MockAttempt

TECH ACADEMY • OFFICIAL COURSE SYLLABUS BROCHURE

MockAttempt Academy Pvt. Ltd. • Live Architect Mentorship, AI Assessments & Client Production

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Course Code: JFSC • **Updated:** 01 Nov 2026
https://mockattempt.com/training/java-full-stack-career-program

JFSC • FULL STACK DEVELOPMENT **JOB-GUARANTEED CAREER MASTER PROGRAM**

100% PLACEMENT GUARANTEED* CAREER PROGRAM (6-MO REFUND*)

Java Full Stack Development & Enterprise Cloud Architecture

Full Stack Java Developer + AWS + DevOps + Spring AI | Fixed Fee Transparent Career Program | 100% Placement Guaranteed* (6 Months Fees Refund*)

Duration: 32w (480h) • 15h/wk (504 Hrs) • **Modules:** 16 • **Live Topics:** 42 • **Labs & Tasks:** 84 • **Mocks / AI Vivas:** 84 / 84 • **Projects:** 16 Module + 1 Live Client Prod

Fixed Non-Negotiable Tuition Fee: Base Fee **₹54,999** + 18% GST (₹9,900) = **Total Incl. GST: ₹64,899**

Live Batch Tracks: Weekday Career Intensive Batch (Mon – Fri • 15h/wk) (Monday to Friday (5 Live Sessions / Week • 15h/wk Total) • 3.0 Hours / Day (90 Mins Live Architecture + 90 Mins Supervised Real-Repo Coding) • 34 Weeks (504 Hours • 15h/wk)) | Weekend Working-Pro Career Batch (Sat – Sun + Guided Sprint • 15h/wk) (Saturday & Sunday Live + Mid-Week Mentor PR Review (15h/wk Total) • 5.0 Hours Sat & Sun Live + 5.0 Hours Guided Real-Repository Sprint • 34 Weeks (504 Hours • 15h/wk))

✓ 6-Month Placement Guarantee*: Complete 100% assigned repositories & score ≥90% across all Topic Mock Tests & Voice AI Interviews → 100+ verified IT job openings within 6 months or 100% net tuition refund*.

Core Technologies & Engineering Stack: Java 21 LTS • Spring Boot 3.3 • Spring AI & RAG • pgvector / Vector DB • Spring Security 6 & OAuth2 • Hibernate JPA & Flyway • PostgreSQL 16 • React 19 & TypeScript 5 • Apache Kafka • Redis 7 Caching • Microservices & Sagas • Resilience4j Fault Tolerance • Docker & Multi-Stage Builds • Kubernetes (EKS) • AWS Cloud (VPC, ALB, RDS, S3) • Terraform IaC • GitHub Actions CI/CD • OpenTelemetry & Grafana • JUnit 5 & Testcontainers

1. PROGRAM MASTERY OUTCOMES & ELIGIBILITY

End-to-End Engineering Outcomes:

1. Build and ship 14 real-world production GitHub repositories + 1 Live Client Production Cloud Deployment (zero dummy to-do apps)
2. Achieve ≥90% mastery across every Topic Mock Test and Spoken Gemini AI Technical Interview (unlimited free re-attempts allowed below 90%)
3. Earn Dual Barcode-Verifiable Credentials: Course Excellence Certificate + Official Project Internship Confirmation Letter
4. Unlock 6-Month Placement Support guaranteeing 100 curated relevant IT job openings — backed by our 100% Tuition Fee Refund* policy
5. Full-lifecycle mastery: Java 21 LTS, Spring Boot 3.3, Spring Security 6 OAuth2, Hibernate/PostgreSQL, and React 19 + TypeScript 5.
6. Enterprise AI integration using Spring AI, RAG pipelines, and PostgreSQL `pgvector` semantic search inside Java microservices.
7. Distributed scale with Apache Kafka event sagas, Redis 7 caching, Resilience4j fault tolerance, and OpenTelemetry observability.
8. Cloud-native delivery on AWS (VPC, ALB, RDS, S3, EKS), Docker, Kubernetes, Terraform IaC, and GitHub Actions CI/CD.

Eligibility & Prerequisites: Basic computer literacy and commitment to 15 hours/week of live coding, daily tasks & real-repository sprints • Dedication to complete 100% of assigned tasks and re-attempt assessments until crossing ≥90% mastery • No prior Java Full Stack Development & Enterprise Cloud Architecture industry experience required — Module 1 starts from environment setup, core mental models, and plain-English fundamentals. • Basic computer & internet familiarity on a Windows, macOS, or Linux laptop (8 GB+ RAM recommended for smooth live coding labs). • Ideal for B.Tech / BCA / MCA / B.Sc IT students, non-CS beginners, career switchers, and working developers upgrading to 2026 production standards. • Commitment to attend live Weekday or Weekend classes, complete daily hands-on lab checklists, and practice topic-wise Mock Tests & AI Interviews.

2. DETAILED MODULE & TOPIC-WISE SYLLABUS (16 MODULES • 42 LIVE TOPICS)

MODULE 1 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Java 21 LTS Core, Memory Model & Functional Concurrency

Real-repository engineering module covering Java 21 LTS Core, Memory Model & Functional Concurrency with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ JVM ClassLoader, Stack vs Heap, G1/ZGC & Escape Analysis — Purpose: Write low-GC enterprise Java services that never crash under peak production load. • ✓ Records, Sealed Hierarchies, Pattern Matching & Generics — Purpose: Model strict, immutable domain contracts for banking and SaaS microservices. • ✓ Streams API, CompletableFuture & Project Loom Virtual Threads — Purpose: Handle 50,000+ concurrent blocking I/O requests cleanly without

thread-pool exhaustion.

1.1 JVM ClassLoader, Stack vs Heap, G1/ZGC & Escape Analysis [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply JVM ClassLoader, Stack vs Heap, G1/ZGC & Escape Analysis in real Java Full Stack Development & Enterprise Cloud Architecture systems — specificall...

1.2 Records, Sealed Hierarchies, Pattern Matching & Generics [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Records, Sealed Hierarchies, Pattern Matching & Generics in real Java Full Stack Development & Enterprise Cloud Architecture systems — specificall...

1.3 Streams API, CompletableFuture & Project Loom Virtual Threads [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Streams API, CompletableFuture & Project Loom Virtual Threads in real Java Full Stack Development & Enterprise Cloud Architecture systems — specif...

Module 1 Hands-On Capstone Project (100 Marks): Multi-Threaded Ledger Engine & JVM Memory Profiler Repo — Architect, implement, test, and push the production GitHub repository 'Multi-Threaded Ledger Engine & JVM Memory Profiler Repo' (strictly zero dummy scaffolding) demonstrating end-to-end mas...

MODULE 2 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Data Structures, Algorithms & Problem-Solving in Java

Real-repository engineering module covering Data Structures, Algorithms & Problem-Solving in Java with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Arrays, Sliding Window, Binary Search & Hashing Internals — Purpose: Clear product-company OA rounds and optimize hot lookup paths from O(N²) to O(N). • ✓ Trees, Heaps, PriorityQueues & Trie Prefix Indexing — Purpose: Implement real-time job schedulers, top-K leaderboards, and instant search autocomplete. • ✓ Graphs (BFS/DFS/Dijkstra) & Dynamic Programming Patterns — Purpose: Solve dependency resolution, shortest-path routing, and resource-allocation problems.

2.1 Arrays, Sliding Window, Binary Search & Hashing Internals [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Arrays, Sliding Window, Binary Search & Hashing Internals in real Java Full Stack Development & Enterprise Cloud Architecture systems — specifical...

2.2 Trees, Heaps, PriorityQueues & Trie Prefix Indexing [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Trees, Heaps, PriorityQueues & Trie Prefix Indexing in real Java Full Stack Development & Enterprise Cloud Architecture systems — specifically: Im...

2.3 Graphs (BFS/DFS/Dijkstra) & Dynamic Programming Patterns [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Graphs (BFS/DFS/Dijkstra) & Dynamic Programming Patterns in real Java Full Stack Development & Enterprise Cloud Architecture systems — specificall...

Module 2 Hands-On Capstone Project (100 Marks): High-Frequency Order-Book & Graph Routing Engine Repo — Architect, implement, test, and push the production GitHub repository 'High-Frequency Order-Book & Graph Routing Engine Repo' (strictly zero dummy scaffolding) demonstrating end-to-end maste...

MODULE 3 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

PostgreSQL 16 Architecture, SQL Indexing & Vector Storage

Real-repository engineering module covering PostgreSQL 16 Architecture, SQL Indexing & Vector Storage with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Normalized Schema Design, CTEs, Window Functions & JSONB — Purpose: Author analytical financial queries and hybrid relational-document data models. • ✓ MVCC Isolation, B-Tree/GIN Indexes & EXPLAIN ANALYZE Tuning — Purpose: Eliminate deadlocks and tune slow 800ms SQL queries down to sub-8ms index scans. • ✓ PostgreSQL pgvector Embeddings, HNSW Indexes & Flyway Migrations — Purpose: Store semantic AI vectors alongside transactional SQL tables with versioned migrations.

3.1 Normalized Schema Design, CTEs, Window Functions & JSONB [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Normalized Schema Design, CTEs, Window Functions & JSONB in real Java Full Stack Development & Enterprise Cloud Architecture systems — specificall...

3.2 MVCC Isolation, B-Tree/GIN Indexes & EXPLAIN ANALYZE Tuning [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply MVCC Isolation, B-Tree/GIN Indexes & EXPLAIN ANALYZE Tuning in real Java Full Stack Development & Enterprise Cloud Architecture systems — specific...

3.3 PostgreSQL pgvector Embeddings, HNSW Indexes & Flyway Migrations [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply PostgreSQL pgvector Embeddings, HNSW Indexes & Flyway Migrations in real Java Full Stack Development & Enterprise Cloud Architecture systems — spe...

Module 3 Hands-On Capstone Project (100 Marks): Multi-Tenant ACID Banking Schema & pgvector Hybrid Store Repo — Architect, implement, test, and push the production GitHub repository 'Multi-Tenant ACID Banking Schema & pgvector Hybrid Store Repo' (strictly zero dummy scaffolding) demonstrating end-

to-e...

MODULE 4 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Spring Core, Spring Boot 3.3 Auto-Configuration & REST APIs

Real-repository engineering module covering Spring Core, Spring Boot 3.3 Auto-Configuration & REST APIs with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ IoC Container, Bean Scopes, CGLIB Proxies & Profiles — Purpose: Master how Spring wires enterprise applications and avoid proxy self-invocation bugs. • ✓ RESTful Controllers, Bean Validation, ProblemDetails & OpenAPI 3.1 — Purpose: Build self-documented, contract-tested JSON APIs with RFC-7807 error responses. • ✓ Spring Actuator, Micrometer Metrics & Structured Logging — Purpose: Expose liveness/readiness probes and latency histograms for production monitoring.

4.1 IoC Container, Bean Scopes, CGLIB Proxies & Profiles [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply IoC Container, Bean Scopes, CGLIB Proxies & Profiles in real Java Full Stack Development & Enterprise Cloud Architecture systems — specifically: M...

4.2 RESTful Controllers, Bean Validation, ProblemDetails & OpenAPI 3.1 [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply RESTful Controllers, Bean Validation, ProblemDetails & OpenAPI 3.1 in real Java Full Stack Development & Enterprise Cloud Architecture systems — s...

4.3 Spring Actuator, Micrometer Metrics & Structured Logging [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Spring Actuator, Micrometer Metrics & Structured Logging in real Java Full Stack Development & Enterprise Cloud Architecture systems — specificall...

Module 4 Hands-On Capstone Project (100 Marks): Clean-Architecture Spring Boot 3.3 Catalog & Billing API Repo — Architect, implement, test, and push the production GitHub repository 'Clean-Architecture Spring Boot 3.3 Catalog & Billing API Repo' (strictly zero dummy scaffolding) demonstrating end-to-e...

MODULE 5 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Spring Data JPA, Hibernate 6 Internals & Transaction Integrity

Real-repository engineering module covering Spring Data JPA, Hibernate 6 Internals & Transaction Integrity with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Entity Lifecycle, Dirty Checking, Fetch Joins & N+1 Elimination — Purpose: Prevent hidden Hibernate N+1 query storms that cripple production databases. • ✓ @Transactional Propagation, Optimistic/Pessimistic Locking & HikariCP — Purpose: Prevent double-debit race conditions during simultaneous wallet transfers. • ✓ Transactional Outbox Pattern & Testcontainers PostgreSQL Suites — Purpose: Verify real database queries in CI using ephemeral Dockerized PostgreSQL containers.

5.1 Entity Lifecycle, Dirty Checking, Fetch Joins & N+1 Elimination [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Entity Lifecycle, Dirty Checking, Fetch Joins & N+1 Elimination in real Java Full Stack Development & Enterprise Cloud Architecture systems — spec...

5.2 @Transactional Propagation, Optimistic/Pessimistic Locking & HikariCP [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply @Transactional Propagation, Optimistic/Pessimistic Locking & HikariCP in real Java Full Stack Development & Enterprise Cloud Architecture systems...

5.3 Transactional Outbox Pattern & Testcontainers PostgreSQL Suites [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Transactional Outbox Pattern & Testcontainers PostgreSQL Suites in real Java Full Stack Development & Enterprise Cloud Architecture systems — spec...

Module 5 Hands-On Capstone Project (100 Marks): Idempotent Payment Ledger & Outbox Persistence Repo — Architect, implement, test, and push the production GitHub repository 'Idempotent Payment Ledger & Outbox Persistence Repo' (strictly zero dummy scaffolding) demonstrating end-to-end mastery...

MODULE 6 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Spring Security 6, OAuth2 / OIDC & Zero-Trust API Defense

Real-repository engineering module covering Spring Security 6, OAuth2 / OIDC & Zero-Trust API Defense with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ SecurityFilterChain, Argon2 Hashing & Rotating JWT Refresh Tokens — Purpose: Protect stateless APIs and browser SPAs against token theft, XSS, and CSRF. • ✓ OAuth2 / OIDC Resource Servers, Method RBAC & Multi-Tenant Guards — Purpose: Enforce fine-grained tenant and role permissions across enterprise endpoints. • ✓ OWASP API Top-10 Hardening & Redis Sliding-Window Rate Limiting — Purpose: Block credential stuffing, broken object-level auth (BOLA), and abusive traffic spikes.

6.1 SecurityFilterChain, Argon2 Hashing & Rotating JWT Refresh Tokens [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply SecurityFilterChain, Argon2 Hashing & Rotating JWT Refresh Tokens in real Java Full Stack Development & Enterprise Cloud Architecture systems — sp...

6.2 OAuth2 / OIDC Resource Servers, Method RBAC & Multi-Tenant Guards [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OAuth2 / OIDC Resource Servers, Method RBAC & Multi-Tenant Guards in real Java Full Stack Development & Enterprise Cloud Architecture systems — sp...

6.3 OWASP API Top-10 Hardening & Redis Sliding-Window Rate Limiting [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OWASP API Top-10 Hardening & Redis Sliding-Window Rate Limiting in real Java Full Stack Development & Enterprise Cloud Architecture systems — spec...

Module 6 Hands-On Capstone Project (100 Marks): Enterprise OAuth2 Resource Server & RBAC Identity Gateway Repo — Architect, implement, test, and push the production GitHub repository 'Enterprise OAuth2 Resource Server & RBAC Identity Gateway Repo' (strictly zero dummy scaffolding) demonstrating end-to-...

MODULE 7 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Modern Frontend Engineering with React 19 & TypeScript 5

Real-repository engineering module covering Modern Frontend Engineering with React 19 & TypeScript 5 with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Strict TypeScript 5 Generics, Discriminated Unions & Zod Schemas — Purpose: Catch API contract mismatches at compile time before UI code ever reaches production. • ✓ React 19 Hooks, Server/Optimistic Actions, TanStack Query & Routing — Purpose: Build snappy, accessible dashboards with instant cache invalidation and role guards. • ✓ Real-Time SSE / WebSocket Streams, Virtualized Tables & Vitest UI Tests — Purpose: Stream live AI tokens and 100k-row audit logs smoothly at 60fps.

7.1 Strict TypeScript 5 Generics, Discriminated Unions & Zod Schemas [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Strict TypeScript 5 Generics, Discriminated Unions & Zod Schemas in real Java Full Stack Development & Enterprise Cloud Architecture systems — spe...

7.2 React 19 Hooks, Server/Optimistic Actions, TanStack Query & Routing [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply React 19 Hooks, Server/Optimistic Actions, TanStack Query & Routing in real Java Full Stack Development & Enterprise Cloud Architecture systems —...

7.3 Real-Time SSE / WebSocket Streams, Virtualized Tables & Vitest UI Tests [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Real-Time SSE / WebSocket Streams, Virtualized Tables & Vitest UI Tests in real Java Full Stack Development & Enterprise Cloud Architecture system...

Module 7 Hands-On Capstone Project (100 Marks): Enterprise TypeScript Design System & Operator Console Repo — Architect, implement, test, and push the production GitHub repository 'Enterprise TypeScript Design System & Operator Console Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 8 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Spring AI, Enterprise RAG Pipelines & Agentic Java Copilots

Real-repository engineering module covering Spring AI, Enterprise RAG Pipelines & Agentic Java Copilots with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Spring AI ChatClient, Prompt Templates, Advisors & Structured Outputs — Purpose: Integrate LLMs cleanly into Java microservices with strongly typed Java Record outputs. • ✓ Document ETL, Chunking, pgvector Hybrid Search & Citation Grounding — Purpose: Build enterprise RAG copilots that answer strictly from verified company documents. • ✓ Spring AI Function/Tool Calling, Guardrails & Automated Faithfulness Evals — Purpose: Let Java AI agents invoke audited Spring services safely without prompt-injection leaks.

8.1 Spring AI ChatClient, Prompt Templates, Advisors & Structured Outputs [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Spring AI ChatClient, Prompt Templates, Advisors & Structured Outputs in real Java Full Stack Development & Enterprise Cloud Architecture systems...

8.2 Document ETL, Chunking, pgvector Hybrid Search & Citation Grounding [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Document ETL, Chunking, pgvector Hybrid Search & Citation Grounding in real Java Full Stack Development & Enterprise Cloud Architecture systems —...

8.3 Spring AI Function/Tool Calling, Guardrails & Automated Faithfulness Evals [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Spring AI Function/Tool Calling, Guardrails & Automated Faithfulness Evals in real Java Full Stack Development & Enterprise Cloud Architecture sys...

Module 8 Hands-On Capstone Project (100 Marks): Spring AI + pgvector Compliance & Code-Review Copilot Repo — Architect, implement, test, and push the production GitHub repository 'Spring AI + pgvector Compliance & Code-Review Copilot Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 9 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Distributed Microservices, Resilience4j & API Gateways

Real-repository engineering module covering Distributed Microservices, Resilience4j & API Gateways with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Domain-Driven Bounded Contexts & Spring Cloud API Gateway Routing — Purpose: Decompose monoliths cleanly with centralized auth, routing, and request correlation. • ✓ Resilience4j Circuit Breakers, Bulkheads, Timeouts & Jittered Retries — Purpose: Stop cascading outages when downstream payment or notification services degrade.

9.1 Domain-Driven Bounded Contexts & Spring Cloud API Gateway Routing [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Domain-Driven Bounded Contexts & Spring Cloud API Gateway Routing in real Java Full Stack Development & Enterprise Cloud Architecture systems — sp...

9.2 Resilience4j Circuit Breakers, Bulkheads, Timeouts & Jittered Retries [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Resilience4j Circuit Breakers, Bulkheads, Timeouts & Jittered Retries in real Java Full Stack Development & Enterprise Cloud Architecture systems...

Module 9 Hands-On Capstone Project (100 Marks): Cloud-Native Spring Cloud Gateway & Fault-Tolerant Mesh Repo — Architect, implement, test, and push the production GitHub repository 'Cloud-Native Spring Cloud Gateway & Fault-Tolerant Mesh Repo' (strictly zero dummy scaffolding) demonstrating end-to-en...

MODULE 10 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Event-Driven Architecture with Apache Kafka & Redis 7

Real-repository engineering module covering Event-Driven Architecture with Apache Kafka & Redis 7 with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Kafka KRaft Partitions, Idempotent Producers, Consumer Groups & DLQs — Purpose: Process high-volume asynchronous business events with zero message loss. • ✓ Distributed Sagas, Redis 7 Cache-Aside & Distributed Locks — Purpose: Cut database read load by 90% and coordinate multi-service distributed workflows.

10.1 Kafka KRaft Partitions, Idempotent Producers, Consumer Groups & DLQs [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Kafka KRaft Partitions, Idempotent Producers, Consumer Groups & DLQs in real Java Full Stack Development & Enterprise Cloud Architecture systems —...

10.2 Distributed Sagas, Redis 7 Cache-Aside & Distributed Locks [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Distributed Sagas, Redis 7 Cache-Aside & Distributed Locks in real Java Full Stack Development & Enterprise Cloud Architecture systems — specifica...

Module 10 Hands-On Capstone Project (100 Marks): Kafka Saga Order-Settlement & Redis Low-Latency Cache Repo — Architect, implement, test, and push the production GitHub repository 'Kafka Saga Order-Settlement & Redis Low-Latency Cache Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 11 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Docker Containerization & Kubernetes (EKS) Orchestration

Real-repository engineering module covering Docker Containerization & Kubernetes (EKS) Orchestration with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Multi-Stage JRE Dockerfiles, Non-Root Hardening & Compose Stacks — Purpose: Shrink Spring Boot container images by 65% and run full local microservice topologies. • ✓ Kubernetes Deployments, Ingress TLS, ConfigMaps/Secrets, HPA & Probes — Purpose: Auto-scale Java pods with zero downtime during traffic surges on Kubernetes.

11.1 Multi-Stage JRE Dockerfiles, Non-Root Hardening & Compose Stacks [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Multi-Stage JRE Dockerfiles, Non-Root Hardening & Compose Stacks in real Java Full Stack Development & Enterprise Cloud Architecture systems — spe...

11.2 Kubernetes Deployments, Ingress TLS, ConfigMaps/Secrets, HPA & Probes [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Kubernetes Deployments, Ingress TLS, ConfigMaps/Secrets, HPA & Probes in real Java Full Stack Development & Enterprise Cloud Architecture systems...

Module 11 Hands-On Capstone Project (100 Marks): Hardened Multi-Stage Java Containers & Helm K8s Manifests Repo — Architect, implement, test, and push the production GitHub repository 'Hardened Multi-Stage Java Containers & Helm K8s Manifests Repo' (strictly zero dummy scaffolding) demonstrating end-to-...

MODULE 12 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

AWS Enterprise Cloud Architecture & Terraform IaC

Real-repository engineering module covering AWS Enterprise Cloud Architecture & Terraform IaC with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ AWS Multi-AZ VPC, IAM OIDC Least Privilege, ALB, EC2 & S3/CloudFront — Purpose: Architect secure, production-grade cloud networks and edge storage on AWS. • ✓ RDS Multi-AZ Failover, KMS Secrets & Modular Terraform State Automation — Purpose: Provision repeatable cloud environments via version-controlled Infrastructure as Code.

12.1 AWS Multi-AZ VPC, IAM OIDC Least Privilege, ALB, EC2 & S3/CloudFront [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply AWS Multi-AZ VPC, IAM OIDC Least Privilege, ALB, EC2 & S3/CloudFront in real Java Full Stack Development & Enterprise Cloud Architecture systems —...

12.2 RDS Multi-AZ Failover, KMS Secrets & Modular Terraform State Automation [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply RDS Multi-AZ Failover, KMS Secrets & Modular Terraform State Automation in real Java Full Stack Development & Enterprise Cloud Architecture system...

Module 12 Hands-On Capstone Project (100 Marks): Terraform AWS Multi-AZ VPC, RDS, S3 & EKS Infrastructure Repo — Architect, implement, test, and push the production GitHub repository 'Terraform AWS Multi-AZ VPC, RDS, S3 & EKS Infrastructure Repo' (strictly zero dummy scaffolding) demonstrating end-to-e...

MODULE 13 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

DevSecOps CI/CD, OpenTelemetry Observability & System Design

Real-repository engineering module covering DevSecOps CI/CD, OpenTelemetry Observability & System Design with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ GitHub Actions CI/CD, Trivy/Sonar Gates & Blue-Green Releases — Purpose: Automate test, security scan, container build, and zero-downtime cloud deployment. • ✓ OpenTelemetry Distributed Tracing, Prometheus, Grafana & HLD/LLD Interviews — Purpose: Trace cross-service latency bottlenecks and ace Staff/SDE-2 System Design rounds.

13.1 GitHub Actions CI/CD, Trivy/Sonar Gates & Blue-Green Releases [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply GitHub Actions CI/CD, Trivy/Sonar Gates & Blue-Green Releases in real Java Full Stack Development & Enterprise Cloud Architecture systems — specif...

13.2 OpenTelemetry Distributed Tracing, Prometheus, Grafana & HLD/LLD Interviews [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OpenTelemetry Distributed Tracing, Prometheus, Grafana & HLD/LLD Interviews in real Java Full Stack Development & Enterprise Cloud Architecture sy...

Module 13 Hands-On Capstone Project (100 Marks): GitHub Actions DevSecOps Pipeline & OpenTelemetry Grafana Repo — Architect, implement, test, and push the production GitHub repository 'GitHub Actions DevSecOps Pipeline & OpenTelemetry Grafana Repo' (strictly zero dummy scaffolding) demonstrating end-to-...

MODULE 14 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Live Client Production Capstone & ≥90% Placement Gate Sprint

Real-repository engineering module covering Live Client Production Capstone & ≥90% Placement Gate Sprint with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ End-to-End Client Production Cutover, Load Testing & Security Sign-Off — Purpose: Deploy the live multi-tenant Java + Spring AI + React + AWS platform for client users. • ✓ GitHub Portfolio Audit, ≥90% AI Mock Gate & 100-Opening Placement Launch — Purpose: Complete final ≥90% mock/viva verification and enter the 6-month 100-opening placement drive.

14.1 End-to-End Client Production Cutover, Load Testing & Security Sign-Off [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply End-to-End Client Production Cutover, Load Testing & Security Sign-Off in real Java Full Stack Development & Enterprise Cloud Architecture systems...

14.2 GitHub Portfolio Audit, ≥90% AI Mock Gate & 100-Opening Placement Launch [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply GitHub Portfolio Audit, ≥90% AI Mock Gate & 100-Opening Placement Launch in real Java Full Stack Development & Enterprise Cloud Architecture syste...

Module 14 Hands-On Capstone Project (100 Marks): FinCore Live Client Production Deployment & Portfolio Audit Repo — Architect, implement, test, and push the production GitHub repository 'FinCore Live Client Production Deployment & Portfolio Audit Repo' (strictly zero dummy scaffolding) demonstrating end-t...

MODULE 15 OF 16 • 14 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Enterprise Spring AI, pgvector RAG & Event-Driven Saga Resilience

Self-explanatory list-and-bullet production mastery module covering Enterprise Spring AI, pgvector RAG & Event-Driven Saga Resilience in Java Full Stack Development & Enterprise Cloud Architecture, paired with hands-on labs, capstone repository, Topic Mock Tests, and Spoken Gemini AI Viva.

Objectives: ✓ Spring AI Advisors, Structured Output, Tool Calling & Grounded pgvector Retrieval — Purpose: Embed audited generative AI workflows directly inside type-safe Java 21 Spring Boot services. • ✓ Transactional Outbox, Idempotent Kafka Consumers & Resilience4j Bulkheads/Circuit Breakers — Purpose: Guarantee financial consistency and fault isolation across distributed Java microservices. • ✓ React 19 + TypeScript Enterprise Frontend Integration with OAuth2/OIDC BFF Pattern — Purpose: Connect React workspaces securely to Spring Security 6 resource servers without token exposure. • ✓ Build, verify, and document 'Spring AI + pgvector Enterprise Copilot & Transactional Outbox Microservice Repo' with clean Git commits and edge-case protection. • ✓ Clear 100% of Topic Timed Mock Tests and Spoken Voice + Google Gemini AI Technical Interviews.

15.1 Spring AI Advisors, Structured Output, Tool Calling & Grounded pgvector Retrieval [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Spring AI Advisors, Structured Output, Tool Calling & Grounded pgvector Retrieval in real Java Full Stack Development & Enterprise Cloud Architect...

15.2 Transactional Outbox, Idempotent Kafka Consumers & Resilience4j Bulkheads/Circuit Breakers [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Transactional Outbox, Idempotent Kafka Consumers & Resilience4j Bulkheads/Circuit Breakers in real Java Full Stack Development & Enterprise Cloud...

15.3 React 19 + TypeScript Enterprise Frontend Integration with OAuth2/OIDC BFF Pattern [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply React 19 + TypeScript Enterprise Frontend Integration with OAuth2/OIDC BFF Pattern in real Java Full Stack Development & Enterprise Cloud Architec...

Module 15 Hands-On Capstone Project (100 Marks): Spring AI + pgvector Enterprise Copilot & Transactional Outbox Microservice Repo — Architect, implement, test, and document 'Spring AI + pgvector Enterprise Copilot & Transactional Outbox Microservice Repo' applying every bullet-wise engineering concept from Module 15 (Ent...

MODULE 16 OF 16 • 14 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

AWS Cloud Deployment, JVM Observability & ≥90% Placement Gate System Design

Self-explanatory list-and-bullet production mastery module covering AWS Cloud Deployment, JVM Observability & ≥90% Placement Gate System Design in Java Full Stack Development & Enterprise Cloud Architecture, paired with hands-on labs, capstone repository, Topic Mock Tests, and Spoken Gemini AI Viva.

Objectives: ✓ Testcontainers CI, Multi-Stage JRE Images & Zero-Downtime AWS Cloud Rollouts — Purpose: Automate end-to-end verification and production deployment from GitHub Actions to AWS. • ✓ OpenTelemetry Distributed Tracing, Micrometer Prometheus Dashboards & JFR Profiling — Purpose: Diagnose cross-service p99 latency, connection pool exhaustion, and JVM memory pressure. • ✓ Full Stack Java Architect System Design, Live Coding & Placement Interview Defense — Purpose: Clear product-company DSA, Spring internals, React, and cloud architecture hiring rounds. • ✓ Build, verify, and document 'Docker + EKS/AWS CI/CD Deployment, OpenTelemetry Tracing & Mock Hiring Loop Repo' with clean Git commits and edge-case protection. • ✓ Clear 100% of Topic Timed Mock Tests and Spoken Voice + Google Gemini AI Technical Interviews.

16.1 Testcontainers CI, Multi-Stage JRE Images & Zero-Downtime AWS Cloud Rollouts [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Testcontainers CI, Multi-Stage JRE Images & Zero-Downtime AWS Cloud Rollouts in real Java Full Stack Development & Enterprise Cloud Architecture s...

16.2 OpenTelemetry Distributed Tracing, Micrometer Prometheus Dashboards & JFR Profiling [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OpenTelemetry Distributed Tracing, Micrometer Prometheus Dashboards & JFR Profiling in real Java Full Stack Development & Enterprise Cloud Archite...

16.3 Full Stack Java Architect System Design, Live Coding & Placement Interview Defense [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Full Stack Java Architect System Design, Live Coding & Placement Interview Defense in real Java Full Stack Development & Enterprise Cloud Architec...

Module 16 Hands-On Capstone Project (100 Marks): Docker + EKS/AWS CI/CD Deployment, OpenTelemetry Tracing & Mock Hiring Loop Repo — Architect, implement, test, and document 'Docker + EKS/AWS CI/CD Deployment, OpenTelemetry Tracing & Mock Hiring Loop Repo' applying every bullet-wise engineering concept from Module 16 (AWS...

3. LIVE CLIENT PRODUCTION PROJECT, GLOBAL CERTIFICATIONS & CAREER SCOPE

End-of-Course Live Client Production Project + Official Internship Confirmation Letter

Project: FinCore Enterprise Multi-Tenant Banking, Spring AI Copilot & Kafka Settlement Platform • **Confirmed Role:** Full Stack Java, Spring AI & AWS Cloud Engineering Resident

Domain & Production Infra: BFSI, Enterprise Cloud Banking & AI Operations Client (Java 21 + Spring Boot 3.3 + Spring AI pgvector + React 19 TS + Kafka + AWS EKS)

- Engineered Java 21 Virtual-Thread Spring Boot 3.3 microservices with OAuth2/OIDC security and Flyway PostgreSQL ledgers.
- Built a grounded Spring AI + pgvector RAG compliance copilot with streaming React 19 TypeScript operator workspaces.
- Orchestrated idempotent Apache Kafka payment sagas, Redis 7 rate limiters, and Testcontainers CI suites.
- Deployed multi-service production workloads onto AWS VPC/EKS via Terraform and GitHub Actions CI/CD.

Aligned Global Vendor Certifications: **1Z0-830** (Oracle Certified Professional: Java SE 21 Developer) • **2V0-72.22** (Spring Certified Professional (Spring Boot & Enterprise Java)) • **SAA-C03** (AWS Certified Solutions Architect – Associate) • **EDB-PG16** (EDB Certified PostgreSQL 16 Associate) • **CKAD** (Certified Kubernetes Application Developer (CKAD))

Target Job Roles: Full Stack Java & Cloud Developer (SDE-1 / SDE-2), Spring Boot + Spring AI Backend Engineer, Java Microservices & AWS Engineer, Enterprise Full Stack Software Engineer

Realistic Annual CTC Scope: **Placement-Guaranteed Graduate / SDE-1 (0–1 Yr):** ₹6.5 LPA – ₹14.0 LPA **Full Stack Java + Cloud SDE-2 (1–3 Yrs):** ₹15.0 LPA – ₹28.0 LPA **Principal Enterprise Cloud Architect (3–6+ Yrs):** ₹30.0 LPA – ₹60.0+ LPA

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