

Difference between JPA, Hibernate and Spring Data JPA

Here's a simple comparison between JPA, Hibernate, and Spring Data JPA:

Aspect	JPA (Java Persistence API)	Hibernate	Spring Data JPA
Type	Specification (standard API)	Implementation of JPA	Abstraction layer over JPA (part of Spring)
Maintained By	Oracle (Java EE)	Red Hat	Spring Framework team
Purpose	Defines how Java objects map to relational DB	Provides actual code to persist data	Reduces boilerplate code with repository abstraction
Usage	Interface only, needs implementation like Hibernate	Directly used for ORM	Used with Spring Boot to simplify JPA usage
Boilerplate Code	High (requires manual EntityManager etc.)	Moderate	Very low (just extend JpaRepository)
Query Writing	Manual JPQL or Criteria	JPQL, HQL, Native SQL	Auto-generates queries with method names

Summary:

- JPA is just a standard (like a rulebook).
- Hibernate is a tool that follows JPA rules and provides real functionality.
- Spring Data JPA is a helper on top of JPA & Hibernate that writes most code for you.