

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 1 Agile, Unix, Shell Scripting & Git	<ul style="list-style-type: none"> Program Orientation Introduction to FullStack Development • 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 	<ul style="list-style-type: none"> Introduction to Linux OS • Basic Linux commands • File Management • Directory Management • Unix Commands Deep Dive • File Permissions/Access Modes • Basic Utilities • Pipes and Filters • Process Management • Network Communication Utilities 	<ul style="list-style-type: none"> Shell Scripting • Introduction to Shell Scripting • Basic Shell Scripting Concepts • Control Structures • Command-Line Arguments • Functions • Text Processing • Error Handling and Debugging 	<ul style="list-style-type: none"> Introduction to Git • 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	<ul style="list-style-type: none"> Introduction to HTML 5 • 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 <p>HTML5 Forms</p> <ul style="list-style-type: none"> • Web Forms 2.0 • Form Elements & Input Types • Form Validation • Events 	<p>HTML5 Advanced</p> <ul style="list-style-type: none"> • Web Storage • LocalStorage, sessionStorage <p>HTML5 Forms</p> <ul style="list-style-type: none"> • Web SQL Database • Geolocation <p>Introduction to CSS3</p> <ul style="list-style-type: none"> • CSS Syntax • Ways to Apply CSS • CSS Selectors 	<ul style="list-style-type: none"> • Styling Text and Fonts • 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	<ul style="list-style-type: none"> Introduction to JavaScript • Getting Started • JavaScript Fundamentals • Variables (var, let, 	<p>JavaScript Objects</p> <ul style="list-style-type: none"> • Object Creation, Properties, Methods • this Keyword • JavaScript Arrays 	<ul style="list-style-type: none"> • Callbacks, Closures, IIFE <p>DOM (Document Object Model)</p> <ul style="list-style-type: none"> • Selecting Elements • Modifying 	<p>Bootstrap 5</p> <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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	<ul style="list-style-type: none"> const) • Data Types • JavaScript Operators • Control Flow • if-else, switch, Loops 	<ul style="list-style-type: none"> • Array Methods • forEach, map, filter, reduce <p>JavaScript Function</p> <ul style="list-style-type: none"> • Function Declaration, Arrow Functions 	Content <ul style="list-style-type: none"> • Event Handling <p>Asynchronous JavaScript</p> <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 <ul style="list-style-type: none"> 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 <p>Functions</p> <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 <p>Joins</p> <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 <p>Set Operators</p> <ul style="list-style-type: none"> • UNION, UNION ALL, INTERSECT, MINUS <p>Introduction to PL/SQL</p> <ul style="list-style-type: none"> • PL/SQL Block Structure • %TYPE and %ROWTYPE <p>PL/SQL Variables and Data Types</p> <ul style="list-style-type: none"> • Control Structures in PL/SQL • IF-THEN-ELSE, CASE • LOOP, WHILE, FOR <p>Procedures and Functions</p> <ul style="list-style-type: none"> • Creating Procedures 	Project 1 <ul style="list-style-type: none"> • Package Specification, Package Body <p>Packages</p> <ul style="list-style-type: none"> • Trigger Timing, Trigger Events <p>Exception Handling in PL/SQL</p> <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 <ul style="list-style-type: none"> • EXECUTE IMMEDIATE • Error Handling and Logging • Bulk Processing • BULK COLLECT, FORALL <p>Dynamic SQL in PL/SQL</p> <ul style="list-style-type: none"> • JDBC (Java Database Connectivity) • 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	Methods	OOP	Exceptions	Multithreading	
	<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 	<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 • Casting • Value And Reference Types • String Basics • Wrapper Classes 	<ul style="list-style-type: none"> • Introduction To Oop • Classes Vs Objects • Classes Members • Static Members • Oop Inheritance • Oop Polymorphism • Overloading • Overriding • Oop Encapsulation • Oop Abstraction • Object Class • Non Access Modifiers • Equality Hashcode Equals • Garbage Collection 	<ul style="list-style-type: none"> • Exceptions Vs Errors And Hierarchy • Handling Exceptions • Checked Vs Unchecked Exceptions • Creating Custom Exceptions • Reading The Stack Trace 	<ul style="list-style-type: none"> • multithreading • states-of-a-thread • thread-class • runnable-interface 	
			Collections		Concurrency	
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 	Java 17 & 21 Features	Introduction to Reactive Programming	Test-Driven Development (TDD)	Code Quality	
		<ul style="list-style-type: none"> • Sealed Classes, Pattern Matching • Text Blocks, Records, Virtual Threads 	<ul style="list-style-type: none"> • Reactive Manifesto, Reactive Streams • Reactive Programming in Java 	<ul style="list-style-type: none"> • TDD Principles • Red-Green-Refactor Cycle 	PMD	
		JDBC		Unit Testing Basics		
			<ul style="list-style-type: none"> • Jdbc Architecture And Interfaces 	<ul style="list-style-type: none"> • Building Reactive 		
				<ul style="list-style-type: none"> • What is Unit Testing 		

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

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Week 8 Spring Data JPA	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 	Project 2 Entity Mapping <ul style="list-style-type: none"> • @Entity, @Table • @Id, @GeneratedValue • @Column Relationships <ul style="list-style-type: none"> • @OneToOne • @OneToMany • @ManyToOne • @ManyToMany 	Project 2 Cascade Types <ul style="list-style-type: none"> • ALL, PERSIST, MERGE, REMOVE • Fetch Types • LAZY, EAGER • @JoinColumn • @JoinTable 	Project 2 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 	Project 2 <ul style="list-style-type: none"> • Review 	
Week 9 Spring Boot and Microservices	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 • <code>@SpringBootApplication</code> • Application Properties • Profile Management 	Project 2 Spring MVC Basics <ul style="list-style-type: none"> • MVC Architecture • Spring Boot and Spring MVC Integration • Controllers • <code>@Controller</code>, <code>@RestController</code> • <code>@RequestMapping</code> • <code>@GetMapping</code>, <code>@PostMapping</code> • <code>@PutMapping</code>, <code>@DeleteMapping</code> • <code>@PathVariable</code>, <code>@RequestParam</code> • <code>@RequestBody</code>, <code>@ResponseBody</code> Thymeleaf <ul style="list-style-type: none"> • Introduction to Thymeleaf 	Project 2 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 • <code>ResponseEntity</code> 	Project 2 Exception Handling <ul style="list-style-type: none"> • <code>@ExceptionHandler</code> • <code>@ControllerAdvice</code> • Validation (<code>@Valid</code>, <code>@NotNull</code>) Spring Security <ul style="list-style-type: none"> • Authentication vs Authorization • <code>UserDetailsService</code> Integrating Reactive Programming	Project 2 Spring WebFlux <ul style="list-style-type: none"> • <code>@SpringBootTest</code> Introduction to Microservices <ul style="list-style-type: none"> • Microservices Basics • Building Blocks, Data Management 	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
		<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 (<code>__init__</code>) • Inheritance • Polymorphism • Encapsulation • File I/O • Reading Files • Writing Files 	Project 2 <ul style="list-style-type: none"> • Exception Handling • <code>try-except-finally</code> • 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 <p>ITIL 4 Service Value System (SVS)</p> <ul style="list-style-type: none"> 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 <p>JIRA Workflows</p> <ul style="list-style-type: none"> JIRA Administration Agile Boards (Scrum, Kanban) Reporting and Dashboards 	<ul style="list-style-type: none"> ServiceNow Modules and Applications <p>ServiceNow Administration</p> <ul style="list-style-type: none"> 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	TECHNOLOGIES
Project 1	Java, SQL, JDBC
Project 2	Java, MySQL, Testing, Spring MVC, Spring Data, Thymeleaf, Jenkins



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