Week 1 :

Topics

- Abstraction
- Encapsulation
- Classes and Objects
    - Class creation
    - Object creation
- Access Modifiers
- Constructors
    - Default Constructor
    - Copy Constructor
    - Constructor Overloading
- Deep copy vs Shallow copy
- Pass by Reference vs Pass by Value
- Inheritance
    - Constructor chaining
- Polymorphism
    - Runtime Polymorphism
    - Compile Time polymorphism
    - Method overloading
    - Method overriding
- Interfaces
- Abstract class
- Static
    - Static methods
- Final
    - Final method
    - Final Variable
    - Final class

Week 2 :

Topics

- Process Vs Thread
- Multicore systems
- Concurrency vs Parallelism

- Context switching
- Coding a Multi threaded program
    - Thread creation
        - start()
        - wait()
        - sleep()
    - Thread pool
    - Thread lifecycle
    - Executors
    - Runnable and Callables
    - Futures
    - Volatile keyword
- Synchronization
    - Synchronization Issue (Adder / Subtractor Example)
    - Reasons of Issue
    - Properties of Best solution
    - Mutex
    - Synchronized keyword
    - Synchronized methods
    - Semaphores
    - Concurrent Data Structures
    - Atomic data types

Week 3 :

Topics

- Collections
    - Collection framework
    - Hierarchy of Collection Framework
        - List
        - Set
        - Queue
    - HashSet vs HashMap
    - TreeMap
    - LinkedHashMap
    - Vector
    - ConcurrentHashmap

- Generics
- Function Interface
- Lambda Functions
- Streams
    - Terminal vs Intermediate methods
    - Parallel Streams
- Functional Programming using Java
- Exception Handling
- Strings in Java
- Garbage collection
- Memory Management in Java