Day 27 Spring Data JPA.

JPA Week. Using SQL based DB (RDBMS)

No-SQL week.

Day 26 – JPA

What is JPA - JPA is specification. (It provides rules and guidelines)

JDBC – Java DataBase Connection.

Generally all the Database are Client/Server concept.

Popular SQL based Database (RDBMS)

1. MySQL
2. MS-SQL
3. Oracle
4. DB2
5. Postgres

Three ways of connecting to any DB.

1. Using the CLI client (Power users like DBA, Developers) – All operations using SQL queries.
2. Using GUI client (MySQL Workbench, PgAdmin, MS-SQL developer, etc.,) – Dbeaver
3. Using any Programming Lang. (JAVA, .Net, Python, Node)

JAVA provides two specification to interact with SQL based RDBMS.

1. Using JDBC – All Manual Operations
2. Using JPA – Simplifies the process of interacting with DB by automatically creating and running corresponding SQL queries.

User

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Name | Email | Mobile |
| 100 | Sample | [sample@gmail.com](mailto:sample@gmail.com) | 9878675676 |
| 101 | Test | [test@gmail.com](mailto:test@gmail.com) | 8798674534 |
|  |  |  |  |

CRUD – Operations on DB.

Insert Query for create operation.

Select Query for Read Operation.

Update Query for Update Operation.

Delete Query for Delete Operation.

In JPA,

Just create Entity Bean object. Call the persist method to do the Create operation.

Popular Implementations

1. Hibernate (ORM Framework)
2. EclipseLink
3. OpenJPA

EclipseLink4.0 Downloaded from official site. Create JPA project using Eclipse EE IDE.

Earlier versions of JAVA – JPA was present in javax.persistence package.

Latest version of JAVA – JPA is present in jakarta.persistence package.

JPA Based Project Creation.

1. Name of the project & Location to save.
2. Specify default input & output folder.
3. Specifying the JPA implementation (Generics 3.0) – EclipseLink (Setting up external lib)
4. DB Connection

CREATE TABLE `eclipselink`.`trainer` (

`id` INT NOT NULL AUTO\_INCREMENT,

`first\_name` VARCHAR(45) NULL,

`last\_name` VARCHAR(45) NULL,

`email` VARCHAR(45) NOT NULL,

`gender` VARCHAR(15) NULL,

PRIMARY KEY (`id`),

UNIQUE INDEX `email\_UNIQUE` (`email` ASC) VISIBLE);

Hibernate is an ORM (Object Relational Mapping Framework) - It’s a JPA implementation.

Hibernate ORM

JPA – JPQL – Java Persistence Query Lang. (Use Entity Bean class names rather than table names)

SQL is DB Specific. (Default Date Format )

HQL – Hibernate Query Lang. <https://hibernate.org/orm/>

<https://github.com/hibernate/hibernate-orm/tree/7.1>

1. DB Caching (API Performance) –
2. Connection Pooling

<https://docs.google.com/spreadsheets/d/1OsjnPBD3x9Zm-YMR69nAA5uiSlPAxAm_HNGhtAv9H9o/edit?gid=0#gid=0>