Training Calender Day	Details
1	Pre - Assessment - I (Basics on Spring Boot) **Introduction to REST API Principles** **Understanding REST Architecture** Principles of REST: Statelessness, client-server separation, uniform interfaces. HTTP methods: GET, POST, PUT, DELETE, PATCH, and their appropriate use cases. API design best practices: Resource naming, versioning, and HATEOAS. **Building REST APIs with Spring Boot** Setting up a Spring Boot project. Creating RESTful endpoints and mapping HTTP methods to Java methods. Handling request parameters, path variables, and request bodies. **Error Handling in REST APIs** Custom exception handling in Spring Boot. Designing standard error responses. Implementing global exception handling using @ControllerAdvice.
2	**Advanced REST API Development** **Securing REST APIs** Authentication and Authorization: OAuth2 and JWT basics. Implementing security in Spring Boot using Spring Security. Protecting APIs from common vulnerabilities (e.g., CSRF, XSS). **Data Serialization and Validation** Using Jackson for JSON serialization and deserialization. Validating API requests with @Valid and custom annotations.

	Optimizing REST APIs Pagination and filtering for large datasets. Caching responses to improve performance. Using asynchronous processing for long-running requests. **Testing and Documentation** Writing unit tests for REST APIs using JUnit and Mockito. Automating API testing with Postman and REST Assured. Generating API documentation with Swagger/OpenAPI.

	Assessment - II
3	**Introduction to Relational Databases:** Overview of relational database systems Key concepts: tables, rows, columns, and relationships **Data Integrity Principles:** Understanding data consistency, accuracy, and reliability Primary keys, foreign keys, and their role in maintaining integrity Referential integrity and cascading rules
	Database Schema Artifacts: Tables and views Indexes, constraints, and triggers Entity-relationship (ER) diagrams: visualizing schema design

4	**Schema Design Best Practices:** Normalization: achieving optimal data structure Denormalization: balancing performance and storage needs Handling complex relationships with joins and constraints
	Hands-on Activities: Designing a database schema for a sample use case Implementing primary and foreign key constraints Validating referential integrity using triggers and rules **Common Challenges and Solutions:** Avoiding redundancy and anomalies Strategies for evolving schemas without compromising data integrity

	Assessment - III
5	Fundamentals and Strategic Design **Introduction to Domain-Driven Design (DDD):** What is DDD and why it matters? Understanding domains, subdomains, and bounded contexts
	Strategic Design Principles: Identifying core, supporting, and generic domains Designing bounded contexts and context mapping Cultivating collaboration between business and technical teams
6	**Tactical Design and Practical Applications** **Tactical Design Principles:** Entities, Value Objects, and Aggregates Domain Events and Repositories Leveraging factories and application services
	Implementing DDD: Real-world examples of DDD in action Transitioning from a legacy system to a DDD approach Common pitfalls and how to avoid them
	Assessment - IV
7	**Hands-on Exercises and Case Studies:** Building a domain model for a sample business scenario Context mapping workshop to align team understanding
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8	**Understanding BPMN 2.0 Fundamentals** **Introduction to BPMN 2.0** Overview and importance of BPMN in process modeling. Key principles and benefits of using BPMN 2.0. Understanding the BPMN 2.0 standard and its elements. **BPMN Core Components** Basic shapes: Events, activities, and gateways. Types of events: Start, intermediate, and end events. Understanding sequence flows and message flows. Pools, lanes, and collaboration diagrams for team processes.
	Assessment - V
9	**Building Simple Workflows** Hands-on: Creating your first BPMN diagram. Best practices for clear and effective process models. **Building Simple Workflows** Hands-on: Creating your first BPMN diagram. Best practices for clear and effective process models.
10	**Advanced BPMN Techniques and Workflow Creation** **Advanced BPMN Elements** Sub-processes: Reusable components for complex workflows. Conditional flows and looping constructs. Timer, message, and error events. **Workflow Design and Optimization** Creating end-to-end workflows using BPMN notations. Identifying bottlenecks and inefficiencies in processes. Designing workflows for automation and scalability.
	Assessment - VI

11	**Practical Applications of BPMN** Case studies: Real-world examples of BPMN workflows. Hands-on: Building and optimizing a workflow from scratch.
	Collabortion and Documentation Using BPMN diagrams for team collaboration. Documenting processes for stakeholders.

12	Containers
	Kubernetes Performance Scalability - Auto Scaling

	Assessment - VII
13	Kubernetes Performance Scalability - Auto Scaling
	Cloud Computing Infrastructure, Cloud Security Fundamentals

14	DevOps
	Revision & Final Assessment

Note:

1. The above tentative schedule subject to some deviations in time and duration
2. Hands on Project and Practice should be with the participant's machine with these below software requirements:

Java 21
IntelliJ IDEA Community Edition
Postman
MS SQL Server / MySQL
BPMN 2.0 editors - Camunda Desktop Modeler, Camunda 8 Run
Docker Desktop