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HIBERNATE

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Introduction to Hibernate

- Issues with Persistence layers and Object-Relational Mapping (ORM)
- Hibernate Overview and Benefits
- Hibernate architecture overview
- POJO (Plain Old Java Object) Based Mapping

Getting started with Hibernate quickly

- Overview of the Hibernate distribution
- Configuring Hibernate
- hibernate.cfg.xml file
- SessionFactory configuration
- Connection properties, Database dialect
- Configuration class, Session Interface
- "Hello World" Program for Hibernate
- Mapping a Class
- Persistent Entity Class, Hibernate Mapping
- File, Mapping the Entity Class
- Primary keys: Id property, Generated Id
- Hibernate Type System
- Working with sessions and Persistent Objects
- Logging – log4j Overview and configuration





Querying

- Inserting and Updating Entities
- HQL – Hibernate Query Language Overview
- The Query Interface
- Creating and working with queries
- Named Queries, Projection Queries, Aggregate Queries

The Persistence Lifecycle

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

Optimistic Locking / Versioning

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





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 (Lazy and Eager)

Inheritance Mapping

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

Additional Querying Capabilities

- Projection Queries, Aggregate queries
- Bulk updates and deletes
- Native SQL Queries
- Query Filters





The Criteria API

- Overview of the Criteria API
- Working Querying with the Criteria API
- Query by Example

Hibernate and Java Persistence / EJB 3

- Overview of Java Persistence / EJB 3
- Relationship between Java Persistence and Hibernate
- Overview of Annotations
- Mapping Entities with Hibernate Annotations
- The EntityManager, Persistence Context and Persistence Unit
- Working with Transactions – EntityTransaction, Managed, and Unmanaged Environments
- Inserts and Updates
- JPQL – Java Persistence Query Language
- Versioning
- Relationships

Advanced Topics

- Components and Multi-Table Mapping
- equals() and hashCode()
- Caching and Efficiency
- Design Considerations





Assessments

- Objective Assessments

- Syntactical based

- Scenario based

Note: At least 2 objective based assessments in each module

- Hands On – Practical Assessments

- Scenario based

Note: At least 2 Hands on assessments in each module

Assignments

- Hands On – Practical Assignments

Note: At least 4 Hands on assignments in each module

Tasks – Home Work

- Regular tasks on each module

Note: Tasks are focused more to improve self learning

Resume Support & Interview Preparation

- Work on one or two mini projects

- Discuss and convert the current working project into

Hibernate project to add in resume & to explain Hibernate experience in interviews

