REVATURE

Java FSE with Angular - Cognizant

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 1 **Agile, Git, HTML, CSS**	Orientation & Onboarding - Introduction to Linux OS - basic Linux commands - shell scripting fundamentals - Fullstack the Big Picture Git - Source Control Management - VCS, CVCS, DVCS - Git Fundamentals - Git Installation and Configuration - Basic Git Commands - Git Branching and Merging - Remote Repositories - Pull Requests - .gitignore	HTTP - Introduction to HTTP - HTTP Methods - HTTP Lifecycle - HTTP Status Codes - HTTP Headers - HTTP Cookies HTML Foundation - Overview of HTML - HTML5 Features - DOM (Document Object Model) - HTML Tags - Elements and Attributes - Inline vs Block Elements HTML Forms - Form Element , Form Attributes (action, method) , Input Elements , Input Types - Label Element , Textarea - Select and Option , Multi-Select , Fieldset and Legend - HTML5 Form Validation - GET vs POST	HTML 5 Advanced - Web storage - localStorage, sessionStorage - WebSQL Database - Geolocation Introduction to CSS3 - CSS Syntax - Ways to apply CSS - CSS Selectors - Styling Text and Fonts - Font Properties - Box Model Basics - Content, Padding, Border, Margin - Colors and Backgrounds - Borders and Effects - Layout with CSS - Display, Position, Float	- Flexbox Layout - flex-direction, justify-content CSS Grid Layout - grid-template-columns/rows Responsive Web Design - Media Queries - Breakpoints Advanced Features - Transitions,Animations	Agile Methodology - Introduction to Agile - Agile Process - Scrum Framework - Scrum Roles, Artifacts, Ceremonies - Agile User Stories - Agile Estimation and Planning - Sprint Points, Planning Poker, Velocity - Burndown and Burnup Charts - Project Boards - Agile Tools	
Week 2 **JavaScript, BootStrap,jQuery**	Introduction to JavaScript - Getting Started - JavaScript Fundamentals	JavaScript Arrays - Array Methods - forEach, map, filter, reduce	Asynchronous JavaScript - Synchronous vs Asynchronous - Call Stack	Bootstrap 5 - Introduction to Bootstrap 5 - Bootstrap Setup (CDN)	- Bootstrap Utilities and Helpers - Responsive Design with Bootstrap - Customization	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	• Framework and libraries • Variables (var , let, const) • Data Types • JavaScript Operators • Control Flow • if - else, switch,Loops JavaScript Objects • Object Creation, Properties, Methods • this Keyword	JavaScript Function • Function Declaration • Arrow Functions • Callbacks • Closures • IIFE DOM (Document Object Model) • Selecting Elements • Modifying Content • DOM Manipulation • Traversing the DOM • Events and Event Listeners	• Event loop • Callback Queue JSON • JSON.parse() • JSON.stringify() Callbacks • Callback Functions • Callback hell • Promises, async/await • Fetch API • ES6 features • Debugging and Testing JavaScript	• Layout and Grid System • Container, Row, Column • Responsive Breakpoints • Essential Components • Typography, Buttons, Cards, Forms • Navbar, Modals, Dropdowns	and Extensions jQuery • What is jQuery ? • jQuery Selectors • DOM manipulation & events • jQuery Effects • Basic AJAX with jQuery	
Week 3 **Bootstrap,jQuery, MySQL,Core Java(v21)**	Project 1 MySQL • What Is A Database • What Is SQL • Consistency • Introduction To RDBMS • Schema • Table Structure • SQL Data Types • Normalization • Multiplicity • Data Modeling And ERD • Primary Key • Composite Key • Foreign Key • Unique Key • Secondary Alternate Key • Referential	Project 1 • Overview Of Sublanguages • DDL • DML • DQL • DCL • TCL • Defining Schema • CREATE DROP TRUNCATE • Constraints • Auto Incrementing • CHECK • DEFAULT • CASCADE • INSERT • UPDATE • DELETE • Queries • Aggregate Functions	Project 1 • What Is A Transaction • ACID Properties • Transaction Properties • CRUD Operations • Indexes • Scalar Functions • Sequence • Trigger • Views • What Is A Stored Procedure • What Is A User Defined Function • Transaction Commit Rollback Isolation Levels	Project 1 Java Basics • What Is Java • Jvm Jre Jdk • Setup Jdk • Set Up Ide Intellij • Primitive Data Types • Reference Variables • Control Flow Conditional Statements • Logical Operators • Mathematical Operators • Comparison Operators • Arrays • Control Flow Loops • Commenting • Packages And	Project 1 Methods • Method Parameters And Return Types • Method Invocation • Method Visibility Modifiers • Method Scope • Introduction To The Stack • Method Recursion • Method Declaration And Syntax Types • Casting • String Basics • Value And Reference Types • Wrapper Classes	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	Integrity	• Clauses • What Is A Subquery • What Is A Join • Cross Join • Equi And Theta Joins • Inner Join • Left And Right Joins • Outer Join • Aliases		Imports • Debugging		
Week 4 **Core Java (v21)**	Project 1 OOPs • Introduction To Oop • Classes Vs Objects • Classes Members • Static Members • Oop Inheritance • Interfaces And Abstract Class • Oop Polymorphism • Overloading • Overriding • Oop Encapsulation • Oop Abstraction • Object Class • Non Access Modifiers • Equality Hashcode Equals • Garbage Collection	Project 1 Exceptions • Exceptions Vs Errors And Hierarchy • Handling Exceptions • Checked Vs Unchecked Exceptions • Creating Custom Exceptions • Reading The Stack Trace Collections • Overview Of Collections Hierarchy • List Interface & Implementation Classes • Set Interface & Implementation Classes • Queue Interface & Implementation Classes • Iterators • Map Interface & Implementation Classes	Project 1 Multithreading • thread-class • runnable-interface • states-of-a-thread • multithreading Concurrency • synchronization • deadlock • livelock • producer-consumer-problem Functional Programming • functional-interfaces • lambdas • method-reference-syntax • Optional-class File Handling and I/O • reading-and-writing-to-files	Project 1 Stream API • stream-api • Date and Time API • reflection-api • Intermediate Operations • Terminal Operations • Collectors • Parallel Streams Design Patterns • SOLID Principles • Singleton Pattern • Factory Pattern • Behavioral Pattern • Structural Pattern	Project 1 Java 17 & 21 Features • Sealed Classes, Pattern Matching • Text Blocks, Records, Virtual Threads JDBC • Jdbc Architecture And Interfaces • Driver Types And Registration • Setting Up The Database Driver • Setting Up The Utility Class • Simple And Prepared Statements • Sql Injection • Callable Statements • Result Set • Navigating Result Set Rows	
Week 5 **Core Java (v21)**	Project 1 Introduction to	Project 1 Application	Project 1 Reverse Engineering	Project 1 TDD using JUnit and	Project 1 Introduction to	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	Reactive Programming • Reactive Manifesto, Reactive Streams • Reactive Programming in Java • Building Reactive Applications Networking and Sockets • Java Networking • Socket Programming • java.net.ServerSocket • Implementing Socket Client in Java	Debugging Using IntelliJ IDEA • Introduction to Debugging • Getting Started with IntelliJ IDEA Debugger • Basic Debugging Techniques : Setting Breakpoints , Step Over, Step Into, Step Out • Advanced Debugging Techniques : Watch Variables, Debug Console	• Goals and its Objectives • Steps of Reverse Engineering • Tools of Reverse Engineering	Mockito • Test Driven Development Overview • Unit Testing Introduction To Junit • Unit Testing Line Vs Branch Coverage • Unit Testing Arrange Act Assert • Unit Testing Assertion Types • Unit Testing Stubs Introduction to Mockito • Introduction to Mockito • Mock vs Stub vs Spy	Logging Log4J Framework • Log4J Configuration • Appenders (Console, File, Rolling File) • Layouts (Pattern Layout) • Log4J 2 Architecture SLF4J (Simple Logging Facade for Java) • SLF4J API , Binding with Log4J • Logger Factory • Best Practices for Logging	
Week 6 **Spring Framework Foundations**	Project 1 Introduction to Spring Framework • Spring Framework Overview • Spring Ecosystem • • Spring vs Java EE Setting up a Spring Project with Maven • Introduction to Maven • Maven Project Structure • Project Object Model (POM) , Maven Central Repository, Dependencies Management • Maven Build Lifecycle, Maven Commands • Spring Dependencies Spring IoC Container	Project 1 Dependency Injection in Spring • Constructor Injection, Setter Injection, Field Injection Autowiring • @Autowired Annotation • Qualifier Spring AOP (Aspect-Oriented Programming) • AOP Concepts • Cross-cutting Concerns • Aspect, Advice, Pointcut, Join Point • @Aspect Annotation • Before, After, Around Advice • AOP Proxies	Project 1 Spring MVC and ORM • Spring MVC Architecture • DispatcherServlet • Controllers • ViewResolver • Model and View • Spring ORM • Hibernate Integration Spring Boot (Basics) • What is Spring Boot? • Spring Boot vs Spring Framework • Auto-configuration • Starter Dependencies • Spring Boot CLI • application.properties	Project 1 Reactive Programming with Spring WebFlux • Reactive Programming Concepts • Project Reactor • Mono and Flux • WebFlux vs Spring MVC • Reactive Controllers • Reactive Data Access Testing Spring Applications with JUnit and Mockito • @SpringBootTest , @MockBean , Testing Controllers, Services	Mocking External Dependencies • HTTP Client Mocking , Database Mocking Project Presentation	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	• Inversion of Control Concept • IoC Container Types • ApplicationContext • BeanFactory Spring Bean Configuration • XML Configuration ,Annotation-based Configuration , Java-based Configuration • Bean Scopes , Bean Lifecycle Interceptors		/yml			
Week 7 **Spring Data JPA & Spring REST**	Project 2 Introduction to Spring Data JPA • JPA Overview • Spring Data JPA Benefits • Repository Pattern Setting Up a Spring Boot • Dependencies Configuration • DataSource Configuration • JPA Properties Entity Mapping • @Entity Annotation , @Table, @Column • Primary Keys, Relationships (@OneToMany, @ManyToOne, etc.) ,Embedded Objects	Project 2 Spring Data Repositories • CrudRepository • JpaRepository • PagingAndSortingRepository • Custom Repositories CRUD Operations with Spring Data JPA • Save and Update • Find Methods • Delete Operations	Project 2 Query Methods and Named Queries • Query Derivation • @Query Annotation • Named Queries • Native Queries Pagination and Sorting • Pageable Interface • Sort Object • Page vs Slice Auditing with Spring Data JPA • @CreatedDate, @LastModifiedDate , @CreatedBy, @LastModifiedBy • Auditing Configuration	Project 2 Spring Data JPA Projections • Interface-based Projections • Class-based Projections • Dynamic Projections Spring Data JPA and Spring Boot Integration • Auto-configuration • Properties Configuration • Multiple DataSources Spring Data JPA and Hibernate • Hibernate as JPA Provider • Entity Manager • Session Factory • Caching (First Level, Second Level)	Project 2 Code Quality • Code Quality Metrics • Technical Debt • Code Smells • SonarQube Dashboard Introduction to Spring REST and Spring Boot 3 • REST Principles • HTTP Methods • Status Codes • Spring Boot 3 Features Building a Simple REST Controller Request and Response handling • @RestController , @RequestMapping , @GetMapping, @PostMapping • @RequestBody , @ResponseBody , @PathVariable ,	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
					@RequestParam , @ResponseEntity	
Week 8 **REST APIs & Microservices**	Project 2 RESTful Resource Representation with DTOs • Data Transfer Objects • DTO Pattern • ModelMapper, MapStruct RESTful CRUD Operations • Create Resources • Read Resources • Update Resources • Delete Resources RESTful HATEOAS • Hypermedia Concept , Spring HATEOAS , Links and Resources Content Negotiation and Media Types • Accept Header , Content-Type Header ,JSON vs XML	Project 2 Spring Boot Actuator for REST Monitoring • Actuator Endpoints , Health Checks ,Metrics , Custom Endpoints Security and Authentication in RESTful APIs • Spring Security Basics • JWT Authentication • OAuth2 Testing RESTful APIs • MockMvc , @WebMvcTest Documenting RESTful APIs • OpenAPI/Swagger • SpringDoc • API Documentation Best Practices	Project 2 Introduction to Microservices Architecture (MSA) • Monolith vs Microservices • Microservices Characteristics • Benefits and Challenges • Domain-Driven Design 12 factor APP Spring Cloud for Microservices • Spring Cloud Overview • Service Discovery (Eureka) • Load Balancing (Ribbon/Spring Cloud • Circuit Breaker (Resilience4j) Spring Security for Microservices • Microservices Security Challenges • Service-to-Service Authentication • CORS • Token-based Security Centralized • CSRF • DDOS	Project 2 Session Hijacking Authentication and Authorization • OAuth2 Authorization Server • Resource Server • SSO (Single Sign-On) Microservices Communication with Spring Cloud • REST Template • WebClient • Feign Client • Asynchronous Communication API Gateway and Edge Services • Spring Cloud Gateway • Routing • Filters • Rate Limiting	Project 2 Fault tolerance and Resilience • Retry Mechanisms • Fallback Methods • Bulkhead Pattern Spring Cloud Config • Centralized Configuration • Config Server • Config Client • Refresh Scope Monitoring and Metrics in Microservices • Distributed Tracing (Sleuth, Zipkin) • Logging Aggregation • Metrics Collection Security Best Practices in Microservices • Defense in Depth • API Security • Secrets Management	
Week 9 **TypeScript, Angular(v16)**	Project 2 TypeScript • What Is Typescript • Javascript Vs Typescript • How Why Should	Project 2 • Utility Types • Array Generics • Basic Generics • Keyof • Readonly	Project 2 Angular • Introduction to Angular • Angular Setup and Installation	Project 2 Angular Components • Component Lifecycle • LifyCycle hooks • @Component	Project 2 Data Binding • 1 Way Data Binding • 2 Way Data Binding	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	I Use Typescript • Typescript Compiler And Install Typescript • Package Json • Node As Js Runtime • Simple Or Variable Types • Special Types • Object Types • Union Types • Type Aliases And Interfaces • Casting • Functions • Classes • Classes And Access Modifiers • Decorators	Interface • As Const • Type Guards • Compiler Options • Strict • Target • Tsc • Ts Config Basics	• Node.js and npm • Angular CLI • Creating Angular Application • Angular Project Structure • Single Page Applications (SPA) • Client-side Routing • Webpack • Angular Templates	• Component Styles • Change Detection • Dynamic Components • Event Emitters • Sharing Data Between Child And Parent Angular Modules • NgModule Decorator • Root Module • Feature Modules • Shared Modules	Angular Directives • Structural Directives • Attribute Directives Pipes • Pipes • Custom Pipes	
Week 10 **Angular (v16)**	Project 2 Dependency Injection • DI in Angular • Injector Hierarchy • DI Providers Services • Creating Services • Service Injection • Service Communication Angular Routing • Router Module • Route Guards • Routing And Navigation Signals	Project 2 RxJS • Introduction to RxJS • Observables • RxJS Operators • RxJS Subjects HTTP Client • Making HTTP Requests • Error Handling • HTTP Interceptors • Angular HTTP Best Practices	Project 2 Angular Forms • Introduction to Forms • Template - Drive Forms • Reactive Forms • Form Validation • Dynamic forms State Management • Application State • State Management Patters • Service-based State • BehaviorSubject pattern	Project 2 Angular Testing • Karma • Jasmine • Testing In Angular With Jasmine And Karma Application Debugging Front End • Debugging Angular Applications with Chrome DevTools • Debugging with Visual Studio Code	Project 2 • Review	
Week 11 **Docker ,** **Kubernetes,Cloud (GCP)**	Project 2 Docker Architecture • Docker Architecture	Project 2 DevOps • DevOps Overview	Project 2 Kubernetes Configuration • ConfigMaps,	Project 2 Introduction to Cloud Computing • Cloud Computing	Introduction to GCP • GCP Console • Projects and Billing	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	• Containers Vs Vms • Containerization Docker Image &Container • Installing Docker • Dockerfile • Docker Images • Docker Containers • Basic Docker Cli Commands Docker Registry and Repository • DockerHub	• Continuous deployment • Continuous integration • Continuous delivery Kubernetes • What is Container Orchestration? • Kubernetes Architecture • Master vs Worker Nodes • Control Plane Components Core Kubernetes Concepts • Pods , ReplicaSets, Deployments, Services (ClusterIP, NodePort, LoadBalancer), Namespaces	Secrets, Environment Variables Storage in Kubernetes • Volumes • Persistent Volumes • Persistent Volume Claims Kubernetes Networking • Service Discovery • Ingress Controllers • Network Policies kubectl CLI Commands • Basic Operations	Definition • On-Premise vs Cloud , Cloud Benefits Cloud Service Models • IaaS (Infrastructure as a Service) • PaaS (Platform as a Service) • SaaS (Software as a Service) Cloud Deployment Models • Private, Private, Hybrid, Multi-Cloud Cloud Service Providers • AWS, Azure, GCP	• IAM Basics GCP Identity and Access Management (IAM) • Users, Groups, Service Accounts • Roles and Permissions • Policy Management GCP Compute Services • Compute Engine (VMs) • App Engine • Kubernetes Engine (GKE) • Cloud Functions GCP Storage Services • Cloud Storage (Buckets) • Persistent Disks • Filestore Project Presentation	
Week 12 **Cloud(GCP), Project**	Project 3 GCP Networking • VPC • Load Balancing • Cloud CDN • Cloud DNS GCP Database Services • Cloud SQL • Cloud Spanner • Firestore • Bigtable GCP Serverless Computing • Cloud Functions • Cloud Run • Serverless	Project 3 Introduction to DevOps in GCP • DevOps Culture and Practices • CI/CD Pipeline • Infrastructure as Code GCP Cloud Source Repositories • Git Repositories in GCP • Repository Management • Integration with Cloud Build GCP Cloud Build • Build	Project 3 GCP Cloud Deploy • Deployment Pipelines • Delivery Pipelines • Rollout Management • Automated Deployment GCP Cloud Build Pipelines • Pipeline as Code • Multi-Stage Pipelines • Testing in Pipelines • Deployment Automation	Project 3	Project 3	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	Containers	Configuration • Build Triggers • Automated Builds • Container Building				
Week 13 **Project , Review**	Project 3	Project 3	Project 3	Project 3	Project Presentation	

PROJECT	TECHNOLOGIES
🟧 Project 1	Java, MySQL, JDBC
🟦 Project 2	Java, MySQL, Spring Boot, Spring JPA, Angular
🟩 Project 3	Java, MySQL, Spring Boot, Spring Data JPA, Docker, Kubenetes, GCP

REVATURE