Hibernate Framework

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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. Hibernate implements the specifications of JPA (Java Persistence API) for data persistence.

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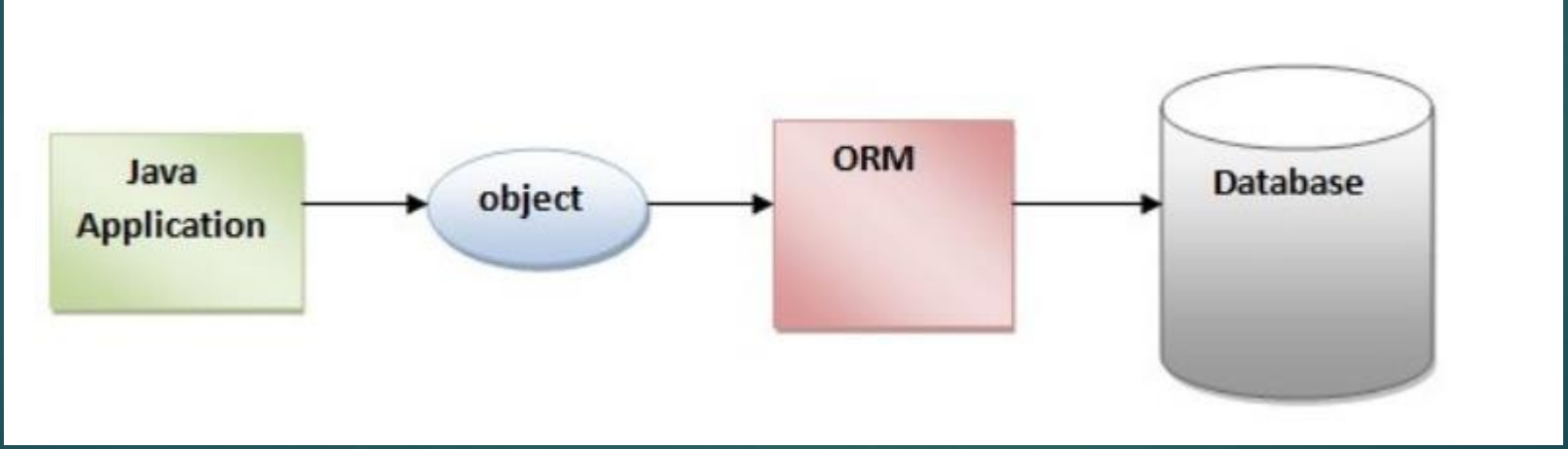
ORM tool

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.



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What is JPA?

Java Persistence API (JPA) is a Java specification that provides certain functionality and standard to ORM tools.

The **javax.persistence** package contains the JPA classes and interfaces.

Advantages of Hibernate Framework

1) Open Source and Lightweight

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

3) 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.

4) 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.

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SessionFactory && session

In Hibernate, a SessionFactory is an important concept used for creating Session objects. It acts as a factory for Session instances and is responsible for managing the configuration settings, database connections, and caching.

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SessionFactory && session

Initialization and Configuration: It reads the configuration file (like hibernate.cfg.xml or hibernate.properties) and configures Hibernate for database interaction (e.g., setting the database URL, username, .password, and other properties)

Session Creation: Once the SessionFactory is set up, it creates and provides access to multiple Session objects. Each Session is responsible for executing CRU

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hbm2ddl.auto

Value	Action
validate	Validates schema against mappings
update	Updates the schema to match mappings
create	Drops and recreates schema on startup
create-drop	Creates schema on startup, drops on shutdown
none	No action is taken on the schema

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Transaction refers to a sequence of one or more operations that are executed as a single unit of work

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@GeneratedValue

Strategy	Description
GenerationType.AUTO	Hibernate chooses the best strategy based on the database. **If you're using a database that supports sequences (e.g., Oracle, PostgreSQL), it might use a sequence.** **If the database supports identity columns (e.g., MySQL, SQL Server), it might use the identity generation strategy.**
GenerationType.IDENTITY	The database auto-generates the key using an identity column.
GenerationType.SEQUENCE	Uses a database sequence to generate the primary key.
GenerationType.TABLE	Uses a separate table to generate unique primary key values.

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