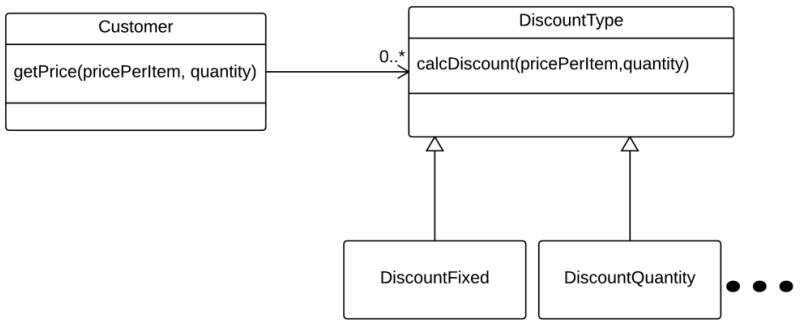
Exercise - JPA Entity Mappings -3

Mapping Inheritance

Imagine that we had different kinds of customers which would get a discount according to their type. The simple and often stupid solution would be to derive specialized Customers from the Customer class. Stupid because it won't allow a design where some customers actually could hold more than one type (get a better discount). This can be implemented using the design below.



Before you start this exercise you must know the basics of JPA inheritance mapping using the default SINGLE_TABLE strategy (see the slides/presentation.md)

1) Implement the classes from the diagram above (all as Entity classes).
   a. Note that DiscountFixed and DiscountQuantity extends DiscountType
   b. Note also that calcDiscount() in DiscountType class can be an abstract method (Then also the class would need to be abstract).

2) In the class `DiscountFixed` add the following code:

```
double discount = 0.1;  //10% on all
@Override
public double calcDiscount(double priceItem, int quantity) {
  return priceItem * discount *quantity;
}
```

3) In the class `DiscountQuantity` add the following code:

```
int quantityForDiscount = 3;
double discount = 0.2; //20% on all if quantity is 3 or more
@Override
public double calcDiscount(double priceItem, int quantity) {
    return quantity >=quantityForDiscount ? priceItem * quantity * discount : 0;
}
```

4) Run the project and investigate the generated table. Explain the content of each column (especially the DTYPE column) and how it relates to the object model.

5) What we have done so far is using the default Inheritance Strategy which is SINGLE_TABLE.

Add a `@Inheritance` annotation on top of the `DiscountType` class and select `InheritanceType.JOINED` for the strategy.

Regenerate the tables and explain the purpose/content of each table and each column (especially the DTYPE column) and how they relate to the object model.