46 hibernate interview questions and answers

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Hibernate interview questions - posted on March 03, 2014 at 15:05 PM by Nihal Singh

Q:1 What is Hibernate?

Ans: Hibernate is an ORM (Object Relational Mapping) and persistent framework. The framework helps to map plain java object to relational database table using xml configuration file.

The framework helps to perform following things.

- Perform basic CURD operations.
- · Write queries referring to java classes (HQL queries).
- · Facilities to specify metadata.
- · Dirty checking, lazy association fetching.

Q: 2 Why hibernate and how does it help in the programming?

Ans: The main advantage of Hibernate (ORM) framework is that it shields developer to write a messy SQL. Apart from that ORM provides following benefits

- Improve Productivity of the developer by providing high level object oriented API (e.g. API for easily maintaining the connection to data base, mapping java classes to relational database tables), less java code to write, helps to avoid writing SQL query.
- Improved performance by providing sophisticated caching, lazy loading and eager loading features.
- Provide portability, the framework helps to generate database specific SQL for you.

Q:3 How will you configure Hibernate?

Ans: To configure hibernate, you need hibernate.cfg.xml or hibernate.properties file and *.hbm.xml files, all these files are used by Configuration class to create sessionFactory, which in turn creates the session instances. Session instances are the primary interface for persistence services.

The hibernate.cfg.xml or hibernate.properties files are used to configure the hibernate service (database connection driver class, database connection URL, connection user name, connection password, dialect, mapping resources etc.).

The *hbm.xml files are used for mapping persistent objects to relational database.

From Java 5 onwards you can configure and map persistent objects through annotations.

Q:4 Which settings will be loaded if both hibernate.properties and hibernat.cf.xml files are present in the classpath?

Ans: If both hibernate.properties and hibernate.cfg.xml files are present in the classpath then hibernate.cfg.xml file will override the settings found in hibernate.properties. So please make sure that your project should include either hibernate.properties or hibernate.cfg.xml file.

Q:5 What are the Core interfaces of Hibernate framework?

Ans: There are five core interfaces being used extensively in every Hibernate application. Using these interfaces you can store or retrieve any persistent objects and also control transactions.

- Session interface
- SessionFactory interface
- Configuration interface
- Transaction interface
- Query and Criteria interfaces

Q:6 What is the role of Session interface in Hibernate?

Ans: The session interface is the primary interface used in Hibernate Application. It is single threaded sort-lived object and represents conversation between Application and the persistent store. It helps to create query objects to retrieve persistent objects.

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You can get the session object from session factory

Session session = sessionFactory.openSession();

Session Interface role:

- --Wraps a JDBC connection
- --Factory for Transaction
- --Holds a mandatory (first-level) cache of persistent objects, used when navigating the object graph or looking up objects by identifier

Q: 7 What is the role of SessionFactory?

Ans: The application obtains session object from SessionFactory interface. Typically there should be only one sessionFacory for whole application and is loaded during application initialization. The SessionFactory caches generate SQL Statement and other mapping metadata that Hibernate use at runtime. It also hold cached data that has been read in one unit of work and can be reused in a future unit of work.

You can get the instance of SessionFactory by the configuration object as below

SessionFactory sessionFactory = configuration.buildSessionFactory();

Q:8 How do you implement one to one relationship in Hibernate with XML mapping?

Ans: For example you have table emp and emp_detail and assuming there is a one to one relationship between them. For the above tables you have to create corresponding POJO classes and hbm.xml files.

So for emp table the java class is Employee.java with property empld and xml file is emp.hbm.xml.

And for emp_details the java class is EmployeeDetail.java (properties are name, address etc.) and xml file is empdetail.hbm.xml.

So the final code will look like as below

package com.test.onetoone.mapping

```
public class Employee implements java.io.Serializable{
private Integer empld;
private EmployeeDetail empDetail;
package com.test.onetoone.mapping
public class EmployeeDetail implements java.io.Serializable{
private Integer empld;
private Employee emp;
private String name:
private String address;
  -- emp.hbm.xml ----
<?xml version="1.0"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
<class name="com.test.onetoone.mapping.Employee" table="emp">
<id name="empld" type="java.lang.Integer">
<column name="EMP ID" />
<generator class="identity" />
</id>
<one-to-one name="empDetail" class="com.test.onetoone.mapping.EmployeeDetail"</p>
cascade="save-update"></one-to-one>
</class>
</hibernate-mapping>
<?xml version="1.0"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
<class name="com.test.onetoone.mapping.EmployeeDetail" table="emp_detail"</p>
catalog="mkyongdb">
<id name="stockld" type="java.lang.Integer">
<column name="EMP_ID" />
<generator class="foreign">
<param name="property">emp</param>
</generator>
</id>
<one-to-one name="emp" class="com.test.onetoone.mapping.Employee"</pre>
constrained="true"></one-to-one>
<column name="EMP_NAME" length="100" not-null="true" />
</property>
<column name="EMP ADDR" not-null="true" />
</class>
</hibernate-mapping>
```

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Q:9 How do you implement one to one relationship in Hibernate with java annotation?

Ans: Taking the same Employee and Employee Details example of the above question.

```
Employee.java
```

```
package com.test.onetoone.mapping
import javax.persistence.CascadeType;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.FetchType;
import javax.persistence.GeneratedValue;
import static javax.persistence.GenerationType.IDENTITY;
import javax.persistence.ld;
import iavax.persistence.OneToOne:
import javax.persistence.Table;
@Table(name = "emp")
public class Employee implements java.io.Serializable{
private Integer empld;
private EmployeeDetail empDetail;
public Employee(){}
@ld
@GeneratedValue(strategy = IDENTITY)
@Column(name = "EMP ID", unique = true, nullable = false)
public Integer getEmpId(){
return this.empld;
public void setEmpld(Integer empld){
this.empld = empld;
@OneToOne(fetch = FetchType.LAZY, mappedBy = "emp", cascade = CascadeType.ALL)
public EmployeeDetail getEmpDetail() {
return this.empDetail;
public void setEmpDetail(EmployeeDetail empDetail) {
this.empDetail = empDetail; }
```

File: EmployeeDetail.java

```
package com.test.onetoone.mapping
import javax.persistence.Column;
import javax.persistence.Entity:
import\,javax.pers\,is\,tence.FetchType;
import javax.persistence.GeneratedValue;
import javax.persistence.ld;
import javax.persistence.OneToOne;
import javax.persistence.PrimaryKeyJoinColumn;
import javax.persistence.Table;
import javax.persistence.Temporal;
import javax.persistence.TemporalType;
import org.hibernate.annotations.GenericGenerator;
import org.hibernate.annotations.Parameter;
@Entity
@Table(name = "emp_detail")
public class EmployeeDetail implements java.io.Serializable {
private Integer empld;
private Employee emp;
private String name;
private String address;
public EmployeeDetail() {
public EmployeeDetail(Employee emp, String name, String address) {
this.emp = emp;
this.name = name;
this.address = address;
@GenericGenerator(name = "generator", strategy = "foreign",
parameters = @Parameter(name = "property", value = "emp"))
@GeneratedValue(generator = "generator")
@Column(name = "EMP_ID", unique = true, nullable = false)
public Integer getEmpId() {
return this.empld;
public void setEmpld(Integer empld) {
this.empld = empld;
@OneToOne(fetch = FetchType.LAZY)
@PrimaryKeyJoinColumn
public Employee getEmp() {
return this.emp; }
public void setEmp(Employee emp) {
this.emp = emp;
```

```
@Column(name = "ADDRESS", nullable = false, length = 400)
public String getAddress() {
return this.address;
public void setAddress(String address) {
this.address = address;
@Column(name = "EMP_NAME", nullable = false)
public String getName() {
return this.name;
public void setName(String name) {
this.name = name:
```

3. Hibernate Configuration File

```
Puts annotated classes Employee.java and EmployeeDetail.java in your Hibernate configuration file, and also MySQL connection details.
File: hibernate.cfg.xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE hibernate-configuration PUBLIC
"-//Hibernate/Hibernate Configuration DTD 3.0//EN"
"http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
<session-factory>
cyroperty name="hibernate.connection.url">jdbc:mysql://localhost:3306/mytestdb/property>
property name="hibernate.connection.username">root/property>
property name="show_sql">true/property>
<mapping class="com.test.onetoone.mapping.Employee" />
<mapping class="com.test.onetoone.mapping.EmployeeDetail" />
</session-factory>
</hibernate-configuration>
```

Q:10 How do you implement one to many relationships in Hibernate?

Ans: For one to many relationships we can consider the example Author and Books (i.e. one Author can have written many books). Below code will help you to understand how you can implement one to many relationship in hibernate.

File: Author.java

```
package com.test.one.to.many;
iava.util.Set:
public class Author implements java.io.Serializable{
private Integer authorId;
private String authorName:
private Set<Book> books;
// getter and setter
```

File: Book.java

```
package com.test.one.to.many;
public class Book implements java.io.Serializable{
private Author author;
private Integer bookld;
private String bookName;
// getter and setter
```

```
File: Author.hbm.xml
<?xml version="1.0"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"</p>
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
<class name="com.test.one.to.many.Author" table="author">
<id name="authorId" type="java.lang.Integer">
<column name="AUTHOR ID" />
<generator class="identity" />
cproperty name="authorName" type="string">
<column name="AUTHOR_NAME" length="100" not-null="true" unique="true" />
<set name="books" table="book" inverse="true" lazy="true" fetch="select">
<kev>
<column name="AUTHOR_ID" not-null="true" />
</key>
<one-to-many class="com.test.one.to.many.Book" />
</set>
```

</hibernate-mapping>

File: Book.hbm.xml

```
<?xml version="1.0"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
<class name="com.test.one.to.many.Book" table="book">
<id name="bookld" type="java.lang.lnteger">
<column name="BOOK_ID" />
<generator class="identity" />
<many-to-one name="author" class="com.test.one.to.many.Author" fetch="select">
<column name="AUTHOR_ID" not-null="true" />
</many-to-one>
cproperty name="bookName" type="string">
<column name="BOOK_NAME" />
</property>
</class>
</hibernate-mapping>
File: hibernate.cfg.xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE hibernate-configuration PUBLIC</p>
"-//Hibernate/Hibernate Configuration DTD 3.0//EN"
"http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
<session-factory>
property name="hibernate.connection.username">root/property>
property name="hibernate.connection.password">password/property>
property name="show sql">true/property>
```

Q:11 How to implement one to many relationships with Annotation?

Ans: You can implement one to many relationship with the help Annotation also. Below code will help you to understand the one to many relationship with java Annotation.

```
File: Author.java
package com.test.one.to.many;
import java.util.Set;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.FetchType;
import javax.persistence.GeneratedValue;
import static javax.persistence.GenerationType.IDENTITY;
import javax persistence.ld:
import javax.persistence.OneToMany;
import javax.persistence.Table;
@Entity
@Table(name = "Author")
public class Author implements java.io.Serializable {
private Integer authorld:
private String authorName;
private Set<Book> books;
// getter and setter
public Author() {
@GeneratedValue(strategy = IDENTITY)
@Column(name = "AUTHOR_ID", unique = true, nullable = false)
public Integer getAuthorld() {
return this authorld:
public void setAuthorld(Integer authorld) {
this authorld = authorld:
@Column(name = "AUTHOR_NAME", nullable = false, length = 100)
public String getAuthorName() {
return this.authorName;
```

cproperty name="format_sql">true/property>

</session-factory>
</hibernate-configuration>

<mapping resource="com/test/one/to/many/Author.hbm.xml"/>
<mapping resource="com/test/one/to/many/Book.hbm.xml"/>

```
public void setAuthorName(String authorName) {
this.authorName = authorName;
@OneToMany(fetch = FetchType.LAZY, mappedBy = "author")
public Set<Book> getBooks() {
return this.books;
public void setBooks(Set<Book> books) {
this.books = books;
File : Book.java
package com.test.one.to.many,
import java.util.Date;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.FetchType;
import javax.persistence.GeneratedValue;
import static javax.persistence.GenerationType.IDENTITY;
import javax.persistence.ld;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;
import javax.persistence.Table;
import javax.persistence.UniqueConstraint;
@Entity
@Table(name = "book")
public class Book implements java.io.Serializable {
private Author author;
private Integer bookld;
private String bookName;
public Book() {
@ld
@GeneratedValue(strategy = IDENTITY)
@Column(name = "BOOK_ID", unique = true, nullable = false)
public Integer getBookld() {
return this.bookld;
public void setBookld(Integer bookld) {
this.bookld = bookld;
@ManyToOne(fetch = FetchType.LAZY)
@JoinColumn(name = "AUTHOR_ID", nullable = false)
public Author getAuthor() {
return this.auther;
public void setAuther(Author author) {
this.auther = auther;
@Column(name = "BOOK NAME", length = 400, nulaable=false)
public Float getBookName() {
return this.bookName;
public void setBookName(String bookName) {
this.bookName = bookName;
3. Hibernate Configuration File
Puts annotated classes Author.java and Book.java in hibernate.cfg.xml like this:
File: hibernate.cfg.xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE hibernate-configuration PUBLIC
"-//Hibernate/Hibernate Configuration DTD 3.0//EN"
"http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
property name="hibernate.connection.username">root/property>
property name="hibernate.connection.password">password/property>
property name="show_sql">true/property>
<mapping class="com.test.one.to.many.Author" />
<mapping class="com.test.one.to.many.Book" />
</session-factory>
</hibernate-configuration>
```

Q:12 How will you integrate Hibernate with spring framework?

8/14/2014

Ans: To integrate hibernate with spring framework, the hibernate configuration will go in spring configuration file.

The configuration file will look like as below

<beans>

<bean id="propertyConfigurer"</pre>

class="org.springframework.beans.factory.config.PropertyPlaceholderConfigurer"

p:location="/WEB-INF/jdbc.properties"></bean>

<!--jdbc.properties database related properties -?

 dataSource

class="org.apache.commons.dbcp.BasicDataSource" destroy-method="close"

p:driverClassName="\${jdbc.driverClassName}"

p:url="\${jdbc.databaseurl}" p:username="\${jdbc.username}"

p:password="\${jdbc.password}"></bean>

<bean id="sessionFactory"</pre>

class="org.springframework.orm.hibernate3.LocalSessionFactoryBean">

cproperty name="dataSource" ref="dataSource">/property>

<value>classpath:hibernate.cfg.xml</value>

</property>

<value>org.hibernate.cfg.AnnotationConfiguration</value>

property name="hibernateProperties">

ops>

</props>

</property>

</bean>

<bean id="employeeDAO" class="com.test.dao.EmployeeDaoImpl"></bean>

<bean id="employeeManager" class="com.test.service.EmployeeManagerImpl"></bean>

<tx:annotation-driven />

 dean id="transactionManager"

 $class \verb|="org.spring| framework.orm.hibernate 3. Hibernate Transaction Manager">$

property name="sessionFactory" ref="sessionFactory">

</bean>

</beans>

Q:13 What are the Collection types in Hibernate?

Ans:

- Bag
- Set
- ListArray
- Map

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Ans: The spring framework provides HibernateTemplate (org.springframework.orm.hibernate.HibernateTemplate) which is kind of helper class and provides following benefits.

- HibernateTemplate class simplifies interaction with Hibernate session.
- Common functions are simplified to single method calls.
- Sessions are automatically closed.
- Exception are automatically caught and converted to runtime exceptions.

Q:15 What is the difference between load() and get() method?

Ans:

load():

- Use load() method only when you are sure that object you want to read already exists.
- If unique Id of an object does not exists in database then load() method will throw an exception.
- load() method return proxy object default and database won't be hit until the proxy is first invoked.

get():

- Use get() method when you are not sure obout the object existance in the database.
- If object does not exists in the database, the get() method will return null.
- get() method will hit database immediately.

Q:16 What is lazy fetching in Hibernate?

Ans: In Hibernate Lazy fetching is associated with child objects loading for its parents. Through Hibernate mapping file (.hbm.xml) you can specified the selection of loading child objects. By default Hibernate does not load child objects. Lazy=rue means not to load the child objects.

Q:17 What is the difference between merge and update method?

8/14/2014

Ans: Use update() method when you are sure that session does not contain an already persistent instance with the same identifier, and merge() if you want to merge your modifications at any time without consideration of the state of the session.

Q:18 How do you define sequence generated primary key in hibernate?

Ans:

Using <generator> tag.

Example:<id column="CUST_ID" name="id" type="java.lang.Long">
<generator class="sequence">
<param name="table">SEQUENCE_NAME</param>
<generator>

Q:19 What are the different types of caches in Hibernate?

Ans: Hibernate uses two different type of caches for objects: first-level cache and second-level cache. First level of cache is associated with Session object, while second-level of cache is associated with the SessionFactory object. By default, Hibernate uses first-level of cache on a per-transaction basis. Hibernate mainly use this cache to reduce the number of SQL queries it needs to generate within a given transaction.

Q:20 What do you mean by Named - SQL query?

Ans: Named SQL queries are defined in the mapping xml document and called wherever required.

Example:

<sql-query name = "empdetails">

<return alias="emp" class="com.test.Employee"/>

SELECT emp.EMP_ID AS {emp.empid},

emp.EMP_ADDRESS AS {emp.address},

emp.EMP_NAME AS {emp.name}

FROM Employee EMP WHERE emp.NAME LIKE :name

</sql-query>
Invoke Named Query:

List people = session.getNamedQuery("empdetails")

.setString("Deepak", name)

.setMaxResults(50)

.list();

1.What is ORM?

2. What is Hibernate?

3. Why do you need ORM tools like hibernate?

4. What are the main advantages of ORM like hibernate?

5. What are the core interfaces of Hibernate framework?

6. Explain how to configure Hibernate.

7. Define HibernateTemplate.

8. What are the benefits of HibernateTemplate?

9. What is Hibernate proxy?

10. Explain the types of Hibernate instance states.

11. Explain the Collection types in Hibernate.

12. What is lazy initialization in hibernate?

13. What is lazy fetching in hibernate?

14. What is the difference between sorted and ordered collection in hibernate?

Latest answer:

Sorted Collection

15. Explain the difference between transient (i.e. newly instantiated) and detached objects in hibernate.

16. Explain the advantages and disadvantages of detached objects.

17. What is Hibernate Query Language (HQL)?

18. Explain the general flow of Hibernate communication with RDBMS?

19. Explain the role of Session interface in Hibernate.

20. What is a SessionFactory?

Latest answer: The SessionFactory is the concept that is a single data store and thread safe. Because of this feature, many threads can access this concurrently and the sessions are requested, and also..............

Read answer

21. State the role of SessionFactory interface plays in Hibernate.

22. Explain the difference between load() and get() in Hibernate.

Latest answer: load()

Use this method if it is sure that the objects exist.

The load() method throws an exception, when the unique id could not found in the database......

23. What is the difference between merge and update?

24. What is the advantage of Hibernate over jdbc?

25. Why hibernate is advantageous over Entity Beans & JDBC?

26. Explain the main difference between Entity Beans and Hibernate.

27. Explain the difference between hibernate and Spring.

Latest answer: Hibernate is an ORM tool for data persistency. Spring is a framework for enterprise applications......Read answer

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