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Spring JPA

```
description : JPAauthor :email : hylee@repia.comlastupdate : 2020-12-16
```

JPA

```
• SQL?
• ( )
· ?
• DB
· - Table
· 가 가
```

JPA

```
• JPA . - . ( )
• JPA . . .
```

JPA

• or

JPA

```
• ( , )
• ( )

• 1 ( )
• ( )
• ( )
• ( )
• ( )
```

• (Dirty Checking)

•

۰ ,

(Lazy Loading)

```
@Entity : JPA가
  public, protected
 @Table(name = "
                                  ")
                      가
  create, create-drop, update, validate, auto, none
              create, update
            update, validate
                validate, none
 @Column
                                            ddl
  updatable = false,
  nullable = false
 unique = true,
  sql date= , time= , tiemstamp
 GeneratorType.IDENTIFY
  persist()
                  가
 GeneratorType.SEQUENCE
                    가
```

```
- ( ),

JPA

( …)

, … 力?

・ フト
・ フト
・ アト
・ アト
・ アト
・ mappedBy
・ mappedBy
```

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```
, 가
• mappedBy =
                                                                 가
     )
            가
                                         (1:n)
                                                                   !!
               //
           public void addMember(MemberHello member) {
               member.setTeam(this);
               members.add(member);
           }
               //
           public void changeTeam(Team team) {
               this.team = team;
               team.getMembers().add(this); //
        toString(), lombok, JSON
    lombok toString
                                                  Entity
                                                                     (Api
          (⇒ DTO
                          ),
                 (@ManyToOne)
                                                         가
                                                                 , @ManyToOne
                            가
                                       mappedBy가
                 (@OneToMany)
                                        가
                                                         가
                                    , 가
                            가
               • @JoinColumn
                                                               (
                                       가
                                                            (@JoinColumn(name="",
                insertable=false, updatable=false)
```

```
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```

```
(@OneToOne)
          @JoinColumn
                 가 (mappedBy(name = ""))
                            가
          (@ManyToMany)
                                          2
                       가
                                                  가
                                   2
                             가
                              !!
                                              @ManyToMany → @OneToMany,
          @ManyToOne
                        PΚ
                            가
                                                     Pk
                             가
                   가
                                     가
             가
                               가 2
가
```

```
가 , , 가 가 예MappedSuperclass - 가 abstract( ) (@MappedSuperclass 가 연Entity @MappedSuperclass 가
```

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```
em.getReference() //
                                   (DB
                                         가
                               가
                          가
                                                     instanceof
                    가
                            em.getReference()
 )
 JPA
                             == true
  PersistenceUnitUtil.isLoaded(Object entity)
 entity.getClass().getName()
               , JPA
                               가
 org.hibernate.Hibernate.initialize(entity);
        (EAGER),
                     (LAZY)
        가
           JPQL
                   N+1
 @ManyToOne, @OneToOne
                                     -> LAZY
 @OneToMany, @ManyToMany
          Fetch join, annotation,
 @
                            !, JPQL fetch
         (CASCADE)
 CASCADE.ALL or CASCADE.PERSIST
      가
  orphanRemoval = true
       가
         가
                            (@OneToOne, @OneToMany 가 )
CASCADE.ALL, orphanRemoval = true
                                          (DDD Aggregate Root
   )
```

```
가 가
                           가 )
    가
         가
    가
                                가 (find-grained)
       ORM
                                                가
                                  가
@AttributeOverrides, @AttributeOverride
                          (=<- ( ) , new
        (immutable object)
                   private
                   가
       new
                   !!)
                                                       !!
               가
   (identity) :
   (equivalence) :
                                  , equals()
       equals() override
                                                        . (
             , hashCode
                            ...)
        (@ElementCollection, @CollectionTable
                      가
                                      가
   가
          가
                                     (side effect
                 new
                      가
                                                       (null X,
                                                                    x)
                               (
                                        )
```

• JQPL

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- context-hibernate.xml
- context-jpa-respository.xml

context-hibernate.xml

```
<?xml version="1.0" encoding="utf-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"</pre>
 xmlns:context="http://www.springframework.org/schema/context"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="http://www.springframework.org/schema/beans"
http://www.springframework.org/schema/beans/spring-beans-4.0.xsd
  http://www.springframework.org/schema/context
http://www.springframework.org/schema/context/spring-context-4.0.xsd">
              기
                        EntityManager
                                         . @PersistenceContext
    <!--
   <bean id="entityManagerFactory"</pre>
class="org.springframework.orm.jpa.LocalContainerEntityManagerFactoryBean">
       cproperty name="dataSource" ref="egov.dataSource" />
       com" />
       cproperty name="jpaVendorAdapter">
           <br/>bean
class="org.springframework.orm.jpa.vendor.HibernateJpaVendorAdapter">
               roperty name="showSql" value="true" />
               roperty name="generateDdl" value="true" />
           </bean>
       </property>
```

```
<!-- persistence.xml
                                   フト -->
      property name="jpaProperties">
         cprops>
            <!-- <prop
key="hibernate.ejb.naming strategy">org.hibernate.cfg.EJB3NamingStrategy</pr
op> -->
            prop
key="hibernate.ejb.naming_strategy">org.hibernate.cfg.ImprovedNamingStrategy
</prop>
            <!-- hibernate 5
                                    (4
                                                 ) -
          prop key="hibernate.naming.implicit-
strategy">org.hibernate.boot.model.naming.ImplicitNamingStrategyLegacyJpaImp
l</prop>
          prop key="hibernate.naming.physical-
strategy">org.hibernate.boot.model.naming.PhysicalNamingStrategyStandardImpl
</prop>
            prop
key="hibernate.dialect">org.hibernate.dialect.Oracle10gDialect</prop>
            <prop key="hibernate.format sql">true</prop>
            comments 
            </props>
      </bean>
</beans>
```

hibernate.dialect

DB2	org.hibernate.dialect.DB2Dialect
DB2 AS/400	org.hibernate.dialect.DB2400Dialect
DB2 OS390	org.hibernate.dialect.DB2390Dialect
PostgreSQL	org.hibernate.dialect.PostgreSQLDialect
MySQL5	org.hibernate.dialect.MySQL5Dialect
MySQL5 with InnoDB	org.hibernate.dialect.MySQL5InnoDBDialect
MySQL with MyISAM	org.hibernate.dialect.MySQLMyISAMDialect
Oracle (any version)	org.hibernate.dialect.OracleDialect
Oracle 9i	org.hibernate.dialect.Oracle9iDialect
Oracle 10g	org.hibernate.dialect.Oracle10gDialect
Oracle 11g	org.hibernate.dialect.Oracle10gDialect
Sybase	org.hibernate.dialect.SybaseASE15Dialect
Sybase Anywhere	org.hibernate.dialect.SybaseAnywhereDialect
Microsoft SQL Server 2000	org.hibernate.dialect.SQLServerDialect

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org.hibernate.dialect.SQLServer2005Dialect
org.hibernate.dialect.SQLServer2008Dialect
org.hibernate.dialect.SAPDBDialect
org.hibernate.dialect.InformixDialect
org.hibernate.dialect.HSQLDialect
org.hibernate.dialect.H2Dialect
org.hibernate.dialect.IngresDialect
org.hibernate.dialect.ProgressDialect
org.hibernate.dialect.MckoiDialect
org.hibernate.dialect.InterbaseDialect
org.hibernate.dialect.PointbaseDialect
org.hibernate.dialect.FrontbaseDialect
org.hibernate.dialect.FirebirdDialect

context-jpa-respository.xml

```
base-package=""
```

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
   xmlns:jpa="http://www.springframework.org/schema/data/jpa"
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
   xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-4.0.xsd
   http://www.springframework.org/schema/data/jpa
http://www.springframework.org/schema/data/jpa/spring-jpa.xsd">
   <jpa:repositories base-package="com"></jpa:repositories>
</beans>
```

POM.xml

```
<properties>
    <egovframework.jpa.version>3.7.0</egovframework.jpa.version>
    <hibernate.version>4.3.11.Final</hibernate.version>
</properties>
<dependencies>
    <dependency>
```

```
<groupId>egovframework.rte
       <artifactId>egovframework.rte.psl.data.jpa</artifactId>
       <version>${egovframework.jpa.version}</version>
   </dependency>
   <!-- Hibernate -->
   <dependency>
       <groupId>org.hibernate
       <artifactId>hibernate-core</artifactId>
       <version>${hibernate.version}
   </dependency>
   <dependency>
       <groupId>org.hibernate
       <artifactId>hibernate-validator</artifactId>
       <version>5.4.2.Final
   </dependency>
   <dependency>
       <groupId>org.springframework.data
       <artifactId>spring-data-jpa</artifactId>
       <version>1.11.10.RELEASE
       <exclusions>
          <exclusion>
              <groupId>org.slf4j
              <artifactId>slf4j-api</artifactId>
          </exclusion>
          <exclusion>
              <groupId>org.slf4j
              <artifactId>jcl-over-slf4j</artifactId>
          </exclusion>
       </exclusions>
   </dependency>
</dependencies>
```

Builder

[SpringBoot + JPA] Lombok @Builder

Troubleshooting

- A Guide to MultipleBagFetchException in Hibernate
- MultipleBagFetchException

Ref

Querydsl

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