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

**1.Java Persistence API**

* JPA is a **Java specification** that defines how Java objects are mapped to database tables.
* It is part of the **Jakarta EE** platform.
* JPA uses annotations like @Entity, @Id, @Column to configure how classes map to tables.
* It works with a special component called the **EntityManager** to perform operations like persist, find, and remove.
* It **requires an implementation** like Hibernate to actually interact with the database.

**2.Hibernate**

* Hibernate is a **popular ORM framework** in Java and a full **implementation of the JPA specification**.
* It provides extra features beyond JPA like **caching**, **lazy loading**, and advanced query capabilities.
* Hibernate translates Java objects to SQL and vice versa, handling all the **low-level JDBC code**.
* Hibernate is often used as the **default JPA provider** in many Spring Boot projects.

**3.Spring Data JPA**

* Spring Data JPA is a **Spring module** that builds on top of JPA and makes database access easier.
* It removes boilerplate code by allowing you to write **only interfaces** and lets Spring generate the implementation.
* It uses **Hibernate** to interact with the database.
* It integrates deeply with the **Spring ecosystem**, making it ideal for building modern Spring Boot applications.