ORM
Spring Boot
Spring JPA

```
         ┌──────────┐
         │ jdbc api │
         └──────────┘
              ▲
              │
┌───────────┐   ┌────────┐   ┌────────┐
│ java code │──▶│ driver │──▶│ rdbms  │
└───────────┘   └────────┘   └────────┘
     java                        sql
```

ORM   **Object relational mapping**

```
┌──────────────┐   ┌─────┐   ┌──────────────┐
│ java code    │───│ O   │───│ database     │
│ (object)     │   │ R   │   │ (column)     │
│              │   │ M   │   │              │
└──────────────┘   └─────┘   └──────────────┘
```
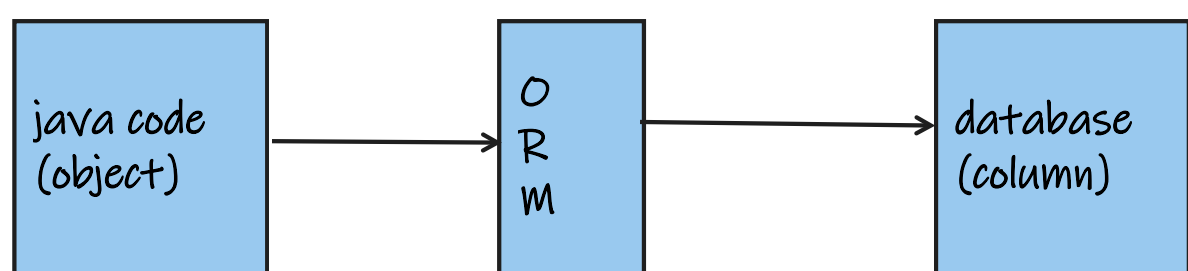
It maps and maintain the relation between the
object state to database

ORM Frameworks
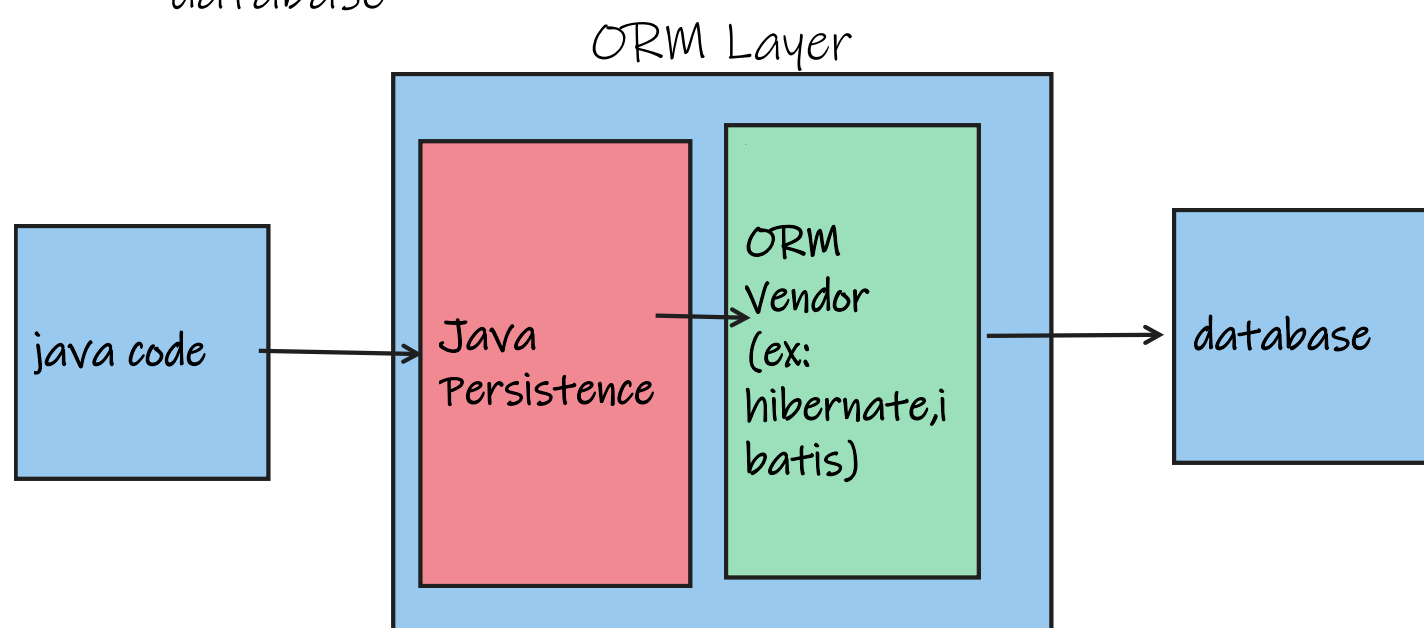Hibernate   HQL
   JPOX
   iBatis
   TopLink
   ORMLite

Types Of Mapping

one to one mapping
one to many mapping
many to one mapping
many to many mappign

JPA Java Persistence API

   It is a specification
   It is used to persist data between java object and relational
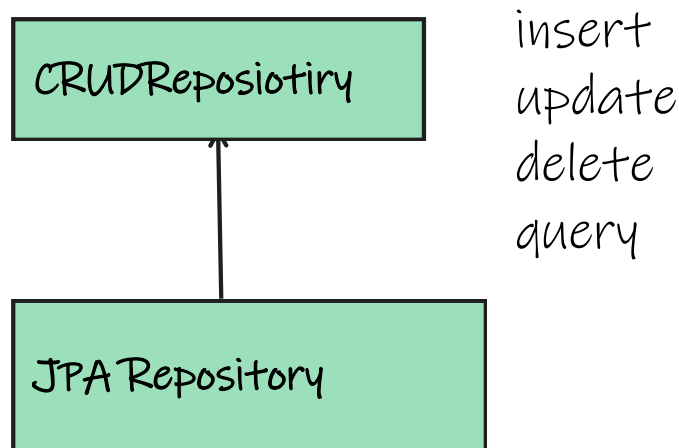   database

                      ORM Layer
```
┌───────────┐   ┌──────────────┬──────────────┐   ┌──────────┐
│ java code │──▶│ Java         │ ORM          │──▶│ database │
│           │   │ Persistence  │ Vendor       │   │          │
│           │   │              │ (ex:         │   │          │
│           │   │              │ hibernate,i  │   │          │
│           │   │              │ batis)       │   │          │
└───────────┘   └──────────────┴──────────────┘   └──────────┘
```

          JPA Overview   **XML**
                                           Annotation
JPQL - Java Persistence Query Language

JPA Repositories: ┌──────────────────┐   insert
   CRUD Repository -   │ CRUDReposiotiry │   update
   JPA Repository -   └──────────────────┘   delete
 pagination and sorting   │   query
                                   ┌──────────────────┐
                                   │ JPA Repository   │
                                   └──────────────────┘

application.properites file in spring boot is for configuration
purpose

JPA Architecture   ┌──────────────────┐   ┌──────────────────┐
                    │ Persistence Unit │   │ Persistence   │
                    └──────────────────┘   └──────────────────┘
                              │ configure by   │ creates
                              ▼   ▼
┌──────────────┐   ┌──────────────────────────┐
│ Entity   │   │ EntityManagerFactory   │
│ Transction   │   └──────────────────────────┘
└──────────────┘   creates   │ Creates
                              ┌──────────────────┐
                              │ ENtityManager   │
                              └──────────────────┘
       ┌────────┐   │ manages
       │ Query │   creates   ▼
       └────────┘   ┌──────────────┐
                              │ Entity   │
                              └──────────────┘