**Month 1: Java Fundamentals and Basics**

**Week 1: Introduction to Java and Development Environment**

* **Day 1:** Introduction to Java, Setup JDK, IDE
* **Day 2:** Java Basics: Syntax, Data Types, Variables
* **Day 3:** Operators and Expressions
* **Day 4:** Control Statements - Conditional Statements
* **Day 5:** Control Statements - Looping Statements
* **Day 6:** Control Statements - Jump Statements
* **Day 7:** Recap and Practice

**Week 2: Advanced Java Basics and Exception Handling**

* **Day 8:** Arrays and Strings - Introduction to Arrays
* **Day 9:** Arrays and Strings - Array Operations
* **Day 10:** Object-Oriented Programming - Classes and Objects
* **Day 11:** Object-Oriented Programming - Inheritance and Polymorphism
* **Day 12:** Object-Oriented Programming - Encapsulation and Abstraction
* **Day 13:** Introduction to Exception Handling
* **Day 14:** Recap and Practice

**Week 3: Data Structures Basics**

* **Day 15:** Introduction to Data Structures
* **Day 16:** Arrays vs. Linked Lists
* **Day 17:** Introduction to Linked Lists: Singly Linked List
* **Day 18:** Introduction to Linked Lists: Doubly Linked List
* **Day 19:** Stacks and Queues
* **Day 20:** Practical Examples: Implementing Stacks and Queues
* **Day 21:** Recap and Practice

**Week 4: Data Structures Advanced**

* **Day 22:** Introduction to Trees: Binary Trees
* **Day 23:** Binary Search Trees
* **Day 24:** Heaps: Min-Heap and Max-Heap
* **Day 25:** Hashing and Hash Tables
* **Day 26:** Graphs: Representation and Basics
* **Day 27:** Graph Traversal Algorithms: BFS and DFS
* **Day 28:** Recap and Practice

**Month 2: Advanced Java and Introduction to SQL**

**Week 1: Advanced Java Topics**

* **Day 29:** Java Serialization and Stream API
* **Day 30:** Multithreading Basics
* **Day 31:** Big O Notations, Time and Space Complexity
* **Day 32:** File I/O Operations
* **Day 33:** Optional Class, Thread Class
* **Day 34:** Introduction to Logback
* **Day 35:** Stream API Activity

**Week 2: Generics, Logging, and TDD**

* **Day 36:** Runnable Interface and Multithreading
* **Day 37:** Generics in Depth
* **Day 38:** Java Logback Logging Levels
* **Day 39:** Introduction to Test-Driven Development (TDD)
* **Day 40:** Thread States, Synchronization
* **Day 41:** Equality: Hashcode vs. Equals
* **Day 42:** Recap and Practice

**Week 3: JUnit and Collections**

* **Day 43:** Introduction to JUnit
* **Day 44:** Deadlock and Livelock
* **Day 45:** List Interface and Operations
* **Day 46:** Functional Interfaces and Lambda Expressions
* **Day 47:** HashMap and TreeMap
* **Day 48:** Introduction to SQL
* **Day 49:** Recap and Practice

**Week 4: SQL Basics and MySQL Setup**

* **Day 50:** Introduction to Databases and RDBMS
* **Day 51:** SQL CRUD Operations
* **Day 52:** MySQL Server & Workbench Setup
* **Day 53:** SQL Data Modeling and ERD
* **Day 54:** SQL Joins and SQL Injection
* **Day 55:** Stored Procedures, User Defined Functions
* **Day 56:** Recap and Practice

**Month 3: Advanced SQL and JSP/Servlets**

**Week 1: Advanced SQL**

* **Day 57:** JDBC Architecture and Interfaces
* **Day 58:** Transaction Properties and ACID Properties
* **Day 59:** SQL Functions and Working with SQL Views
* **Day 60:** Advanced SQL Queries
* **Day 61:** Introduction to Indexing
* **Day 62:** Query Optimization Techniques
* **Day 63:** Recap and Practice

**Week 2: JSP and Servlets**

* **Day 64:** Introduction to JSP, JSP Lifecycle
* **Day 65:** JSP Tags and JSTL
* **Day 66:** Introduction to Servlets, Servlet Lifecycle
* **Day 67:** Servlet Mapping and Handling Form Data
* **Day 68:** RequestDispatcher: Forward and Redirect
* **Day 69:** Servlet Container (Apache Tomcat)
* **Day 70:** Recap and Practice

**Week 3: Advanced JSP/Servlets**

* **Day 71:** Java Beans and MVC Architecture
* **Day 72:** HTTP Methods, Cookies, Sessions
* **Day 73:** Handling Query Parameters
* **Day 74:** JSP and Servlets Integration
* **Day 75:** Advanced JSP Tags and Custom Tags
* **Day 76:** Security in Web Applications
* **Day 77:** Recap and Practice

**Week 4: JavaScript Basics and Advanced**

* **Day 78:** Introduction to JavaScript
* **Day 79:** HTTP Request and Response, Fetch API
* **Day 80:** JSON Handling
* **Day 81:** Advanced JavaScript: Promises, Async/Await
* **Day 82:** JavaScript DOM Manipulation
* **Day 83:** Review of JavaScript
* **Day 84:** Recap and Practice

**Month 4: Spring Framework**

**Week 1: Introduction to Spring Boot**

* **Day 85:** Introduction to Spring Boot
* **Day 86:** MVC Architecture and Annotations
* **Day 87:** HTTP Method Annotations (@GetMapping, @PostMapping)
* **Day 88:** Dependency Injection (DI) Using Java-Based Configuration
* **Day 89:** Component Scanning and Spring Boot Starters
* **Day 90:** Configuration and Customization
* **Day 91:** Recap and Practice

**Week 2: Spring Boot Advanced Concepts**

* **Day 92:** Overview of Inversion of Control (IoC)
* **Day 93:** Annotation-Based Configuration
* **Day 94:** Request Body and @RequestBody Annotation
* **Day 95:** Stereotype Annotations (@Component, @Service, @Repository, @Controller)
* **Day 96:** RESTful API Development with @RestController Annotation
* **Day 97:** Spring Data ORM Providers
* **Day 98:** Introduction to Hibernate

**Week 3: Hibernate and JPA**

* **Day 99:** Hibernate Architecture and Caches
* **Day 100:** Hibernate Annotations
* **Day 101:** Criteria API and Object-Relational Mapping (ORM)
* **Day 102:** Overview of Spring Data JPA
* **Day 103:** JpaRepository vs. CrudRepository
* **Day 104:** Advanced Hibernate Mapping
* **Day 105:** Recap and Practice

**Week 4: Spring Boot Testing and Configuration**

* **Day 106:** Spring Boot Auto Configuration
* **Day 107:** Spring Boot Actuator
* **Day 108:** Spring Boot DevTools
* **Day 109:** Validation in Spring Boot
* **Day 110:** Spring Boot Testing
* **Day 111:** Performance Optimization
* **Day 112:** Recap and Practice

**Month 5: Microservices and DevOps**

**Week 1: Microservices Basics**

* **Day 113:** Introduction to Microservices
* **Day 114:** Overview of SOA (Service-Oriented Architecture)
* **Day 115:** Microservices vs. Monoliths
* **Day 116:** API Gateway and Its Role
* **Day 117:** Docker Architecture
* **Day 118:** Introduction to Docker
* **Day 119:** Docker Images and Containers

**Week 2: Docker and Kubernetes**

* **Day 120:** Dockerfile and Docker Commands
* **Day 121:** Containerization and Orchestration
* **Day 122:** Docker CLI Commands
* **Day 123:** DockerHub and Container Registry
* **Day 124:** Introduction to Kubernetes
* **Day 125:** Basic Kubernetes Concepts
* **Day 126:** Kubernetes Deployment and Services

**Week 3: CI/CD and Jenkins**

* **Day 127:** Continuous Integration (CI) and Continuous Deployment (CD)
* **Day 128:** Introduction to Jenkins
* **Day 129:** Jenkins Jobs and Builds
* **Day 130:** Jenkins Plugins and Integrations
* **Day 131:** Creating a CI/CD Pipeline with Jenkins
* **Day 132:** Monitoring Tools and Techniques
* **Day 133:** Recap and Practice

**Week 4: AWS and Deployment**

* **Day 134:** AWS Overview
* **Day 135:** AWS EC2 Introduction
* **Day 136:** Security Groups and Networking
* **Day 137:** Autoscaling in AWS
* **Day 138:** AWS S3 Bucket Configuration
* **Day 139:** Hosting a Web Application on AWS
* **Day 140:** Recap and Practice

**Month 6: Advanced Topics and AI**

**Week 1: Advanced Java and Frameworks**

* **Day 141:** Advanced Java Streams
* **Day 142:** Introduction to Reactive Programming
* **Day 143:** Spring Boot Security Basics
* **Day 144:** OAuth and JWT Authentication
* **Day 145:** Spring Boot Actuator
* **Day 146:** Performance Tuning and Profiling
* **Day 147:** Recap and Practice

**Week 2: Introduction to AI and Machine Learning**

* **Day 148:** Overview of Artificial Intelligence
* **Day 149:** Machine Learning Basics
* **Day 150:** Supervised vs. Unsupervised Learning
* **Day 151:** Introduction to Scikit-Learn
* **Day 152:** Basic Algorithms (Linear Regression, Decision Trees)
* **Day 153:** Data Preprocessing and Feature Engineering
* **Day 154:** Recap and Practice

**Week 3: Deep Learning and Neural Networks**

* **Day 155:** Introduction to Neural Networks
* **Day 156:** Deep Learning Fundamentals
* **Day 157:** Convolutional Neural Networks (CNNs)
* **Day 158:** Recurrent Neural Networks (RNNs)
* **Day 159:** TensorFlow Basics
* **Day 160:** Keras Library for Deep Learning
* **Day 161:** Recap and Practice

**Week 4: AI Projects and Review**

* **Day 162:** Building a Simple AI Project
* **Day 163:** Integrating AI with Java Applications
* **Day 164:** Final Project Preparation
* **Day 165:** Project Work: AI Integration
* **Day 166:** Project Presentation and Review
* **Day 167:** Final Exam and Feedback
* **Day 168:** Recap and Practice