Hibernate 5.X

# Introduction: Entity Life Cycle

1. **Persistence**
2. **Object Persistence**
3. **Object/Relational Paradigms**
4. **Impedance Mismatch**
5. **Object Relational Mapping ()ORM)**
6. **Persistent Framework**
7. **Hibernate**
8. **Java ORM/Persistent Frameworks**

# Hibernate Architecture

1. **Transient State**
2. **Persistent State**
3. **Persistent Object Updates and Automatic Dirty Checking**
4. **Detached State**
5. **Deleted**
6. **Object Identifiers Revisited**
7. **Merge**

# Components

1. **Hibernate Architecture**
2. **Hibernate Installation/Setup**
3. **Configuration**
4. **Configuration Properties**
5. **Mapping Files**
6. **Persistent Classes**
7. **Persistent Classes**
8. **POJOs**
9. **JavaBeans**
10. **Basic Mapping**
11. **Class to Table Mappings**
12. **Property Mapping**
13. **Identifiers**
14. **Generators**
15. **Natural Keys**
16. **Identifier Exposure**
17. **Quoting SQL Tables and Columns**
18. **Working with Persistent Objects**
    1. **Domain Model**
    2. **Entities and Values**
    3. **Components**

# Associations

1. **Many-to-one**
2. **Bidirectional Many-to-one**
3. **Other Collections**
4. **Many-to-one List**
5. **Many-to-one Map**
6. **Many-to-one Bag**
7. **Many-to-one Array**

# More Associations

1. **One-to-one**
2. **Bidirectional One-to-one**
3. **Many-to-many**
4. **Bidirectional Many-to-many**
5. **Many-to-many Identifier Bag**
6. **Value Type Collections**

# Collections of Value Types

1. **Collections of Components**
2. **Sorting Collections**
3. **Inheritance**
4. **Inheritance Mapping Strategies**
5. **Table per concrete class**
6. **Table per subclass**
7. **Table per hierarchy**
8. **Inheritance Mapping Pros/Cons**
9. **Polymorphism**
10. **Table per concrete class with unions**
11. **Choosing an Inheritance Strategy**

# Transitive Persistence

**Custom Mapping**

1. **Custom Mapping Types**
2. **User Type**
3. **Enumerations**

# HQL

1. **Hibernate Object Fetching Options**
2. **Hibernate Query**
3. **HQL**
4. **HQL Parameters**
5. **Named Queries**
6. **Native SQL**

# Criteria

1. **Hibernate Criteria**
2. **Restrictions**
3. **Query By Example**
4. **Scrolling**
5. **Pagination**
6. **Query Hints**
7. **Query Option Pros/Cons**
8. **Lazy Loading**
9. **Proxies**
10. **Eager Loading**
11. **What’s a Proxy?**
12. **Detached Objects and Proxies**
13. **Polymorphic Associations Revisited**

# Transactions and Concurrency Appendix B: Cache

1. **The Java Transaction**
2. **Hibernate Transaction Configuration**
3. **Hibernate Transaction API**
4. **Concurrency**
5. **Isolation Levels**
6. **Optimistic Locking**
7. **Versioning**
8. **Optimistic Locking without Versioning**
9. **Pessimistic Locking**

# Appendix A: Fetching Strategies

1. **N + 1 Selects**
2. **Fetching Strategies**
3. **Join Fetching**
4. **Subs select Fetching**
5. **Batch Fetching**
6. **Queries and Fetching Strategies**
7. **Cartesian Product Problem**
8. **The Promise of Cache**
9. **Hibernate Caching Architecture**
10. **First Level Cache**
11. **Second Level Cache**
12. **Cache Concurrency**
13. **Configuring Second Level Cache**
14. **Cache Regions**
15. **Eviction**

# Appendix C: Annotations

1. **Metadata**
2. **Annotations Pros/Cons**
3. **Configuring Hibernate Annotations**
4. **EJB3/JPA Annotations**
5. **Entity Annotations**
6. **Embedded Object (Component) Annotations**
7. **Inheritance Annotations**