**Assignment Questions 8**

💡 **Q1.What is ORM in Hibernate?**

ORM stands for Object-Relational Mapping. In Hibernate, it's a framework that maps Java objects to database tables, allowing developers to interact with databases using object-oriented programming concepts, reducing the need for writing raw SQL queries.

💡 **Q2.What are the advantages of Hibernate over JDBC?**

Advantages of Hibernate over JDBC:

1. Object-Oriented: Hibernate uses object-oriented concepts, making it easier to work with Java objects and databases.

2. Abstraction: Hibernate provides a high-level abstraction over database operations, reducing boilerplate code.

3. Portability: It abstracts database-specific details, enabling easier migration across different databases.

4. Caching: Hibernate supports caching, improving performance by reducing database trips.

5. Query Language: Hibernate's HQL allows writing database queries using object-oriented syntax.

💡 **Q3.What are some of the important interfaces of Hibernate framework?**

Some important interfaces of the Hibernate framework include:

1. SessionFactory: Responsible for creating Session instances, representing the connection between Java application and database.

2. Session: Provides methods for CRUD operations and manages the transaction with the database.

3. Configuration: Configures and initializes Hibernate by specifying mapping files, database connection settings, etc.

4. Transaction: Represents a unit of work, ensuring data consistency during multiple operations.

5. Query: Used to perform database queries using HQL or Criteria API.

💡 **Q4.What is a Session in Hibernate?**

In Hibernate, a Session represents a single unit of work with the database. It is an interface between the application and the persistence layer. The Session provides methods to perform CRUD (Create, Read, Update, Delete) operations on mapped entities and manages the transaction with the underlying database.

💡 **Q5.What is a SessionFactory?**

In Hibernate, a SessionFactory is a thread-safe, immutable cache of compiled mapping metadata for the application's domain model. It is used to create Session instances, which represent connections to the database. The SessionFactory is usually instantiated once during the application startup, providing a central configuration and management point for database interactions throughout the application's lifecycle.

💡 **Q6.What is HQL?**

HQL (Hibernate Query Language) is a powerful object-oriented query language provided by Hibernate. It is similar to SQL but operates on Java classes and their properties instead of database tables and columns. HQL allows developers to write database queries using object-oriented syntax, making it easier to work with mapped entities and abstracting database-specific details, promoting database independence.

💡 **Q7.What are Many to Many associations?**

 associations are a type of relationship in database modeling and object-oriented programming, where multiple instances of one entity can be related to multiple instances of another entity. In the context of Hibernate and ORM, many-to-many associations involve mapping between two entities through an intermediate join table, allowing efficient retrieval and management of data involving both entities.

💡 **Q8.What is hibernate caching?**

Hibernate caching refers to the mechanism of temporarily storing frequently accessed data in memory to improve application performance. It reduces the need to repeatedly query the database by keeping a copy of query results, entity objects, or even entire database tables in the cache. Hibernate offers several caching options, including first-level cache (session-level), second-level cache (global), and query caching, enhancing overall application responsiveness.

💡 **Q9.What is the difference between first level cache and second level cache?**

1. Scope: First-level cache is session-specific, meaning it exists within a single Hibernate session and is not shared between sessions. Second-level cache, on the other hand, is shared across multiple sessions and is available application-wide.

2. Storage: First-level cache stores individual objects fetched during a session. Second-level cache stores entities and query results, providing a broader caching mechanism.

💡 **Q10.What can you tell about Hibernate Configuration File?**

The Hibernate Configuration File is an XML or Java Properties file used to configure and bootstrap Hibernate within an application. It contains essential settings like database connection details, mapping files, cache configurations, and other properties required by Hibernate. It allows developers to specify database dialects, connection pools, and various optimizations. This file is usually loaded during application startup to initialize Hibernate's SessionFactory.