1. Architecture1.1. Overview Hibernate, as an ORM solution, effectively "sits between" the Java application data access layer and the Relational Database, as can be seen in the diagram above. The Java application makes use of the Hibernate APIs to load, store, query, etc. its domain data. Here we will introduce the essential Hibernate APIs. This will be a brief introduction; we will discuss these contracts in detail later. As a Jakarta Persistence provider, Hibernate implements the Java Persistence API specifications and the association between Jakarta Persistence interfaces and Hibernate specific implementations can be visualized in the following diagram: SessionFactory (org.hibernate.SessionFactory) A thread-safe (and immutable) representation of the mapping of the application domain model to a database. Acts as a factory for org.hibernate.Session instances. The EntityManagerFactory is the Jakarta Persistence equivalent of a SessionFactory and basically, those two converge into the same SessionFactory implementation. A SessionFactory is very expensive to create, so, for any given database, the application should have only one associated SessionFactory. The SessionFactory maintains services that Hibernate uses across all Session(s) such as second level caches, connection pools, transaction system integrations, etc. Session (org.hibernate.Session) A single-threaded, short-lived object conceptually modeling a "Unit of Work" (PoEAA). In Jakarta Persistence nomenclature, the Session is represented by an EntityManager. Behind the scenes, the Hibernate Session wraps a JDBC java.sql.Connection and acts as a factory for org.hibernate.Transaction instances. It maintains a generally "repeatable read" persistence context (first level cache) of the application domain model. Transaction (org.hibernate.Transaction) A single-threaded, short-lived object used by the application to demarcate individual physical transaction boundaries. EntityTransaction is the Jakarta Persistence equivalent and both act as an abstraction API to isolate the application from the underlying transaction system in use (JDBC or JTA).