ADVANCE JAVA

Curriculum

ADVANCE JAVA & J2EE (JAVA 2 ENTERPRISE EDITION)

Day 1-2

➡ **COLLECTION FRAMEWORK**

- The Collection Interfaces (List, Set, SortedSet)
- The Collection Classes
  (ArrayList, LinkedList, HashSet, TreeSet)
- Accessing a Collection via an Iterator
- Working with Maps
- Working with Comparators, Comparable
- The Collection Algorithms
- The Legacy Classes and Interfaces
  (Enumeration, Vector, Stack, Dictionary, Hashtable)
- Date and Time Handling

Day 3

➡ **SYSTEM PROPERTIES & INTERNATIONALIZATION**

- Usage of Property file
- Define the Locale
- ResourceBundle
- Fetching text from ResourceBundle

➡ **REMOTE METHOD INVOCATION (RMI)**

- Distributed Applications
- RMI Architecture
- Implementation
- Call-back Mechanism

Day 4-5

➡ **DATABASE PROGRAMMING USING JDBC**

- JDBC Drivers
- 4 Ways of Getting Database Connection
- Statements, Callablestatement, Preparedstatement
- Metadata, ResultSetMetadata, DatabaseMetadata
- Scrollable & Updatable ResultSet
- Batch Updates
- Data Source & Connection Pooling
- Rowsets
- Transaction (Commit, Rollback, Savepoint)

Day 6

➡️ **INTRODUCTION TO J2EE ARCHITECTURE**

TIER ARCHITECTURE

- Single Tier
- Two Tier
- Three Tier
- N Tier

J2EE COMPONENTS

- Web Components
- Business Components

J2EE CONTAINERS

- Container Types
- Container Services

➡️ **J2EE SERVICES**

- Java Naming and DirectoryInterface
- Java Transaction Service
- Java Messaging Service
- Java Authentication & Authorization Service

Day 7

➡️ **INTRODUCTION TO UML**

- Use Cases
- Diagrams

➡️ **INTRODUCTION TO XML**

- Document Type Definition (DTD)
- XML Parsers
  - Document Object Module (DOM)
  - Simple API for XML (SAX)

Day 8-10

➡️ **JAVA SERVLET**

- Introduction to Web Programming
- Advantages of Servlets
- Servlet Lifecycle
- Request Dispatching
- Session Tracking
- Event Listener
- Filters
- File uploading / File downloading
- Security

Day 11-13

➡️ **JAVA SERVER PAGES (JSP) & JSTL**

- JSP Architecture
- JSP Elements
- JSP Objects
- Custom Tags
- Using tags of JSTL
- Expression Language
- Exception Handling in JSP

Day 14-17

➡️ **ENTERPRISE JAVA BEANS (EJB - 3.0)**
- JAVA PERSISTENCE API
- INTRODUCTION
- ARCHITECTURE
- TYPES OF EJB

  ➡️ SESSION BEANS
  - Introduction
  - State Management
  - Life Cycle
  - Types
    - Stateless
    - Statefull

  ➡️ **ENTITY BEANS**
  - Introduction
  - Persistence
  - Life Cycle
  - Types
  - Container Managed Persistent (CMP) 2.0
    - Introduction
    - Primary Key Class
    - EJB Methods
    - EJB QL
    - Syntax
    - Clauses
  - Bean Managed Persistent (BMP)
    - Introduction
    - Implementation
    - EJB Relationships

  ➡️ **MESSAGE DRIVEN BEANS & JMS**
  - Messaging Overview
  - Messaging Models
    - Point to Point Model
    - Topic Subscriber Model
  - JMS Implementation
  - Life Cycle

  ➡️ **TRANSACTIONS**
  - Introduction
  - ACID Properties
  - Transaction Requirements
  - Container managed transactions
  - Bean Managed Transactions
  - Distributed Transactions
  - Two Phase Commit

  ➡️ **J2EE DESIGN PATTERN**
  - Why Design Patterns?
  - Front Controller
  - Composite View
  - Session Façade
  - Service Locator
  - Data Access Object
  - Value Object
  - Singlton Pattern, Factory Pattern

Day 18

➡️ **JAVA MAIL**
- Email System & Protocols
- Architecture
- Sending mails
- Receiving mails
- Handling attachments
- Replying & Forwarding

➡️ **PACKAGING & DEPLOYEMENT USING ANT**

Day 19

➡️ **INTRODUCTION TO WEB SERVICES**
- A Conceptual overview of Web Services
- Web Services Requirements
- SOAP
- WSDL
- UDDI

Day 20

➡️ **UTILITIES**
- My Eclipse 8.0
- NetBeans 6.5

➡️ **WEB SERVER**
- Apache Tomcat 6.0

➡️ **APPLICATION SERVER.**
- Bea's Weblogic 10.3
- JBoss
- Sun Application Server
- Webshere

STRUTS 2.0 CURRICULUM

Day 21-22

➡️ **STRUTS 2 FRAMEWORK**
- MVC/Model2
- Filter Dispatcher
- Action
- Result
- Interceptors
- ValueStack, OGNL & Data Transfer
- ActionContext

Day 23-24

➡️ **WORKING WITH STRUTS 2 ACTIONS**
- Introducing Struts 2 actions
- Packaging your actions
- Implementing actions
- Transferring data onto objects
- File uploading: a case study

Day 25

➡ **ADDING WORKFLOW WITH INTERCEPTORS**
- Why intercept requests?
- Interceptors in action
- Surveying the built-in Struts 2 interceptors
- Declaring interceptors
- Building your own interceptor

Day 26

➡ **DATA TRANSFER: OGNL AND TYPE CONVERSION**
- Data transfer and type conversion:
- OGNL and Struts 2
- Built-in type converters
- Customizing type conversion

Day 27

➡ **BUILDING A VIEW: TAGS**
- An overview of Struts tags
- Data tags
- Control tags
- Miscellaneous tags
- Using JSTL and other native tags
- A brief primer for the OGNL expression language

Day 28

➡ **UI COMPONENT TAGS**
- Why we need UI component tags
- Tags, templates, and themes
- UI Component tag reference

Day 29

➡ **RESULTS IN DETAIL**
- Life after the action
- Commonly used result types
- Global results

Day 30

➡ **INTEGRATING WITH SPRING AND HIBERNATE/JPA**
- Why use Spring with Struts 2?
- Adding Spring to Struts 2
- Why use the Java Persistence API with Struts 2?

Day 31

➡ **EXPLORING THE VALIDATION FRAMEWORK**
- Getting familiar with the validation framework
- Wiring your actions for validation
- Writing a custom validator
- Validation framework advanced topics

Day 32

➡ **UNDERSTANDING INTERNATIONALIZATION**
- The Struts 2 framework and Java i18n
- A Struts 2 i18n demo
- Struts 2 i18n: the details
- Overriding the framework's default locale determination

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