

ToiletPaper #106

Before I get stuck, I'd rather use MapStruct

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✘ Problem

An unpopular and error-prone task, which is recurring especially in multi-layered architectures, is the writing of mapper classes for similar objects, e.g. between database entities and request / response DTOs. Writing unit tests for such mappers is also cumbersome.

✓ Solution

The Java library **MapStruct** (<http://mapstruct.org>) takes on this task by generating mapping code automatically, based on annotations.

Advantages:

- Generation at compile time: no influence on performance
- Generated code uses getter / setter methods, so it's type safe, easy to debug and to understand / extend
- Reasonable default conventions, behavior can easily be overwritten

➔ Example

Two complementary classes (getter / setter methods not shown):

```
public class CupOfCoffee {
    private Enums.Brand brand;
    private double temperature;
    private int volume;
    private double milk;
    private double sugar;
    private boolean isCorretto;
}

public class CupOfCoffeeDTO {
    private String brand;
    private String temperature;
    private int volumeOfCup;
    private double milk;
    private double sugar;
    private boolean isCorretto;
}
```

MapStruct base class:

```
@Mapper(componentModel = "spring")
public abstract class CoffeeMapper {
    @Mapping(source = "volume", target = "volumeOfCup")
    @Mapping(source = "temperature", target="temperature", numberFormat = "$#.0")
    public abstract CupOfCoffeeDTO toCupOfCoffeeDTO(CupOfCoffee entity);

    @InheritInverseConfiguration
    public abstract CupOfCoffee toCupOfCoffee(CupOfCoffeeDTO dto);
}
```

While compiling, MapStruct generates the mapping code according to the annotations. The explicit `@Mapping` annotations are only needed for non-trivial mappings (such as different variable names, number formats, etc.). The abstract class can still be extended by explicit mapping functions.

Caution:

- You have to recompile after each change of the abstract mapper class
- Sometimes does not work very well with Lombok (another annotation-based code generator)

+ Further Aspects

- <https://github.com/mapstruct/mapstruct>
- <http://mapstruct.org/documentation/dev/reference/html/>