Java Concurrency - COURSE CONTENT

Ch1: Concurrency Foundation

☐ Threads - What & Why?

☐ Concept of Concurrency

☐ Concept of Parallelism

☐ Parallelism on Multi-Processor System

☐ Introduction to Algorithms used to implement Parallelism

Ch2: Design Considerations In Multi-Threaded Application

☐ Thread Class or Runnable Interface ?

☐ Memory actions and Race conditions

☐ Thread Safety

☐ Reordering of memory actions

☐ Need for Atomic Actions

☐ Java Memory Model

☐ Synchronization

☐ Atomic variables

Ch3: Thread Synchronization

☐ Mutual Exclusion

☐ Locking in action

☐ Wait & Notify

☐ Entry set and Wait set

☐ Mutual Cooperation

☐ Producer & Consumer Example

Ch4: Other Threading Concepts (Part 1)

☐ Threads States

☐ Thread Interrupt

☐ Thread Join

Ch5: Other Threading Concepts (Part 2)

☐ Daemon Threads

☐ Finalization Hooks

☐ Thread Priority

☐ Thread Groups

Ch6: Using Concurrency API (Part 1)

☐ Timer & Timer Task

☐ ThreadPools using ExecutorService

☐ ThreadPoolExecutor Class

Ch7: Using Concurrency API (Part 2)

☐ Callable Tasks

☐ Explicit Locks using Lock API

☐ Read / Write Locks

Ch8: Concurrent Data Structures

☐ Blocking Queues

☐ DeQue

☐ PriorityBlockingQueue

☐ ConcurrentLinkedQueue

☐ ConcurrentLinkedDeQueue

☐ ConcurrentMap

☐ ConcurrentNavigableMap

Ch9: Advanced Synchronization

☐ Using Semaphors

☐ Using CountDownLatch

☐ Using Exchanger

☐ Using CyclicBarrier