

## **THREAD POOLING**

[java.util.concurrent package]

- Executor Framework
- Executors
- Callable and Runnable
- Future
- ThreadPoolExecutor
- Executor
- ExecutorService
- BlockingQueue

## **JAVA CONCURRENCY**

[java.util.concurrent package]

- Producer Consumer Problem
- ConcurrentHashMap
- CountdownLatch and CyclicBarrier
- Deadlock condition and its solution
- Race condition
- Semaphore
- ForkJoin
- Starving
- ThreadLocal

## **JAVA 8 NEW FEATURES**

- Lambda expressions
- Functional interfaces
- Method references
- Default methods
- Stream API
- Optional
- Nashorn, JavaScript Engine

## **MAVEN 3**

- Introduction and Installation
- Project object model (POM)
  1. Project description
  2. Public repository
  3. Dependency management
  4. Build configuration
- Dependency scope
- Proprietary dependencies
- Project inheritance
- Build profiles
- Maven life cycle
- Maven directory structure
- Project template with archetypes
- Examples

## **DESIGN PATTERNS**

- Lambda expressions
- Factory Pattern
- Abstract Factory Pattern
- Single Pattern
- Prototype Pattern
- Composite Pattern
- Façade Pattern
- Command Pattern
- DAO Pattern
- Service Locator Pattern



## INTRODUCTION

- Limitations with arrays
- Differences between collection and arrays
- Interfaces

## Collection<<interface>>

- Collection properties
- Methods
- Hierarchy

## List<<interface>>

- Hierarchy and Properties
- ArrayList and LinkedList
- Vector and Stack
- Time complexities
- Synchronization
- Comparison among ArrayList, LinkedList, Vector and Stack

## Iterates collection elements

- Enumeration<<interface>>
- Iterator<<interface>>
- ListIterator<<interface>>
- Enhanced for loop

## Sorting

- Java.lang.Comparable<<interface>>
- Java.util.Comparator<<interface>>

## Set<<interface>>

- Hierarchy and Properties
- hashCode() and equals() methods
- HashSet and LinkedHashSet
- SortedSet<<interface>>
- NavigableSet<<interface>>
- TreeSet
- Comparison among HashSet, LinkedHashSet, and TreeSet

## Queue<<interface>>

- Hierarchy and Properties
- LinkedList and PriorityQueue
- Comparison between LinkedList and PriorityQueue

## Map<<interface>>

- Hierarchy and Properties
- Methods
- Hashtable, Dictionary, Properties
- HashMap, LinkedHashMap, WeakHashMap, IdentityHashMap
- SortedMap, NavigableMap
- TreeMap

## Collections <<class>>

- Sorting
- Binary Search
- Reverse list and Reverse order
- Synchronized collection elements

## Generic Types

- Introduction
- Mixing generic and non-generic types
- Type erasure
- Polymorphism with Generics
- Wildcard character (?)
- Bounded (or Generic) classes
- Generic methods