Hewlett Packard Enterprise

Course Datasheet

JEE Struts with Hibernate Framework

Education Services course product number – HPE-JStHF-v1.0
Course length – 90 Hrs.
Delivery mode – Instructor Led Training (ILT)
                        Virtual Instructor Led Training (vILT)

JEE is a framework that defines the standard for developing multi-tier enterprise applications. It simplifies enterprise applications by basing them on standardized, modular components, and it provides a complete set of services to those components. Introduction to Object/relational mapping framework for enabling transparent POJO persistence and build persistent objects using common OO programing concepts. Allows developers focus on domain object modelling not the persistence plumbing. Sophisticated query facilities. Struts2 is popular and mature web application framework based on the MVC design pattern. Struts2 is not just the next version of Struts 1, but it is a complete rewrite of the Struts architecture.

Course Objective

Learning how to build enterprise application using state-of-the-art technology of Java EE

Prerequisite

Understanding of Java SE

Course Modules

Chapter 01 – Introduction to JAVA Technology

- Introduction to JAVA Technology
- JAVA Language Features
- What is JAVA bytecode? What is JVM?
- Different Editions of JAVA
- Writing the "Hello World" command-line Application
- Understanding the "main()" method
- Setting path & classpath

Chapter 02 – Object-Oriented Programming Concepts

- Encapsulation

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- Polymorphism
- Inheritance
- Abstraction
- Implementing OO Concepts: Defining Classes
- Variables and methods as members of a class

Chapter 03 – Introduction to Java EE

- Introduction to Java EE
- Important J2EE API
- J2EE Architecture
- Introduction to EE Components
- EE Containers

Chapter 04 – JDBC API

- Introduction to JDBC API
- Types of JDBC Drivers
- Executing statements, prepared statements
- DatabaseMetaData
- ResultsetMetaData

Chapter 05 – Introduction to Hibernate

- Issues with Persistence layers
- Object/Relational Mapping(ORM)
- What is and Why Hibernate
- Hibernate architecture
- Instance states
- Persistence lifecycle operations
- POJO (Plain Old Java Object) Based Mapping
- DAO

Chapter 06 – Mapping Class

- Persistent Entity Class
- Hibernate Mapping
- Mapping the Entity Class
- Primary keys: Id property, Generated Id
- Hibernate Type System
- Working with sessions and Persistent Objects

Chapter 07 – Hibernate Query Lanaguage(HQL)

- What is HQL
- The Query Interface
- Creating and working with queries
- Named Queries
- Projection Queries
- Aggregate Queries
- "from" clause
- Associations and join
- "select" clause
- Polymorphic query
- "where" clause

Chapter 08 – Criteria query

- Criteria query
- Criteria query API
- Pagination
- Restrictions
- Ordering
- Aggregate function
- Fetch modes
- Query By Example

Chapter 09 – Persistence Lifecycle

- Transaction Overview
- Transactions in Hibernate
- Hibernate Transaction API
- The lifecycle of managed objects
- Persistent, transient, and detached objects
- The Persistence (Session) Context
- Contextual Sessions
- Synchronization to the Database
- The Session as cache

Chapter 10 – Optimistic Locking / Versioning

- Detached Objects and Optimistic Locking
- Versioning overview and Using Versioning
- Locking Objects

Chapter 11 – Relationships

- Object Relationship Overview
- Mapping Collections of Value Objects
- Entity Relationships: 1-N, N-1, N-N, 1-1
- Mapping Entity Relationships
- Uni and Bi-directional Relationships
- The Relationship "inverse"
- Cascading Over Relationships
- Queries Across Relationships

Chapter 12 – Inheritance Mapping

- Entity Inheritance with Hibernate
- Table-per-class mapping
- Table per Subclass mapping
- Table per Concrete Class mapping

Chapter 13 – HTML

- Introduction To HTML
- Markup Tags
- HTML Comments
- Character entities

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- Working with CSS
- Invoking JavaScript methods for event handling

Chapter 14 – JAVA EE Web Application & its working

- A conceptual view of JAVA EE Web Application
- Web Application Structure
- New Java Servlet technology features
- Annotation support
- Asynchronous support
- Ease of configuration

Chapter 15 – Java Servlet technology

- ServletContext
- Deployment Descriptor
- Deployment Descriptor Elements
- Servlets & dynamic content
- Advantage of Servlets
- Life cycle of a Servlet
- Packages & Classes
- Generic & Http Servlets
- Declaring & Mapping Servlets in web.xml
- Retrieving Http Headers & Form Data
- Request and Response
- Request dispatching & response redirection

Chapter 16 – Session Management

- Session Management
- Different ways to session management
- URL Rewriting : Advantage & Disadvantage
- Hidden Form Fields : Advantage & Disadvantage
- Cookies: Session-Level & Persistent
- Using HttpSession

Chapter 17 – Servlet Listeners

- Introduction To Servlet Listeners

Chapter 18 – Servlet Filter

- Servlet Filter Overview
- Filter API
- Using Filters
- Filter Processing
- Filter Chain
- Mapping of a filter in web.xml
- Using filters to modify a request or response

Chapter 19 – Getting Started with JSP

- Shortcomings of Servlets : Solution is JSP
- JSP Life Cycle
- JSP Elements

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- JSP Directives
- Scripting Elements
- Built-in Action Elements
- Using Beans in JSP

Chapter 20 – Using JSTL

- Using JSTL
- Different Libraries in JSTL
- JSTL Expression Language
- Implicit Object & Operators in EL
- Data Objects & the JSTL EL
- Using Core Tag Library
- Accessing DB using SQL Tag Library

Chapter 21 – Introduction to Struts2 Framework

- MVC Architecture
- Application Flow
- Components
- Model, View and Controller
- Building a simple web application using struts2

Chapter 22 – Struts 2 actions

- Introducing Struts 2 actions
- Packaging your actions
- Implementing actions
- Transferring data onto objects
- Building custom validators
- File uploading

Chapter 23 – Interceptors

- Why intercept requests?
- Interceptors in action
- Surveying the built-in Struts 2 interceptors
- Declaring interceptors
- Building your own interceptor

Chapter 24 – Data transfer: OGNL and type conversion

- Data transfer and type conversion
- OGNL and Struts 2
- Built-in type converters
- Customizing type conversion

Chapter 25 – Building a view: tags

- An overview of Struts tags
- Data tags
- Control tags
- Miscellaneous tags
- A brief primer for the OGNL expression language

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Chapter 26 – Results in detail

- Life after the action
- Commonly used result types
- JSP alternatives
- Global results

Chapter 27 – UI component tags

- Why we need UI component tags
- Tags, templates, and themes
- UI Component tag reference
- Ajax Tag (dojo,jquery)

Chapter 28 – Validation framework

- Wiring your actions for validation
- Writing a custom validator
- Validation framework advanced topics

Chapter 29 – 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

Chapter 30 – Tiles and Struts 2

- Tiles Framework in struts2

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