**Spring Data JPA with Spring Boot, Hibernate – Mandatory Hands-On**

**1.Spring Data JPA - Quick Example**

Spring Data JPA is a part of the Spring Framework that simplifies working with databases in Java applications. Instead of writing long SQL queries or boilerplate code, Spring Data JPA allows developers to interact with the database using simple Java interfaces.

Further what you can do:

With Spring Data JPA, you can perform common database operations like saving, deleting, updating, and retrieving data with minimal effort. It works on top of the Java Persistence API (JPA) and automatically translates method names into queries, making development faster and cleaner.

Example:

Imagine you are building an application to manage a list of books. Using Spring Data JPA:

* You define a simple class called Book, which represents a table in the database.
* Then, you create an interface called BookRepository that automatically provides methods like save, findAll, deleteById, etc.
* You can now easily store and retrieve book data without writing any SQL.

Why it is useful:

Spring Data JPA is widely used because it:

* Saves time by reducing boilerplate code.
* Makes the code more readable and maintainable.
* Handles most of the behind-the-scenes complexity of database interaction.
* Supports custom queries if you need more control.

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

When working with databases in Java, three commonly used terms are JPA, Hibernate, and Spring Data JPA. While they are related, they serve different purposes and work at different layers of abstraction.

i)JPA

JPA is a specification or standard defined by Java for working with relational databases using objects. A set of rules or guidelines that define how Java objects should map to database tables. JPA doesn’t provide any implementation. It just defines the concepts.

ii)Hibernate:

Hibernate is a popular implementation of JPA. A tool that actually performs the work that JPA defines — like saving, updating, and querying data. Hibernate adds many features beyond JPA, such as caching and better query capabilities.

iii) Spring Data JPA:

A Spring Framework module that builds on top of JPA (usually with Hibernate) and simplifies database access even more. A helper library that reduces boilerplate code by providing ready-made repository interfaces. With Spring Data JPA, you don’t even have to write queries — method names can be automatically converted into SQL.