Development of Software-35 Days

1. **Overview of HTML, CSS, JavaScript & Database**

2. **Java Programming**

   Fundamental Programming Structures in Java
   - The main() method
   - Primitive Data Types
   - Variables
   - Constants
   - Assignments
   - Initializations
   - Operators
   - Strings
   - Control Flow
   - Code Examples & Exercises

   Classes and Objects in Java
   - Classes & Objects
   - OOP Principles
   - Instantiation
   - Encapsulation
   - Specialization
   - Instance Variables
   - Class Variables
   - Constructors
   - Method Overloading
   - The this keyword
   - Passing and returning objects

   Object Design and Programming with Java
   - Abstraction
   - Inheritance
   - Polymorphism
   - Method Overriding

   Java Interfaces
   - Purpose of Interfaces
   - When to use them
   - Interface Declaration
   - Implementing an Interface

Inner Class
- Regular
- Method local
- Anonymous
- Static inner class

Java Exception Handling
- Why Exceptions
- Standard Exception Handling Options
- Exception Class Hierarchy
- Checked vs. Unchecked Exceptions
- Catching an Exception: try and catch blocks
- Methods Which Throw Exceptions: the throws clause
- Try with resource
- Creating user defined exception

Java Collections API
- Introduction to collections: Collection hierarchy
- List, Queue, Set and Map Collections
- List Collection
- ArrayList, LinkedList
- Vector (insert, delete, search, sort, iterate, replace operations)
- Collections class
- Comparable and Comparator interfaces
- Queue collection

JDBC
- JDBC & Transaction Management
- Introduction to JDBC API
- JDBC Architecture
- JDBC Drivers
- JDBC Classes& Interfaces: Driver
- Connection
- Statement
- Prepared Statement
- ResultSet and their relationship to provider implementations

JSP
- Introduction to JSP
- Life cycle of jsp page
- Basic tag of JSP
- JSP with JDBC
- Directives, Implicit and Explicit Objects, Scriptlets, Expressions
- Action Tags in JSP
- Request Dispatcher
- Session Tracking

Hibernate Framework
- Hibernate Framework
- Introduction to Hibernate Framework
- Architecture
- Creating web application using Hibernate API
- Lifecycle of Hibernate Entities
- HB with annotation example
- Hibernate Mappings and Relationships
- HQL, Named Queries, Criteria Queries

Spring
- Introduction to Spring
- Need for spring and Advantages
- Overview of Spring Architecture
- AOP Overview
- Spring Modules Overview
- Testing with small Spring example
- Concept of Dependency Injection
- Inversion of control- IOC Container
- Dependency Injection
- Constructor Based DI
- Setter Based DI
- Spring JDBC Template
- Spring Static Factory Method
- Bean Scopes
- Spring Bean Auto wiring
- Bean Lifecycle
- Bean Postprocessors
- Injecting Collections

Spring MVC
- Spring Modules
- MVC Concept
- Spring- MVC
- Dispatcher Servlet
- Container & View
- MVC Bean Scopes

Spring Forms & ORM
- Implementing Spring Form
- Spring ORM
- Implementation of Spring RESTful Services

Building REST services with Spring
- Introduction to web services
- SOAP Vs RESTful web services
- RESTful web service introduction

Securing Web Application with Spring Security
- What is Spring Security
- Spring Security with Spring Boot
- Basic Authentication
- Authentication with User credentials from Database