

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 1 Agile, Unix, Shell Scripting & Git	Program Orientation Introduction to FullStack Development <ul style="list-style-type: none"> Introduction to Agile Agile Manifesto Scrum Framework Sprint Planning Agile User Stories Story Pointing Agile Estimation and Planning Agile Metrics and Reporting SDLC vs Agile Software Support and Maintenance 	Introduction to Linux OS <ul style="list-style-type: none"> Basic Linux commands File Management Directory Management Unix Commands Deep Dive <ul style="list-style-type: none"> File Permissions/Access Modes Basic Utilities Pipes and Filters Process Management Network Communication Utilities 	Shell Scripting <ul style="list-style-type: none"> Introduction to Shell Scripting Basic Shell Scripting Concepts Control Structures Command-Line Arguments Functions Text Processing Error Handling and Debugging 	Introduction to Git <ul style="list-style-type: none"> Source Control Management Working Locally with Git Git Fundamentals Initializing a Repository Git Commit, Branch, Merge Working remotely with Git 	<ul style="list-style-type: none"> Branching, Merging, and Rebasing 	
Week 2 HTML5, CSS3 & JavaScript	Introduction to HTML 5 <ul style="list-style-type: none"> Getting started HTML Document Structure HTML5 New Features Elements & Attributes Headings, Paragraphs and Links Images, Lists, Tables Div and Span 	<ul style="list-style-type: none"> Navigation Semantic Elements Header, nav, footer, article, section HTML5 Forms <ul style="list-style-type: none"> Web Forms 2.0 Form Elements & Input Types Form Validation Events 	HTML5 Advanced <ul style="list-style-type: none"> Web Storage LocalStorage, sessionStorage Web SQL Database Geolocation Introduction to CSS3 <ul style="list-style-type: none"> CSS Syntax Ways to Apply CSS CSS Selectors 	<ul style="list-style-type: none"> Styling Text and Fonts Font Properties Box Model Basics Content, Padding, Border, Margin Colors and Backgrounds Colors, Borders and Effects Layout with CSS Display, Position, Float 	<ul style="list-style-type: none"> Flexbox Layout Flex-direction, justify-content CSS Grid Layout Grid-template-columns/rows Responsive Design Media Queries, Breakpoints Transitions, Animations, Transform 	
Week 3 JavaScript, Bootstrap & jQuery	Introduction to JavaScript <ul style="list-style-type: none"> Getting Started JavaScript Fundamentals Variables (var, let, 	JavaScript Objects <ul style="list-style-type: none"> Object Creation, Properties, Methods this Keyword JavaScript Arrays 	<ul style="list-style-type: none"> Callbacks, Closures, IIFE DOM (Document Object Model) <ul style="list-style-type: none"> Selecting Elements Modifying 	Bootstrap 5 <ul style="list-style-type: none"> Introduction to Bootstrap 5 Bootstrap Setup (CDN) Layout and Grid 	<ul style="list-style-type: none"> Bootstrap Utilities and Helpers Responsive Design with Bootstrap Customization and Extensions 	

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	const) <ul style="list-style-type: none"> Data Types JavaScript Operators Control Flow if-else, switch, Loops 	<ul style="list-style-type: none"> Array Methods forEach, map, filter, reduce JavaScript Function <ul style="list-style-type: none"> Function Declaration, Arrow Functions 	Content <ul style="list-style-type: none"> Event Handling Asynchronous JavaScript <ul style="list-style-type: none"> Promises, async/await Fetch API 	System <ul style="list-style-type: none"> Container, Row, Column Responsive Breakpoints Essential Components Typography, Buttons, Cards, Forms Navbar, Modals, Dropdowns 	jQuery <ul style="list-style-type: none"> What is jQuery? jQuery Selectors DOM manipulation & events jQuery Effects Basic AJAX with jQuery 	
Week 4 SQL Using Oracle Database, PL/SQL	Project 1 ANSI SQL using Oracle <ul style="list-style-type: none"> Database Basic Introduction to RDBMS SQL vs NoSQL Data Types Structuring Data DDL (Data Definition Language) <ul style="list-style-type: none"> CREATE, ALTER, DROP, TRUNCATE Constraints PRIMARY KEY, FOREIGN KEY UNIQUE, NOT NULL, CHECK, DEFAULT DML (Data Manipulation Language) INSERT, UPDATE, DELETE Querying data SELECT Statement WHERE Clause Sorting data (ORDER BY) 	Project 1 <ul style="list-style-type: none"> Filtering data DISTINCT, LIKE, Wildcards IN, BETWEEN Operators IS NULL, IS NOT NULL AND, OR, NOT Functions <ul style="list-style-type: none"> Aggregate Function String Functions Date Functions, Numeric Functions Conversion Functions Grouping data GROUP BY, HAVING GROUP BY with Multiple Columns Joins <ul style="list-style-type: none"> INNER JOIN LEFT JOIN, RIGHT JOIN FULL OUTER JOIN CROSS JOIN, Self Join Multiple Joins 	Project 1 <ul style="list-style-type: none"> Subquery Single-row, Multi-row Subqueries Correlated Subqueries Set Operators <ul style="list-style-type: none"> UNION, UNION ALL, INTERSECT, MINUS <ul style="list-style-type: none"> Modifying data Database Views Creating, Updating, Dropping Views Introduction to PL/SQL <ul style="list-style-type: none"> PL/SQL Block Structure PL/SQL Variables and Data Types <ul style="list-style-type: none"> %TYPE and %ROWTYPE <ul style="list-style-type: none"> Control Structures in PL/SQL IF-THEN-ELSE, CASE LOOP, WHILE, FOR Procedures and Functions <ul style="list-style-type: none"> Creating Procedures 	Project 1 Packages <ul style="list-style-type: none"> Package Specification, Package Body Triggers <ul style="list-style-type: none"> Trigger Timing, Trigger Events Exception Handling in PL/SQL <ul style="list-style-type: none"> Predefined Exceptions User-defined Exceptions Cursors Implicit Cursors, Explicit Cursors Cursor FOR Loops Parameterized Cursors, REF Cursors 	Project 1 Dynamic SQL in PL/SQL <ul style="list-style-type: none"> EXECUTE IMMEDIATE Error Handling and Logging Bulk Processing BULK COLLECT, FORALL JDBC (Java Database Connectivity) <ul style="list-style-type: none"> JDBC Architecture JDBC Drivers, DriverManager Connection Interface Statement, PreparedStatement CallableStatement ResultSet Interface Executing Queries, Batch Processing Transaction Management Connection Pooling 	

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			<ul style="list-style-type: none"> IN, OUT, IN OUT Parameters Creating Functions RETURN Statement 			
Week 5 Core Java (v21)	Project 1	Project 1	Project 1	Project 1	Project 1	
	Java Basics <ul style="list-style-type: none"> 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 Imports Debugging 	Methods <ul style="list-style-type: none"> Method Declaration And Syntax Method Parameters And Return Types Method Invocation Method Visibility Modifiers Method Scope Introduction To The Stack Method Recursion Types <ul style="list-style-type: none"> Casting Value And Reference Types String Basics Wrapper Classes 	OOP <ul style="list-style-type: none"> 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 	Exceptions <ul style="list-style-type: none"> Exceptions Vs Errors And Hierarchy Handling Exceptions Checked Vs Unchecked Exceptions Creating Custom Exceptions Reading The Stack Trace Collections <ul style="list-style-type: none"> Overview Of Collections Hierarchy List Interface & Implementation Classes Set Interface & Implementation Classes Queue Interface & Implementation Classes Iterators Map Interface & Implementation Classes 	Multithreading <ul style="list-style-type: none"> multithreading states-of-a-thread thread-class runnable-interface Concurrency <ul style="list-style-type: none"> synchronization deadlock livelock producer-consumer-problem Functional Programming <ul style="list-style-type: none"> functional-interfaces lambdas method-reference-syntax Optional-class File Handling and I/O <ul style="list-style-type: none"> reading-and-writing-to-files 	
Week 6 Core Java (v16), Testing & Code Quality, Logging	Project 1	Project 1	Project 1	Project 1	Project 1	
	<ul style="list-style-type: none"> Date and Time API reflection - API Stream API Design Patterns <ul style="list-style-type: none"> SOLID Principles Singleton Pattern Factory Pattern 	Java 17 & 21 Features <ul style="list-style-type: none"> Sealed Classes, Pattern Matching Text Blocks, Records, Virtual Threads JDBC <ul style="list-style-type: none"> Jdbc Architecture And Interfaces 	Introduction to Reactive Programming <ul style="list-style-type: none"> Reactive Manifesto, Reactive Streams <ul style="list-style-type: none"> Reactive Programming in Java Building Reactive 	Test-Driven Development (TDD) <ul style="list-style-type: none"> TDD Principles Red-Green-Refactor Cycle Unit Testing Basics <ul style="list-style-type: none"> What is Unit Testing 	Code Quality PMD <ul style="list-style-type: none"> Static Code Analysis PMD Rules and Rulesets <ul style="list-style-type: none"> PMD Configuration 	

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	<ul style="list-style-type: none"> Factory Pattern Behavioral Pattern Structural Pattern <p>UML Basics</p> <ul style="list-style-type: none"> Introduction to UML UML Diagram Types UML Diagram Elements 	<ul style="list-style-type: none"> Driver Types And Registration Setting Up The Database Driver Setting Up The Utility Class Sql Injection Callable Statements Result Set Navigating Result Set Rows Simple And Prepared Statements 	<p>Applications</p> <p>Networking and Sockets</p> <ul style="list-style-type: none"> Java Networking Socket Programming <ul style="list-style-type: none"> java.net.ServerSocket Implementing Socket Client in Java <p>Application Debugging Using IntelliJ IDEA</p> <ul style="list-style-type: none"> 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 <p>Reverse Engineering</p> <ul style="list-style-type: none"> Goals and its Objectives Steps of Reverse Engineering Tools of Reverse Engineering 	<ul style="list-style-type: none"> Introduction to JUnit JUnit 5 Architecture JUnit Annotations JUnit Test Structure Assertions Test Lifecycle Parameterized Tests @ValueSource, @CsvSource Test Suites Nested Tests Dynamic Tests Assumptions Timeouts and Exceptions <p>Introductions to Mockito</p> <ul style="list-style-type: none"> What is Mocking Mock vs Stub vs Spy Creating Mocks Stubbing Methods <ul style="list-style-type: none"> when().thenReturn() Stubbing and Verification Argument Matchers verify(), Verification Modes Spies (@Spy) Argument Captors 	<p>Checkstyle</p> <ul style="list-style-type: none"> Code Style CHecking Checkstyle Configuration Checkstyle Rules <p>SonarQube</p> <ul style="list-style-type: none"> Code Quality Metrics Technical Debt Code Smells SonarQube Dashboard Quality Gates SonarQube Integration <p>JaCoCo</p> <ul style="list-style-type: none"> Code Coverage Analysis JaCoCo Reports Integration with Maven Coverage Metrics (Line, Branch, Instruction) <p>SpotBugs</p> <ul style="list-style-type: none"> Bug Detection SpotBugs Annotations Common Bug Patterns <p>Code Review Best Practices</p> <ul style="list-style-type: none"> Peer Review Code Review Checklist Pull Request Best Practices Continuous Integration Basics <p>Introduction to Logging</p>	

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					Log4J Framework <ul style="list-style-type: none"> Log4J Configuration Appenders (Console, File, Rolling File) Layouts (Pattern Layout) Log4J 2 Architecture SLF4J (Simple Logging Facade for Java) <ul style="list-style-type: none"> SLF4J API Binding with Log4J Logger Factory Best Practices for Logging 	
Week 7 Spring Core & Maven	Project 1 Introduction to Spring Framework <ul style="list-style-type: none"> Spring Core Spring Modules Core, AOP, Data, MVC, Security Spring Container ApplicationContext, BeanFactory IoC (Inversion of Control) Dependency Injection <ul style="list-style-type: none"> Constructor Injection Setter Injection Field Injection 	Project 1 Spring Annotations <ul style="list-style-type: none"> @Autowired Annotation @Qualifier Annotation @Primary Annotation Spring Bean Configuration <ul style="list-style-type: none"> Annotation Configuration Java Configuration 	Project 1 <ul style="list-style-type: none"> @Configuration, @Bean @Component, @Service @Repository, @Controller Bean Scopes <ul style="list-style-type: none"> Singleton, Prototype Request, Session, Application Bean Lifecycle <ul style="list-style-type: none"> Initialization and Destruction @PostConstruct and @PreDestroy 	Project 1 Reading values from Property Files <ul style="list-style-type: none"> @PropertySource @Value Annotation Application Properties Spring Expression Language <ul style="list-style-type: none"> Introduction to SpEL Literal Expressions , Variables and References SpEL with @Value, SpEL in XML Configuration , SpEL in Annotations Spring JBDC <ul style="list-style-type: none"> Jdbc Template NamedParameterJdbcTemplate RowMapper 	Spring Transactions <ul style="list-style-type: none"> @Transactional Annotation Transaction Propagation Maven Basics <ul style="list-style-type: none"> Maven Project Structure POM(Project Object Model) Build Lifecycle Plugings Running Maven Builds Project Presentation	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 8 Spring Data JPA	Project 2	Project 2	Project 2	Project 2	Project 2	
	ORM Basics <ul style="list-style-type: none"> What is ORM Advantages of ORM Introduction to JPA JPA vs Hibernate Spring Data JPA <ul style="list-style-type: none"> Spring Data Repository CrudRepository JpaRepository 	Entity Mapping <ul style="list-style-type: none"> @Entity, @Table @Id, @GeneratedValue @Column Mapping Relationships <ul style="list-style-type: none"> @OneToOne @OneToMany @ManyToOne @ManyToMany 	Cascade Types <ul style="list-style-type: none"> ALL, PERSIST, MERGE, REMOVE Fetch Types LAZY, EAGER @JoinColumn @JoinTable Persisting objects into database Entity Lifecycle <ul style="list-style-type: none"> Transient, Persistent States Detached Objects Removed States Entity Manager <ul style="list-style-type: none"> Persistent, Merge, Remove, Find 	JPQL <ul style="list-style-type: none"> JPQL Syntax Named Queries Query Methods <ul style="list-style-type: none"> Custom Query Methods @Query Annotation Native Queries Specifications Advanced JPA Pagination and Sorting Projections Auditing Caching, Transaction Management 	<ul style="list-style-type: none"> Review 	
Week 9 Spring Boot and Microservices	Project 2	Project 2	Project 2	Project 2	Project 2	
	Setting Up Spring Boot Development Environment Spring Boot Fundamentals <ul style="list-style-type: none"> What is Spring Boot Spring Initializr (start.spring.io) Project Structure Auto-configuration Starter Dependencies @SpringBootApplication Application Properties Profile Management 	Spring MVC Basics <ul style="list-style-type: none"> MVC Architecture Spring Boot and Spring MVC Integration Controllers @Controller, @RestController @RequestMapping @GetMapping, @PostMapping @PutMapping, @DeleteMapping @PathVariable, @RequestParam @RequestBody, @ResponseBody Thymeleaf <ul style="list-style-type: none"> Introduction to Thymeleaf 	RESTful Web Services <ul style="list-style-type: none"> REST Principles HTTP Methods GET, POST, PUT, DELETE, PATCH HTTP Status Codes 200, 201, 400, 404, 500 ResponseEntity 	Exception Handling <ul style="list-style-type: none"> @ExceptionHandler @ControllerAdvice Validation (@Valid, @NotNull) Spring Security <ul style="list-style-type: none"> Authentication vs Authorization UserDetailsService Integrating Reactive Programming	Spring WebFlux <ul style="list-style-type: none"> @SpringBootTest Introduction to Microservices <ul style="list-style-type: none"> Microservices Basics Building Blocks, Data Management 	

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		<ul style="list-style-type: none"> Thymeleaf Configuration Thymeleaf Syntax and Expressions Thymeleaf Attributes (th:text, th:each, th:if) Thymeleaf Layouts and Fragments Handling Form Submissions Data Access with Spring Boot 				
Week 10 Python and Django Framework	Project 2 Python 3 Basics <ul style="list-style-type: none"> Python Installation Python Syntax Variables and Types Numbers, Strings, Booleans Python Operators Arithmetic, Comparison, Logical Program Flow if-else, Loops (for, while) 	Project 2 Functions <ul style="list-style-type: none"> Defining Functions Parameters and Arguments Return Values Lambda Functions Collections <ul style="list-style-type: none"> Lists List Operations and Methods Collections - Tuples Tuple Operations Collections - Dictionary Dictionary Operations 	Project 2 <ul style="list-style-type: none"> Sets and Set Operations Object Oriented Programming (OOP) Classes and Objects Constructors (___init___) Inheritance Polymorphism Encapsulation File I/O Reading Files Writing Files 	Project 2 <ul style="list-style-type: none"> Exception Handling try-except-finally Modules Python Modules and Packages Import Statements Django Framework Django Installation Django Project Structure Django Apps Settings Configuration Django Models, Django ORM Django Views and Templates URL Configuration, Django Admin 	Project 2 <ul style="list-style-type: none"> Django REST Framework Serializers, API Views, Authentication 	
Week 11 Enterprise Tools, Cloud Computing and DevOps	Project 2 Application Debugging Using IntelliJ IDEA <ul style="list-style-type: none"> Introduction to Debugging 	Project 2 ITIL <ul style="list-style-type: none"> Introduction to ITIL 4 Service Management 	Project 2 Jira <ul style="list-style-type: none"> Introduction to JIRA Getting Started with JIRA 	Project 2 ServiceNow <ul style="list-style-type: none"> Introduction to ServiceNow ServiceNow Architecture 	Project 2 <ul style="list-style-type: none"> Scheduling Jobs in Java Communication Between Service and Java 	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
	<ul style="list-style-type: none"> Getting Started with IntelliJ IDEA Debugger <p>Basic Debugging Techniques</p> <ul style="list-style-type: none"> Setting Breakpoints Step Over, Step Into, Step Out <p>Advanced Debugging Techniques</p> <ul style="list-style-type: none"> Watch Variables, Debug Console 	<ul style="list-style-type: none"> Four Dimensions of Service Management ITIL 4 Service Value System (SVS) ITIL 4 Service Value Chain (SVC) ITIL 4 Practices ITIL 4 Guiding Principles ITIL 4 Continual Improvement 	<ul style="list-style-type: none"> Working with Issues in JIRA JIRA Workflows JIRA Administration Agile Boards (Scrum, Kanban) Reporting and Dashboards 	<ul style="list-style-type: none"> ServiceNow Modules and Applications ServiceNow Administration ServiceNow ITSM <p>Jenkins</p> <ul style="list-style-type: none"> Devops Overview Continuous Deployment Continuous Delivery Jenkins Overview Jenkins Job Project Continuous Integration <p>Windows Service</p> <ul style="list-style-type: none"> Introduction to Windows Service Java Integration with Windows Service 	<ul style="list-style-type: none"> Error Handling and Logging <p>IBM WebSphere</p> <ul style="list-style-type: none"> WebSphere Application Server WebSphere Architecture Application Deployment <p>Cloud Computing Basics</p> <ul style="list-style-type: none"> IaaS, PaaS, SaaS Cloud Providers (AWS, Azure, GCP) Cloud Services Overview 	
Week 12 Project	Project 2	Project 2	Project 2	Project 2	Project Presentation	

PROJECT

 Project 1

TECHNOLOGIES

Java, SQL, JDBC

 Project 2

Java, MySQL, Testing, Spring MVC, Spring
Data, Thymeleaf, Jenkins



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