Adv. Java Training Syllabus

Java EE Application

1. Java EE Architecture
2. Java EE Components, Containers
3. Java EE Modules (Web App, EJB JAR)
4. Structure of Java EE Application (EAR - Enterprise Archive)
5. Packaging and Deploying Java EE Applications

JNDI

1. Introduction to Naming Services
2. JNDI as Java API to Naming Services
3. Using JNDI

JDBC Extension

1. javax.sql package (Extension to JDBC)
2. DataSource and Connection Pool
3. Using JDBC and JNDI

Enterprise JavaBeans [EJB 3.0]

1. Introduction to Server-Side Components
2. EJB Design Goals and Roles
3. EJB Architecture
4. Simplified EJB 3.0 API
5. Metadata Annotations in place of XML
6. Types of EJB
    1. Session Bean
    2. Entity Bean
7. EJB Container Services
    1. Transactions
    2. Security
    3. Life Cycle Management
    4. State and Persistence of EJB
8. **Session Beans**
    1. Role of Business Interface
    2. Session Bean Lifetime
    3. Developing Stateless Beans
    4. Developing Stateful Beans

Java Persistence API (JPA)

1. Designing Persistent Class
    1. Entity Fields and Properties
    2. Entity Instance Creation

    3. Primary Keys and Entity Identity
    4. Entity Relationships
2. Entity Operations
    1. Entity Manager
    2. Entity Instance Life Cycle
    3. Persistence Context
    4. Query API
3. Query Language

Transaction Management (JTA)

1. The ACID Test for Transactions
2. Introduction to JTS & JTA
3. Container-Managed Transactions
4. Bean-Managed Transactions
5. Transaction Attributes
6. Using JTA

Security Model

1. Role-Driven Access Control
2. Security Identity
3. Security and the Deployment Descriptor
4. Using Security Roles
5. Accessing Security Information via EJBContext
6. Using JAAS to access secure EJB

Java Message Service (JMS)

1. Introduction to Messaging Systems
2. Benefits of using JMS
3. Pub/Sub Model
4. Point-to-Point Model
5. Message Formats, Headers & Properties
6. How JMS fits into EJB system
7. Developing Message Driven Beans (MDB)

Web Services

1. Introduction to Web Services
2. Service Oriented Architecture
3. Architecture and Advantages
4. SOAP Significance
5. WSDL Importance
6. Web Service Annotations
7. Implementing a Web Service
8. Java API for XML Web Services (JAX-WS)

Web Application Security

1. Introduction
2. Declarative Security
3. Programmatic Security
4. Roles
5. Authentication
6. Basic Authentication
7. Digest Authentication
8. Form Based Authentication
9. Standard Login Form
10. Security Constraints
11. Web Resource Collection

Hibernate Configuration

1. Required JAR Files
2. Hibernate configuration File
3. Hibernate properties File
4. Hibernate XML File
5. SQL Dialects

Hibernate Concepts

1. Id and Primary Key
2. Id Generation Methods
3. SessionFactory
4. Session
5. Transaction
6. Developing CRUD Application

Hibernate O-R Mapping

1. Mapping Declarations
2. Modeling Composition with Relationship
3. Modeling Composition with Components
4. One-to-One Association
5. One-to-Many Association
6. Many-to-Many Association
7. Uni and Bidirectional Associations
8. Hibernate Value Types
9. Custom Types

Manipulating and Querying

1. Persistent Objects
2. Object Loading
3. Executing Queries
4. Iterating Results
5. Scalar Results
6. Bind Parameters Pagination

Hibernate Query Language

1. Select clause
2. From clause
3. Where clause
4. Aggregate functions
5. Expressions
6. Sorting
7. Grouping
8. Sub queries

Criteria Queries

1. Creating Criteria
2. Narrowing the Result
3. Ordering the Result

Native SQL

1. Using SQL Query
2. Named SQL Query
3. Using Stored Procedure for Querying
4. Creating Custom SQL for CRUD

Transaction and Concurrency

1. Session and Transaction Scopes
2. Database Transaction Demarcation
3. Optimistic Concurrency Control
4. Pessimistic Concurrency Control
5. Connection Release Modes