**Difference between JPA, Hibernate and Spring Data JPA**

| **Aspect** | **JPA (Java Persistence API)** | **Hibernate** | **Spring Data JPA** |
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| **Type** | Specification/Standard | Implementation of JPA + additional features | Abstraction over JPA for easier integration with Spring |
| **Belongs To** | Java EE (Jakarta EE) Standard | Open-source project | Spring Framework project |
| **Main Role** | Defines how to map Java objects to database tables | Provides actual working ORM code | Simplifies repository layer and CRUD operations |
| **Key Feature** | Interfaces like EntityManager, annotations like @Entity | Implements JPA interfaces + native features | Auto-implements repositories using interfaces |
| **Implementation Required?** | Yes, needs provider like Hibernate | No (it is the implementation) | Built on top of JPA providers like Hibernate |
| **Boilerplate Code** | High | Medium | Very Low |
| **Example Use Case** | Basic persistence logic | Custom ORM behavior | Rapid development of CRUD repositories |