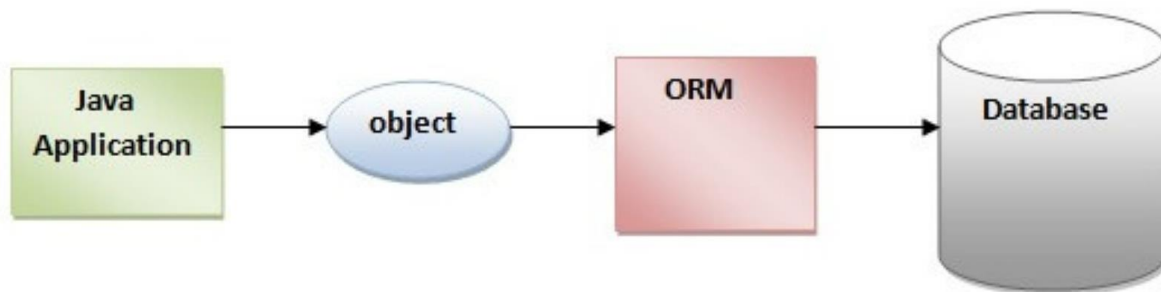


Hibernate

Hibernate is a Java framework that simplifies the development of Java application to interact with the database. It is an open source, lightweight, ORM (Object Relational Mapping) tool. An ORM tool simplifies the data creation, data manipulation and data access. It is a programming technique that maps the object to the data stored in the database.



The ORM tool internally uses the JDBC API to interact with the database.

Advantages of Hibernate Framework

Following are the advantages of hibernate framework:

- **Open Source and Lightweight**

Hibernate framework is open source under the LGPL license and lightweight.

- **Fast Performance**

The performance of hibernate framework is fast because cache is internally used in hibernate framework. There are two types of cache in hibernate framework first level cache and second level cache. First level cache is enabled by default.

- **Database Independent Query**

HQL (Hibernate Query Language) is the object-oriented version of SQL. It generates the database independent queries. So you don't need to write database specific queries. Before Hibernate, if database is changed for the project, we need to change the SQL query as well that leads to the maintenance problem.

- **Automatic Table Creation**

Hibernate framework provides the facility to create the tables of the database automatically. So there is no need to create tables in the database manually.

- **Simplifies Complex Join**

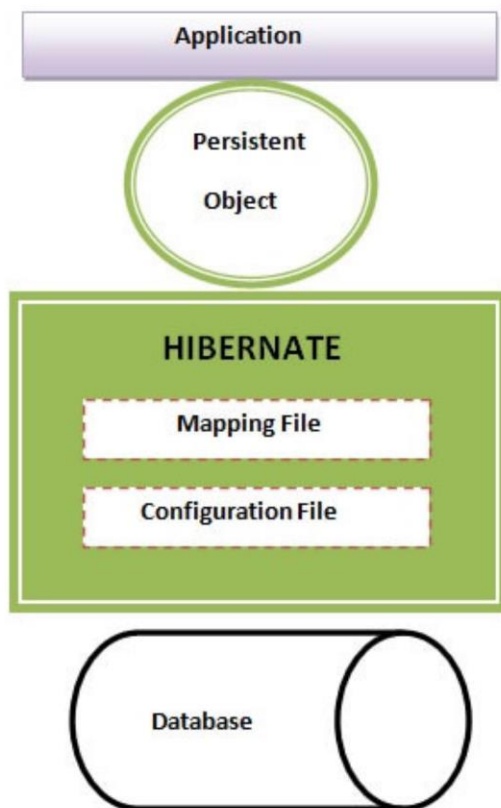
Fetching data from multiple tables is easy in hibernate framework.

- **Provides Query Statistics and Database Status**

Hibernate supports Query cache and provide statistics about query and database status.

Hibernate Architecture:

The Hibernate architecture includes many objects such as persistent object, session factory, transaction factory, connection factory, session, transaction etc.



The Hibernate architecture is categorized in four layers.

- Java application layer
- Hibernate framework layer
- Backhand api layer

- Database layer

Elements of Hibernate Architecture

For creating the first hibernate application, we must know the elements of Hibernate architecture. They are as follows:

Configuration

- The Configuration is an object which is used to read the file: hibernate.cfg.xml

SessionFactory

- The SessionFactory is a factory of session and client of ConnectionProvider. It holds second level cache (optional) of data. The org.hibernate.SessionFactory interface provides factory method to get the object of Session.

Session

- The session object provides an interface between the application and data stored in the database. It is a short-lived object and wraps the JDBC connection. It is factory of Transaction, Query and Criteria. It holds a first-level cache (mandatory) of data. The org.hibernate.Session interface provides methods to insert, update and delete the object. It also provides factory methods for Transaction, Query and Criteria.

Transaction

- The transaction object specifies the atomic unit of work. It is optional. The org.hibernate.Transaction interface provides methods for transaction management.