaScript Features: Promises, Async/Await, Fetch API
- React Components, Hooks, Routing, and State Management

Outcome:
By the end of this module, you'll be able to build fully responsive, interactive frontend applications using modern frameworks and best practices in UI development.

Module 9 : DevOps for Developers

Learn how to deploy, manage, and scale applications with modern DevOps tools and cloud services. This module is designed to equip developers with the foundational DevOps skills needed for modern backend deployment.

Key Skills:

- Git & GitHub/GitLab for Version Control and Collaboration
- CI/CD Pipeline Setup with GitHub Actions or GitLab CI
- AWS Essentials: EC2, S3, IAM, Route 53 & SSL Setup
- Application Deployment on AWS
- Docker Fundamentals: Containers, Images & Dockerfiles
- Deploying Multi-Service Apps using Docker Compose

Outcome:

By the end of this module, you'll be able to set up cloud infrastructure, automate deployments, manage containers, and ship production-ready apps with confidence.

Module 10 : Spring Boot + Gen AI

Build intelligent backend systems by integrating Gen AI with Spring Boot

Learn how to design, build, and deploy AI-powered applications using Java and Spring Boot. This module focuses on real-world use cases like chatbots, intelligent search, and AI microservices, using pretrained models and modern vector databases.

Key Skills:

- Building AI-Driven REST APIs with Spring Boot
- Integrating Pretrained Models (ONNX) for Inference

- Developing Scalable AI Microservices with Spring Cloud
- Conversational AI & LLM Integration using RAG
- Vector Search with Pinecone, FAISS, or Elasticsearch
- Monitoring, Logging & Accuracy Tracking for AI APIs

Outcome:
By the end of this module, you'll be able to integrate Gen AI into Spring Boot applications to build scalable, intelligent services with real-time insights and conversational capabilities.

Module - 11 : Interview Preparation & Readiness
Get job-ready with resume building, mock interviews, and personalized career guidance.This final module ensures you're well-prepared for backend developer roles with a strong portfolio, interview readiness

Key Skills:
- Crafting ATS-friendly Tech Resumes
- Building a Strong Project Portfolio
- GitHub & LinkedIn Optimization
- Behavioral & Technical Mock Interviews
- DSA & System Design Interview Strategy

Outcome:
By the end of this module, you'll have a polished resume, a confident interview approach, and a job-ready developer portfolio to showcase your skills effectively.