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Spring Boot



Spring Data JPA

ORM & DAO

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- ☐ WHAT IS THYMELEAF
- ☐ BASIC DIRECTIVES & EXPRESSIONS
- ☐ FLOW CONTROL DIRECTIVES





DATABASE RELATION DIAGRAM

Categories

	Column Name	Condensed Type	Identity
🔑	Id	char(4)	<input type="checkbox"/>
	Name	nvarchar(50)	<input type="checkbox"/>
			<input type="checkbox"/>

Orders

	Column Name	Condensed Type	Identity
🔑	Id	bigint	<input checked="" type="checkbox"/>
	Username	nvarchar(50)	<input type="checkbox"/>
	CreateDate	datetime	<input type="checkbox"/>
	Address	nvarchar(100)	<input type="checkbox"/>
			<input type="checkbox"/>

Accounts

	Column Name	Condensed Type	Identity
🔑	Username	nvarchar(50)	<input type="checkbox"/>
	Password	nvarchar(50)	<input type="checkbox"/>
	Fullname	nvarchar(50)	<input type="checkbox"/>
	Email	nvarchar(50)	<input type="checkbox"/>
	Photo	nvarchar(50)	<input type="checkbox"/>
	Activated	bit	<input type="checkbox"/>
	Admin	bit	<input type="checkbox"/>
			<input type="checkbox"/>

Products

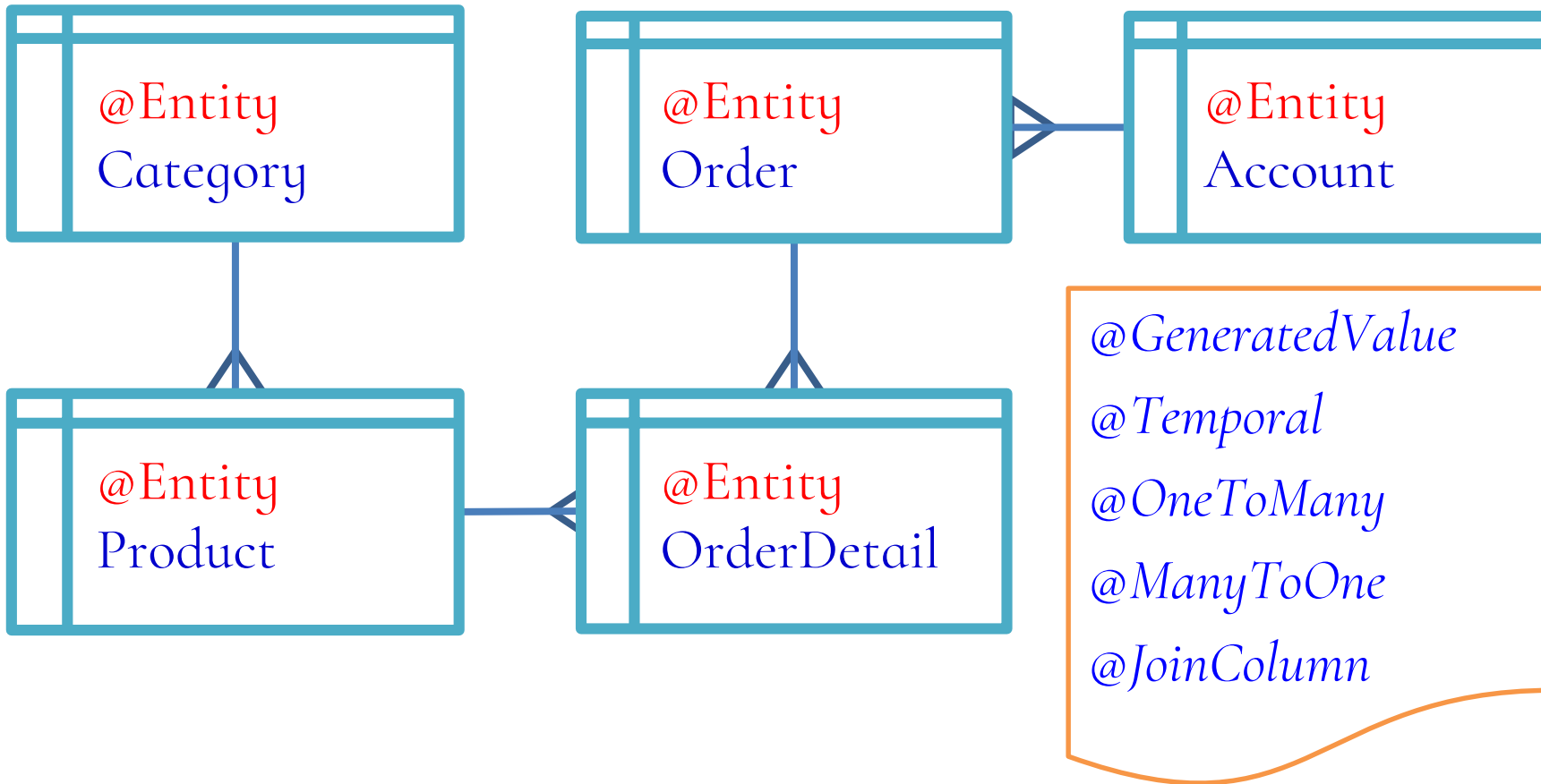
	Column Name	Condensed Type	Identity
🔑	Id	int	<input checked="" type="checkbox"/>
	Name	nvarchar(50)	<input type="checkbox"/>
	Image	nvarchar(50)	<input type="checkbox"/>
	Price	float	<input type="checkbox"/>
	CreateDate	date	<input type="checkbox"/>
	Available	bit	<input type="checkbox"/>
	CategoryId	char(4)	<input type="checkbox"/>
			<input type="checkbox"/>

OrderDetails

	Column Name	Condensed Type	Identity
🔑	Id	bigint	<input checked="" type="checkbox"/>
	OrderId	bigint	<input type="checkbox"/>
	ProductId	int	<input type="checkbox"/>
	Price	float	<input type="checkbox"/>
	Quantity	int	<input type="checkbox"/>
			<input type="checkbox"/>



AGENDA

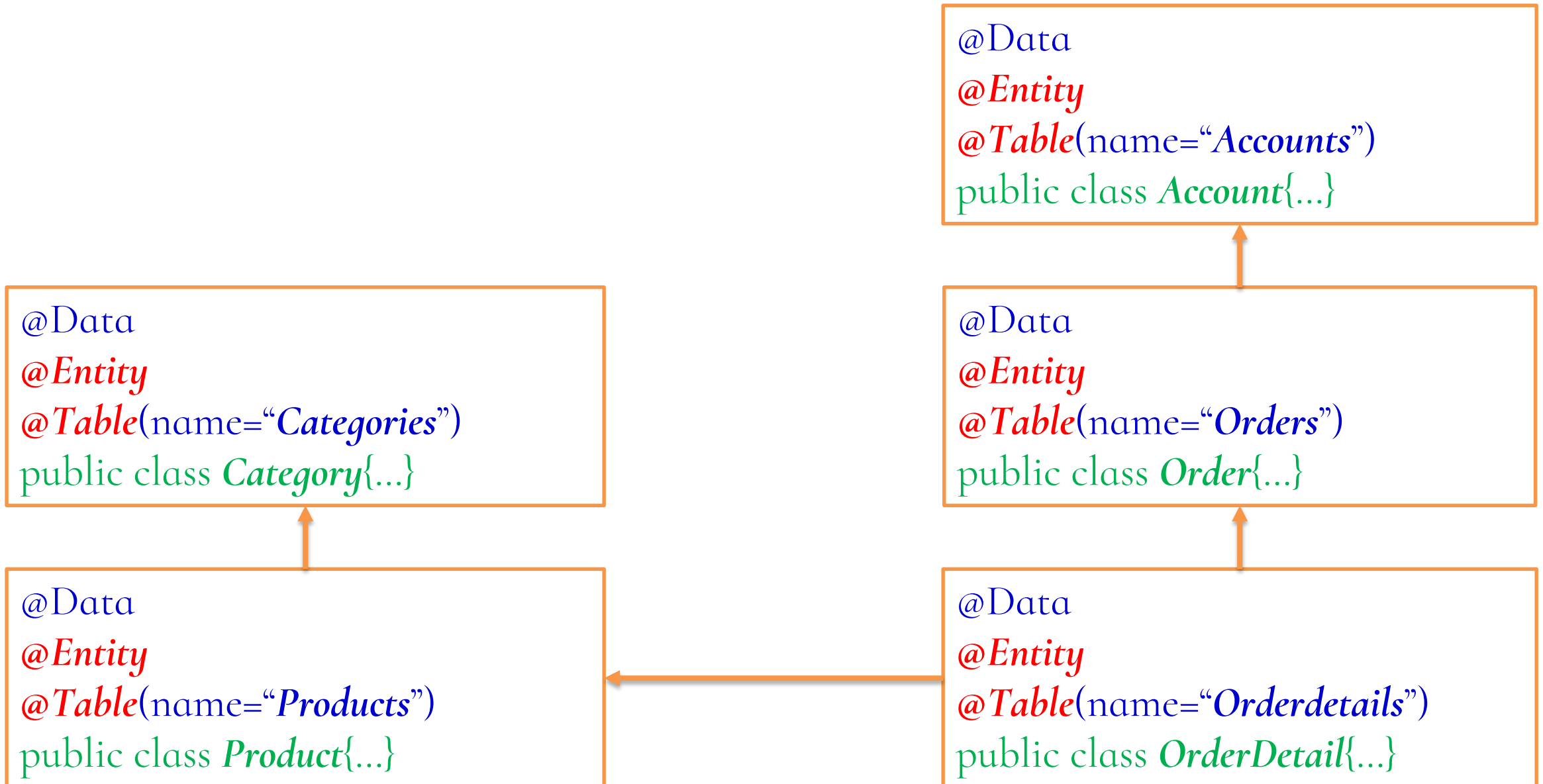




Object Relational Mapping



OBJECT RELATIONAL MAPPING



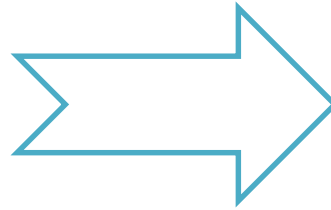


OBJECT RELATIONAL MAPPING

Categories			
	Column Name	Condensed Type	Identity
🔑	Id	char(4)	<input type="checkbox"/>
	Name	nvarchar(50)	<input type="checkbox"/>
			<input type="checkbox"/>

Products			
	Column Name	Condensed Type	Identity
🔑	Id	int	<input checked="" type="checkbox"/>
	Name	nvarchar(50)	<input type="checkbox"/>
	Image	nvarchar(50)	<input type="checkbox"/>
	Price	float	<input type="checkbox"/>
	CreateDate	date	<input type="checkbox"/>
	Available	bit	<input type="checkbox"/>
	CategoryId	char(4)	<input type="checkbox"/>
			<input type="checkbox"/>

@OneToMany



@ManyToOne

Category	
	id: String name: String <i>products: List<Product></i>

Product	
	id: Integer name: String image: String price: Double createDate: Date available: Boolean <i>category: Category</i>

✓ Quy ước mặc định tên field ↔ column

- Cùng tên 1 từ => **bỏ @Column**
- Tên nhiều từ

- createDate ↔ create_date

- categoryId ↔ category_id

=> **Muốn giữ tên dùng @Column**

@Data

@Entity @Table(name = "Categories")

public class Category {

@Id

String id;

String name;

2. Bổ sung kết hợp
@OneToMany nếu cần

@OneToMany(mappedBy = "category")

List<Product> products;

}

@Data

@Entity @Table(name = "Products")

public class Product{

@Id

@GeneratedValue(strategy=GenerationType.IDENTITY)

Integer id;

String name;

String image;

Double price;

@Temporal(TemporalType.DATE)

@Column(name = "Createdate")

Date createDate;

Boolean available;

1. Đổi FK thành kết hợp
@ManyToOne

@ManyToOne

@JoinColumn(name = "Categoryid")

Category category;

}



@ONETO MANY & @MANYTO ONE MAPPING

```
@Entity
@Table(name="Products")
Product
```

```
...
@ManyToOne
@JoinColumn(name="Categoryid")
Category category;
```

*Đổi khóa ngoại bằng thực thể để từ sản phẩm
có thể biết thêm nhiều thông tin của loại*

```
@Entity
@Table(name="Categories")
Category
```

1

```
...
@OneToMany(mappedBy="category")
List<Product> products
```

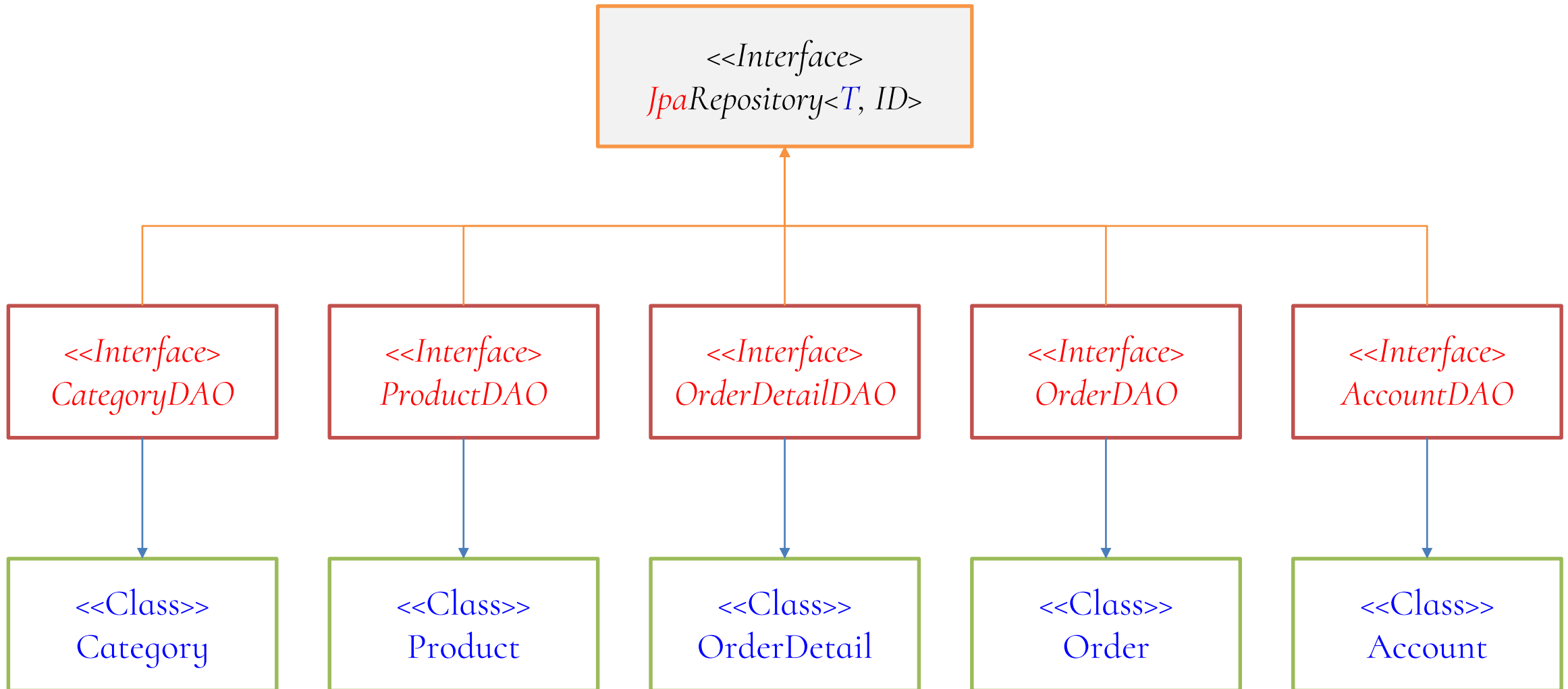
*Bổ sung @OneToMany nếu cần truy vấn
danh sách các sản phẩm của loại*



Data Access Object



DATA ACCESS OBJECT CLASS DIAGRAM





DATA ACCESS OBJECT

```
public interface CategoryDAO extends JpaRepository<Category, String>{  
}
```

```
public interface ProductDAO extends JpaRepository<Product, Integer>{  
}
```

```
public interface AccountDAO extends JpaRepository<Account, String>{  
}
```

```
public interface OrderDAO extends JpaRepository<Order, Long>{  
}
```

```
public interface OrderDetailDAO extends JpaRepository<OrderDetail, Long>{  
}
```



Querying Associated Entity



```
@Controller
public class JpaController {
    @Autowired
    ProductDAO dao;
    public String method(){
        List<Product> products= dao.findAll();
        products.forEach(product -> {
            // @ManyToOne
            Category category = product.getCategory();
        })
    }
}
```

```
<ul th:each="p: ${products}">
    <li th:text="${p.category.name}"></li>
</ul>
```



```
@Controller
public class JpaController {
    @Autowired
    CategoryDAO dao;
    public String method(){
        Category category = dao.getById(1008);
        // @OneToMany
        List<Product> list = category.getProducts();
        ...
    }
}
```

```
<ul th:each="p: ${category.products}">
    <li th:text="${p.name}"></li>
</ul>
```



✓ Entity Annotations

- ✓ @Entity
- ✓ @Table
- ✓ @Column
- ✓ @Id
- ✓ @GeneratedValue
- ✓ @Temporal
- ✓ @OneToMany
- ✓ @ManyToOne
- ✓ @JoinColumn

✓ Association Entities

- ✓ @OneToMany
 - ✓ `List<Product> items = category.getProducts()`
- ✓ @ManyToOne
 - ✓ `Category item = product.getCategory()`

