Features

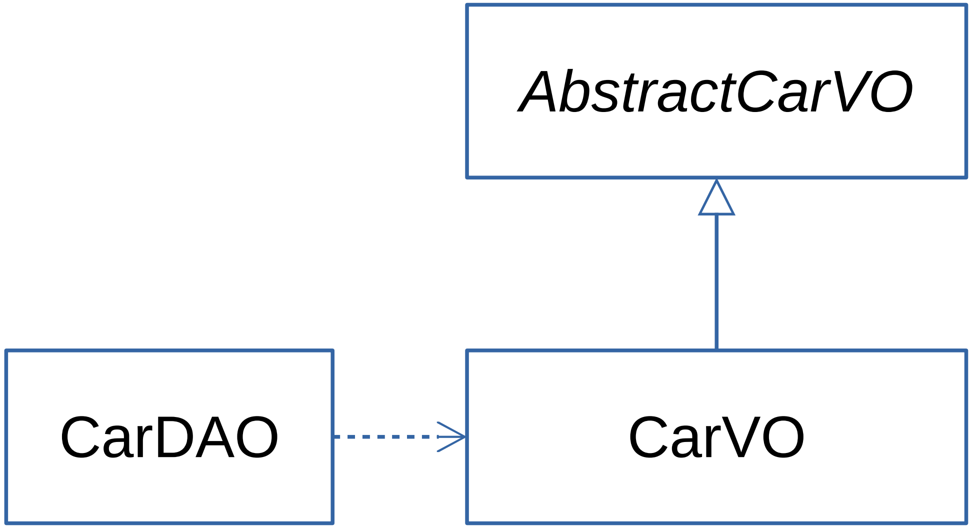
- Simple Standard ORM
- Full-featured SQL
  - Real, Native SQL
  - Dynamic SQL
- High Performance of MyBatis
- Supports Major Databases

DAOs & VOs

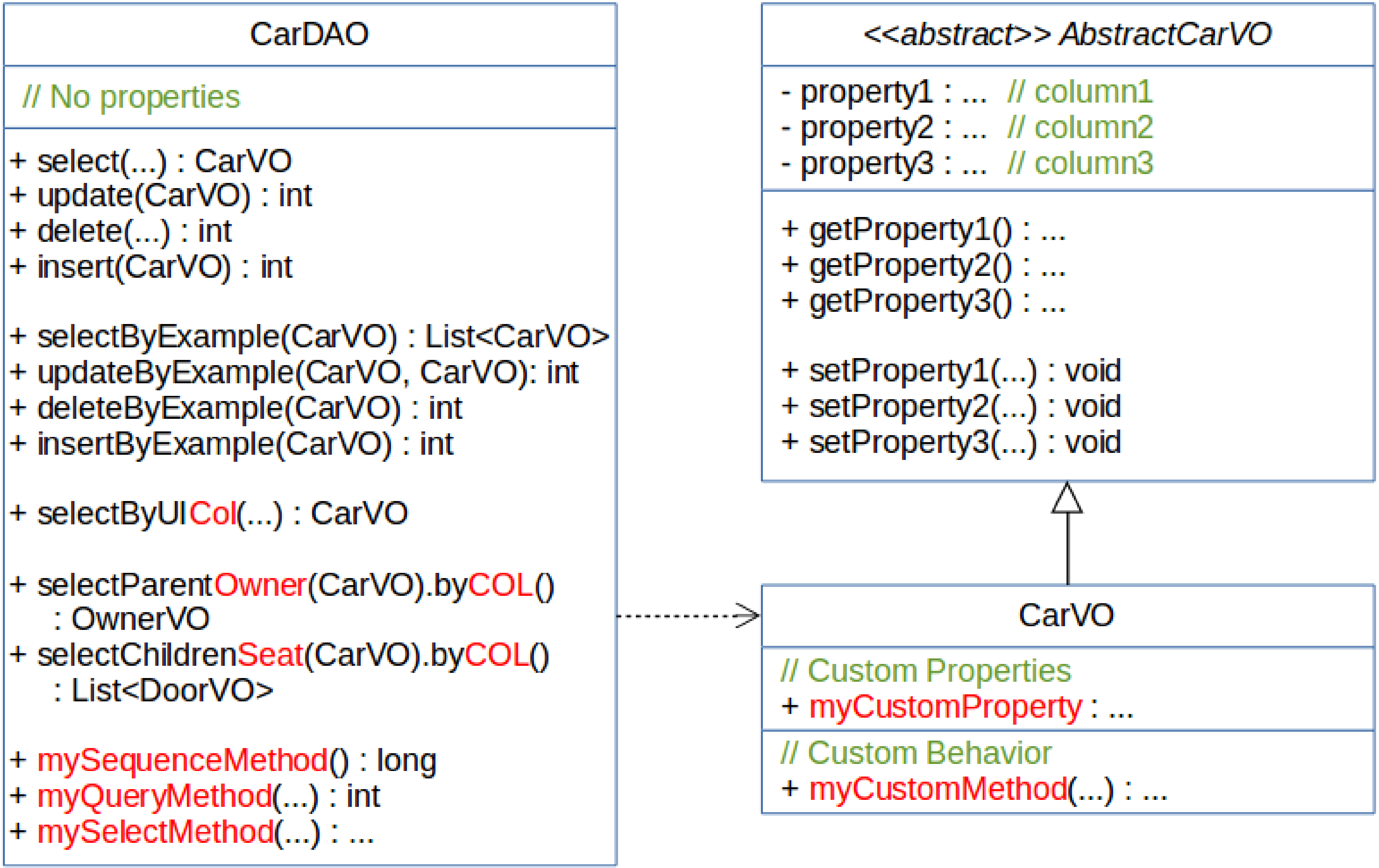
- A database table or view produces three Java classes.

- For example, the table CAR produces:

```
<table name=”car” />
```



DAOs & VOs



CarDAO

// No properties

+ select(...) : CarVO
+ update(CarVO) : int
+ delete(...) : int
+ insert(CarVO) : int

+ selectByExample(CarVO) : List<CarVO>
+ updateByExample(CarVO, CarVO): int
+ deleteByExample(CarVO) : int
+ insertByExample(CarVO) : int

+ selectByUICol(...) : CarVO

+ selectParentOwner(CarVO).byCOL()
: OwnerVO
+ selectChildrenSeat(CarVO).byCOL()
: List<DoorVO>

+ mySequenceMethod() : long
+ myQueryMethod(...) : int
+ mySelectMethod(...) : ...

<<abstract>> AbstractCarVO

- property1 : ... // column1
- property2 : ... // column2
- property3 : ... // column3

+ getProperty1() : ...
+ getProperty2() : ...
+ getProperty3() : ...

+ setProperty1(...) : void
+ setProperty2(...) : void
+ setProperty3(...) : void

CarVO

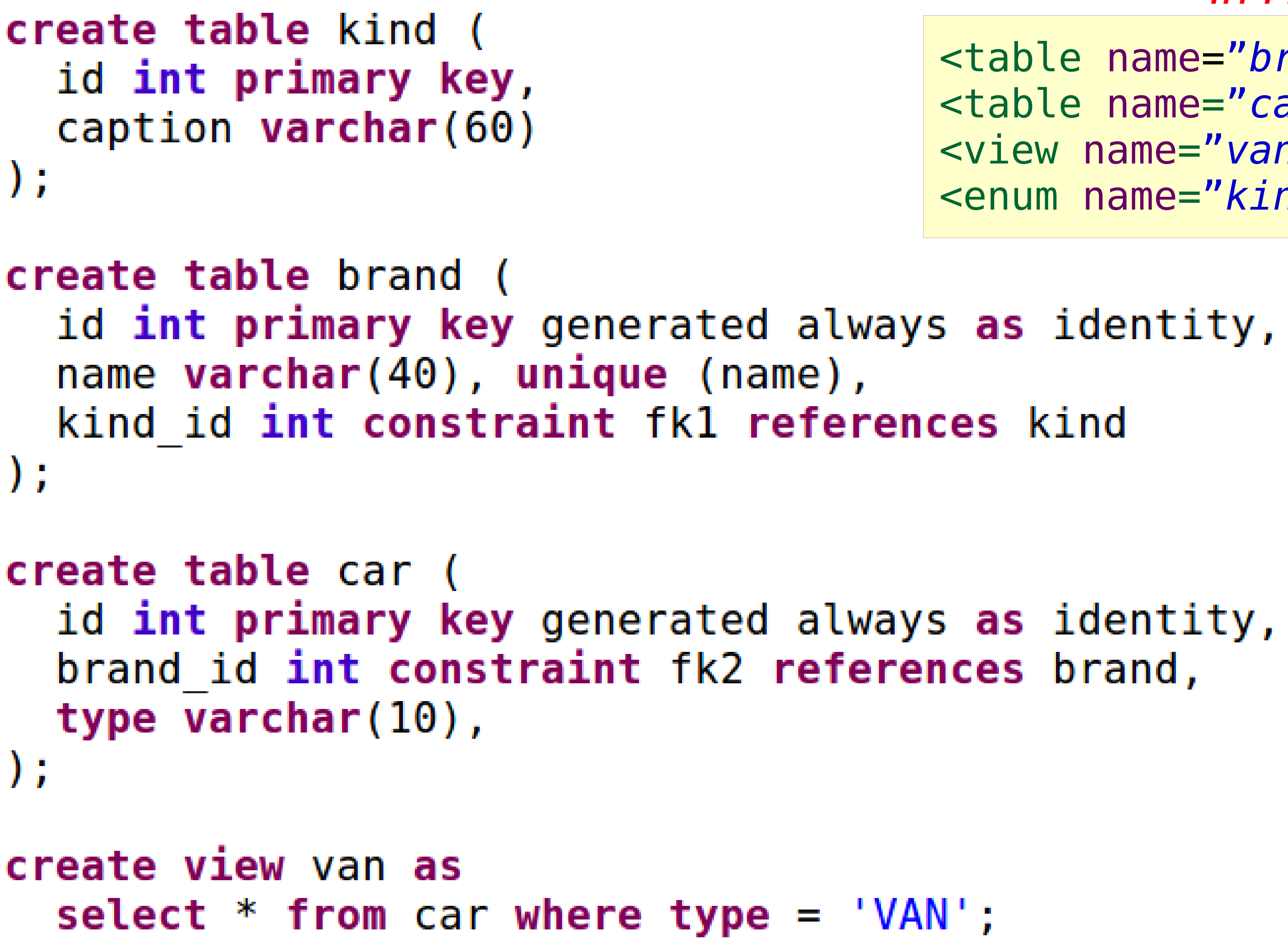
// Custom Properties
+ myCustomProperty : ...

// Custom Behavior
+ myCustomMethod(...) : ...

Types of Entities

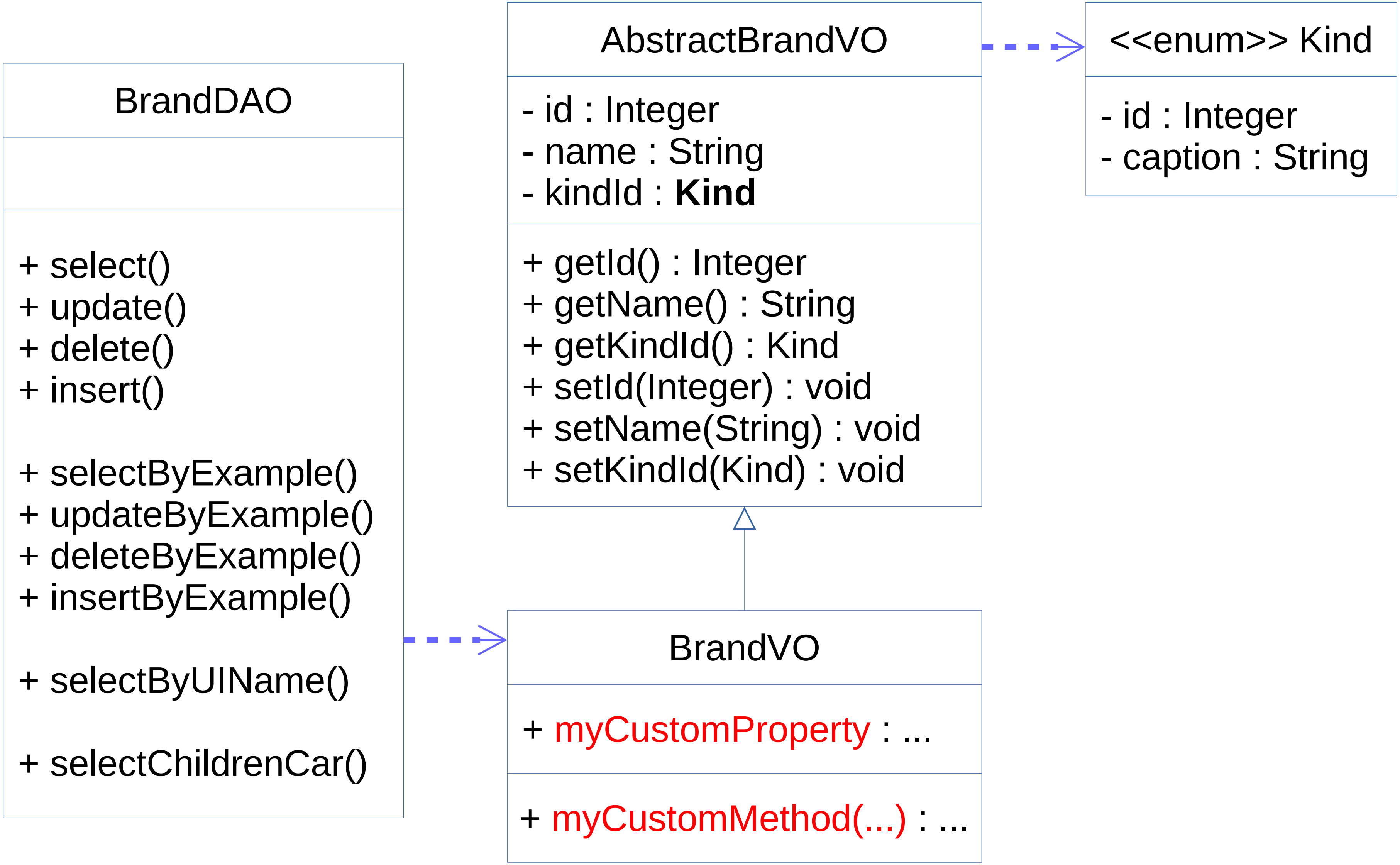
In HotRod...

```
<table name="brand" />
<table name="car" />
<view name="van" />
<enum name="kind" />
```



```
create table kind (
  id int primary key,
  caption varchar(60)
);

create table brand (
  id int primary key generated always as identity,
  name varchar(40), unique (name),
  kind_id int constraint fk1 references kind
);

create table car (
  id int primary key generated always as identity,
  brand_id int constraint fk2 references brand,
  type varchar(10),
);

create view van as
  select * from car where type = 'VAN';
```

Example BrandVO



BrandDAO

+ select()
+ update()
+ delete()
+ insert()

+ selectByExample()
+ updateByExample()
+ deleteByExample()
+ insertByExample()

+ selectByUIName()

+ selectChildrenCar()

AbstractBrandVO

- id : Integer
- name : String
- kindId : **Kind**

+ getId() : Integer
+ getName() : String
+ getKindId() : Kind
+ setId(Integer) : void
+ setName(String) : void
+ setKindId(Kind) : void

<<enum>> Kind

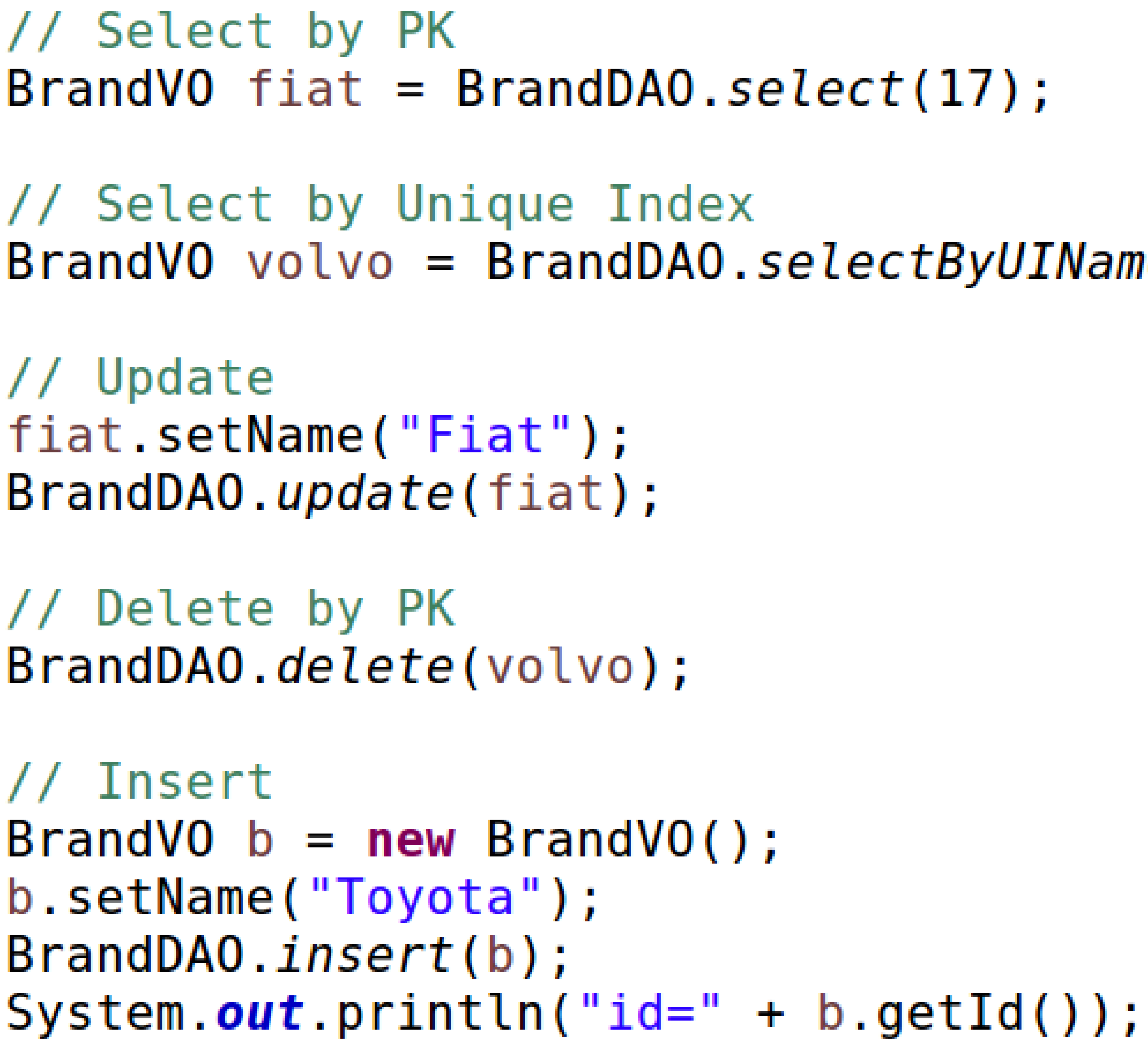
- id : Integer
- caption : String

BrandVO

+ myCustomProperty : ...

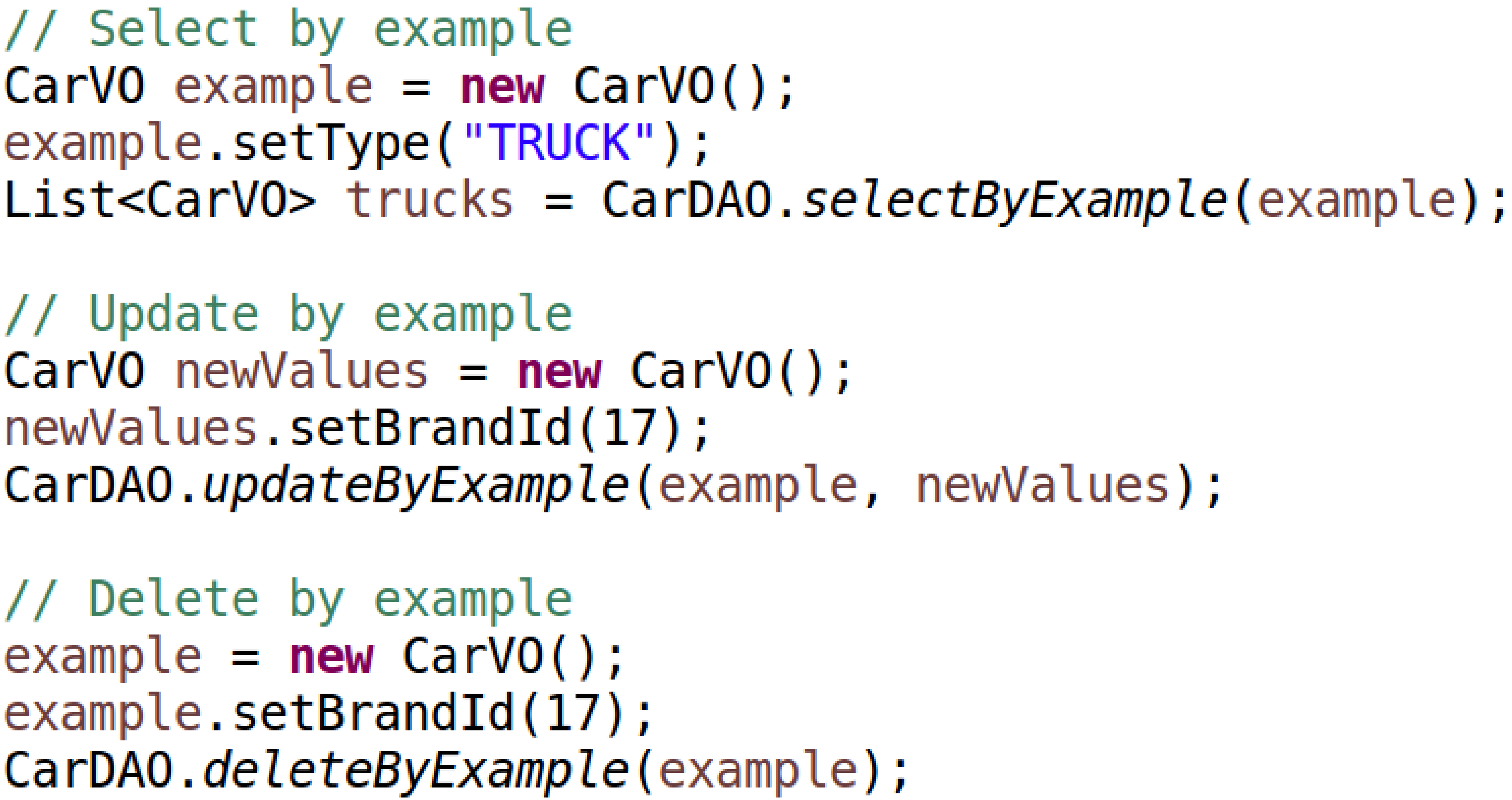
+ myCustomMethod(...) : ...

Example - Out of the box CRUD



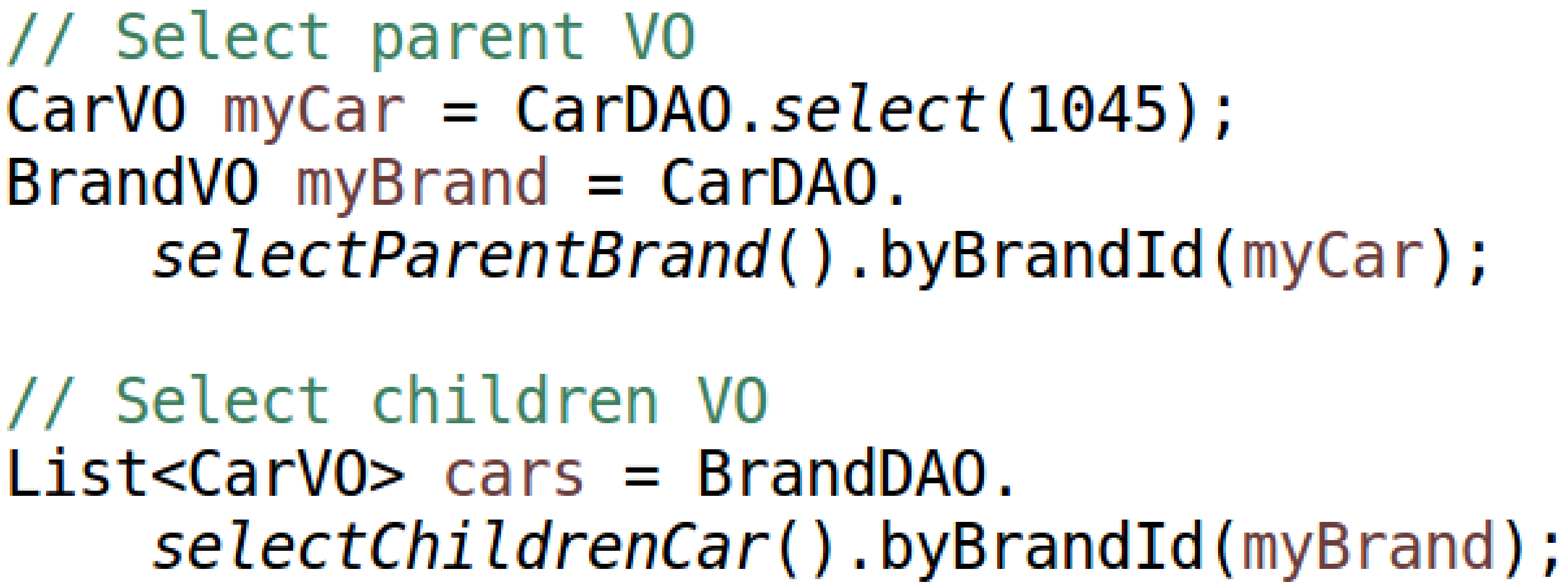
```java
// Select by PK
BrandVO fiat = BrandDAO.select(17);

// Select by Unique Index
BrandVO volvo = BrandDAO.selectByUIName("Volvo");

// Update
fiat.setName("Fiat");
BrandDAO.update(fiat);

// Delete by PK
BrandDAO.delete(volvo);

// Insert
BrandVO b = new BrandVO();
b.setName("Toyota");
BrandDAO.insert(b);
System.out.println("id=" + b.getId());
```

Example - Out of the box By Example



```
// Select by example
CarVO example = new CarVO();
example.setType("TRUCK");
List<CarVO> trucks = CarDAO.selectByExample(example);

// Update by example
CarVO newValues = new CarVO();
newValues.setBrandId(17);
CarDAO.updateByExample(example, newValues);

// Delete by example
example = new CarVO();
example.setBrandId(17);
CarDAO.deleteByExample(example);
```

Example - Out of the box FK selects

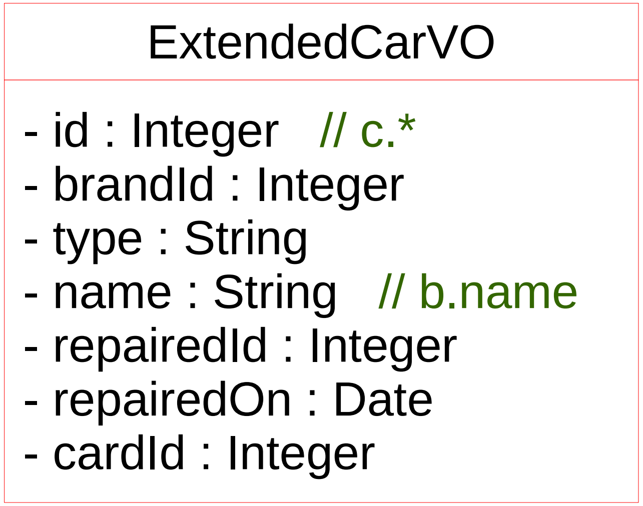


```
// Select parent VO
CarVO myCar = CarDAO.select(1045);
BrandVO myBrand = CarDAO.
    selectParentBrand().byBrandId(myCar);

// Select children VO
List<CarVO> cars = BrandDAO.
    selectChildrenCar().byBrandId(myBrand);
```

Example - Flat Selects

In HotRod...

```
<table name="car">

  <select method="findExtendedCar" vo="ExtendedCarVO">
    <parameter name="brandId" java-type="java.lang.Integer" />
    select
      c.*,
      b.name,
      r.id as repaired_id,
      r.repaired_on, r.card_id
    from car c
    join brand b on b.id = c.brand_id
    left join repair r on r.car_id = c.id
    <complement>
      <where>
        <if test="brandId != null">
          and b.id = #{brandId}
        </if>
      </where>
    </complement>
  </select>

</table>
```



ExtendedCarVO

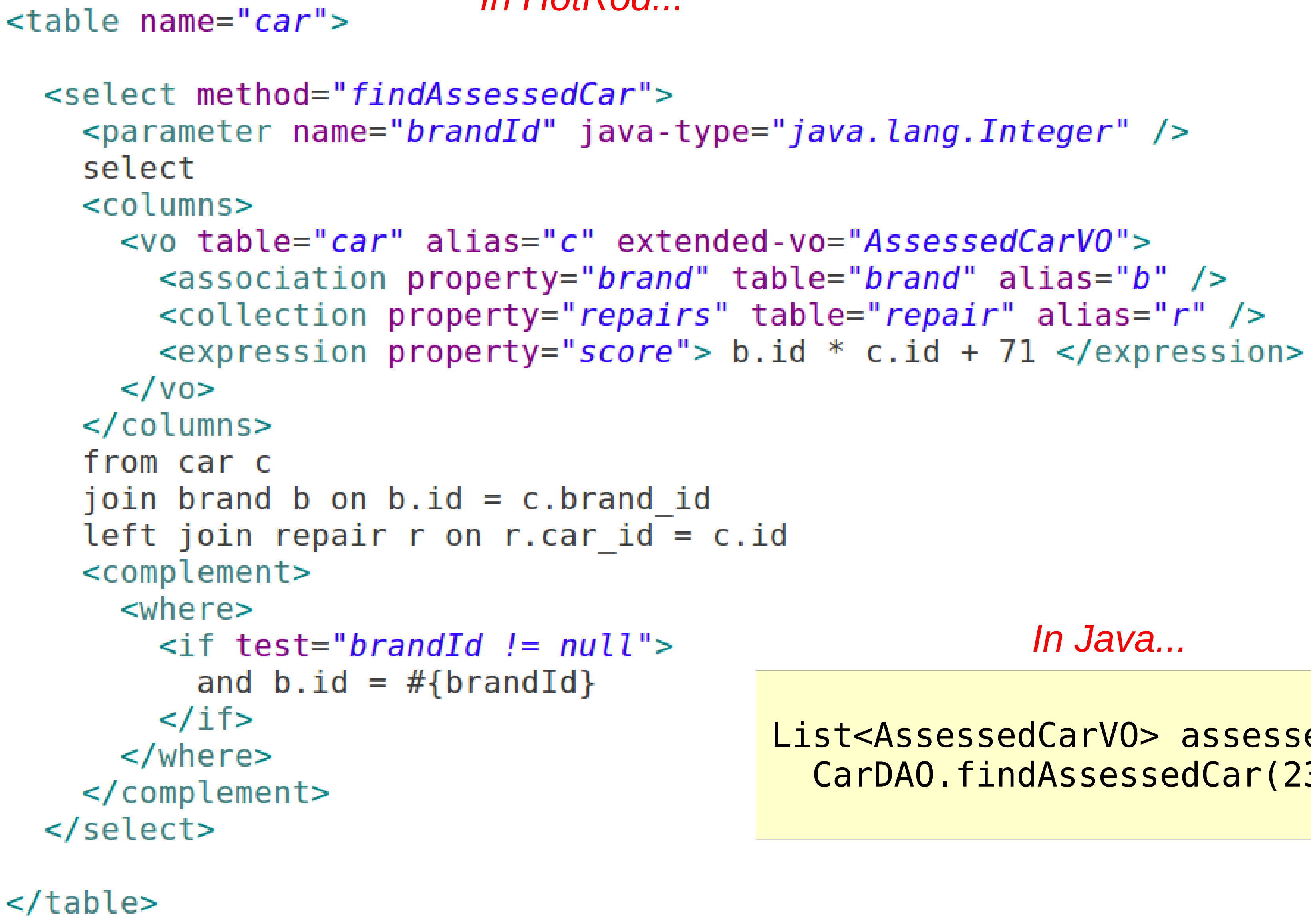
- id : Integer   // c.*
- brandId : Integer
- type : String
- name : String   // b.name
- repairedId : Integer
- repairedOn : Date
- cardId : Integer

In Java...

```
List<ExtendedCarVO> extendedCars =
  CarDAO.findExtendedCar(23);
```

Example - Structured Selects

In HotRod...

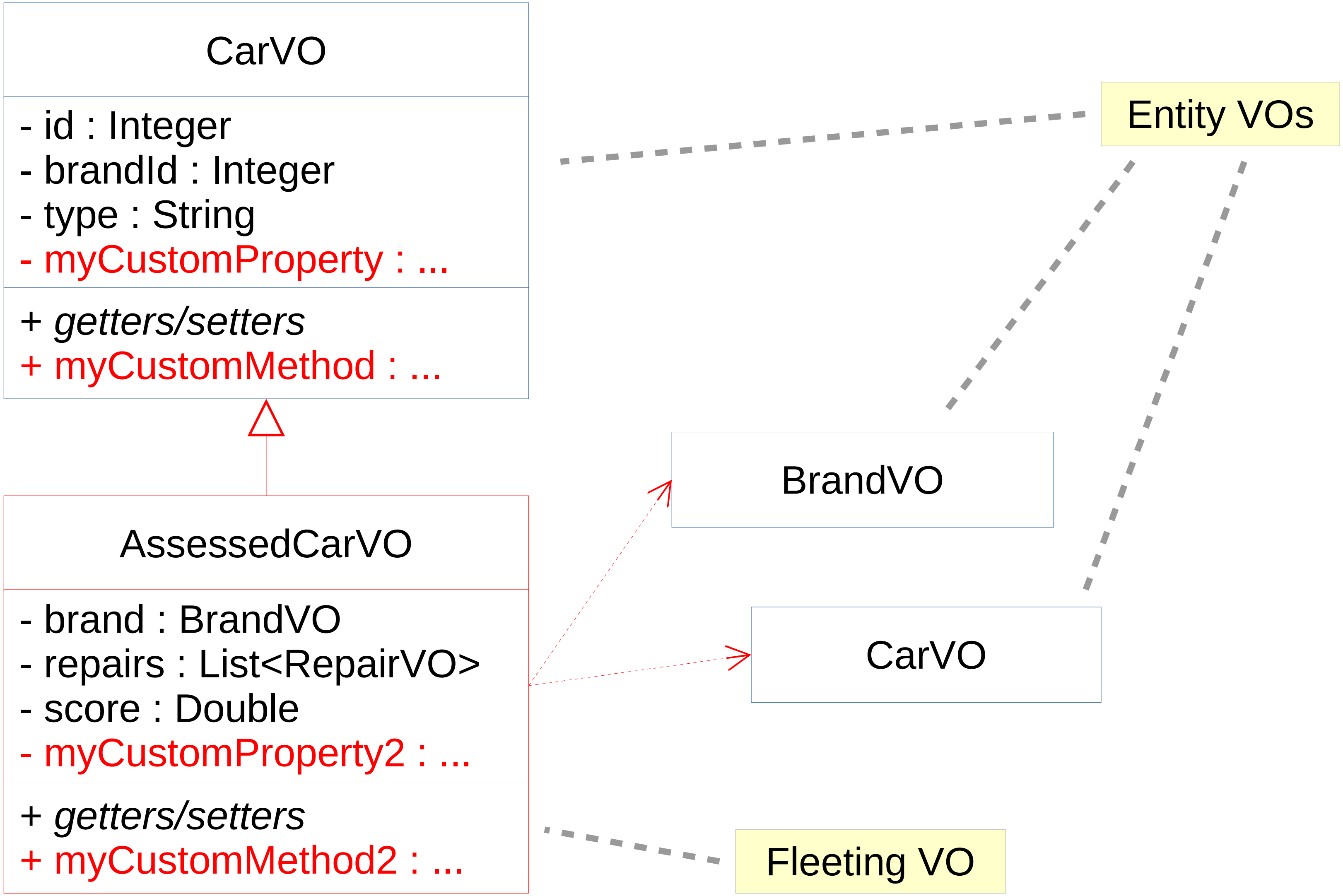


```
<table name="car">

  <select method="findAssessedCar">
    <parameter name="brandId" java-type="java.lang.Integer" />
    select
    <columns>
      <vo table="car" alias="c" extended-vo="AssessedCarVO">
        <association property="brand" table="brand" alias="b" />
        <collection property="repairs" table="repair" alias="r" />
        <expression property="score"> b.id * c.id + 71 </expression>
      </vo>
    </columns>
    from car c
    join brand b on b.id = c.brand_id
    left join repair r on r.car_id = c.id
    <complement>
      <where>
        <if test="brandId != null">
          and b.id = #{brandId}
        </if>
      </where>
    </complement>
  </select>

</table>
```

In Java...

```
List<AssessedCarVO> assessedCars =
  CarDAO.findAssessedCar(23);
```

Example - Structured Selects



CarVO
- id : Integer
- brandId : Integer
- type : String
- myCustomProperty : ...
+ getters/setters
+ myCustomMethod : ...
AssessedCarVO
- brand : BrandVO
- repairs : List<RepairVO>
- score : Double
- myCustomProperty2 : ...
+ getters/setters
+ myCustomMethod2 : ...
Entity VOs
BrandVO
CarVO
Fleeting VO