**Overall Overview of an application [Week 1]**

**Core Java [Week 1 – Week 4]**

1. Overview of Java **[Week 1]**
   1. OOP's principles - High level
   2. Sample Program
   3. Keywords in Java
   4. Basic Syntax
   5. Variable/Class namings
2. Data Types, Variables in Java **[Week 1]**
3. Operators in Java **[Week 1 ]**
   1. Arithmetic Operators
   2. Bitwise Operators
   3. Relational Operators
   4. Boolean Logical Operators
   5. Ternary Operator and Short-circuit operators
   6. Operator Precedence
   7. Programs on all the above.
4. Control Statements **[Week 1 ]**
   1. if else
   2. switch
   3. while
   4. do-while
   5. for, foreach, nested for loops
   6. break, continue return
5. Arrays **[Week 2]**
   1. One dimension
   2. 2 dimensions
6. Recursion **[Week 2]**
7. Classes in Java **[Week 2]**
   1. Basic Class creation
   2. Constructor, Parameterised Constructor
8. Classes and Methods **[Week 2]**
   1. Creating methods in class
   2. Accessing methods
   3. Constructor Overloading
9. Access Control **[Week 2]**
10. Understanding static, final **[Week 2-3]**
11. Nested and Inner classes **[Week 3]**
12. Inheritance **[Week 3]**
    1. Basics
    2. Using super
    3. Creating multilevel hierarchy
    4. Method Overriding
    5. Abstract classes
    6. Method overloading
13. Packages and Interfaces **[Week 3]**
14. Exception Handling **[Week 3]**
    1. What is Exception Handling?
    2. try-catch-finally explanation
    3. Nested try
    4. throw, throws
15. String class **[Week 3]**
    1. Basic String creation and operations
    2. Equals vs ==
    3. Hashcode
    4. Other string methods (split, endsWith, contains and many others)
    5. StringBuffer/StringBuilder Overview
16. Collection Framework **[Week 4]**
    1. Collection Framework overview
    2. List - Interface and Implementation classes
    3. Set - Interface and Implementation classes
    4. Comparators
17. Maps in Java **[Week 4]**
18. Threads in Java **[Week 4]**
19. Utility Classes **[Week 4]**
    1. Date/Calendar
    2. Scanner Class - For reading data
20. Input/Output Classes **[Week 4]**
    1. How to read files?
    2. InputStream, OutputStream
    3. Basic Readers/Writers

**Spring[Week 5 – Week 6]**

1. Introduction to Spring **[Week 5]**
   1. What is Spring?
   2. IoC Container
2. Component Scanning **[Week 5]**
3. Bean Life Cycle **[Week 5]**
   1. What is a bean in Spring?
   2. How to create a bean in Spring?
4. Sample Programs using Spring **[Week 5]**

**Maven [Week 5]**

1. What is Maven?
2. Need and benefits of maven
3. Creating a Maven project

**Spring Boot + Microservices + REST API’s[Week 5 – Week 6]**

1. Introduction to Spring Boot **[Week 5]**
2. Difference between Spring and Spring Boot**[Week 5]**
3. Create a Spring Boot project using Spring Initializr **[Week 5-6]**
4. Spring Boot General Architecture flow **[Week 5-6]**
5. Important Spring Boot Annotation **[Week 5-6]**
6. REST API’s **[Week 5-6]**
   1. Understanding what REST API’s mean
   2. Building REST API’s with Spring Boot
   3. Difference REST methods (GET, PUT,POST,DELETE)
7. How to configure to connect to a database**[Week 5-6]**
8. Understanding Controllers, RESTful Endpoints**[Week 5-6]**