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Tutorial: About Lightweight Code Generation

Organizer: Andreas Schmidt

Exercise I

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1. Install XAMPP (see documentation on https://www.smiffy.de/icwe-2022).

2. Download the Zipfile from https://www.smiffy.de/icwe-2022/exercise1.zip and expand it in an empty directory.
3. Open command window (win CMD), change to the directory and execute the following command:

   ```
   php exercise-1.php exercise_1.model show-model.tpl
   ```

4. Take a look into the php-files `exercise-1.php` and `model.php` to find out, what is going up.

5. Change the template file `show-model.tpl`, so that the output of the program looks like in Appendix A (MySQL Schema). Don't care about formatting issues. Prefer to keep the template readable. The formatting can latter easily be done with an additional code beautifier program.

6. Test if you have generated valid DDL-Code by starting mysql from the XAMPP-Control panel and the execute the following commands:

   ```
   php exercise-1.php exercise_1.model show-model.tpl | mysql -u root
   ```

   After that, start the command-line client `mysql.exe` with the comamnd

   ```
   mysql  -u root exercise_1
   ```

   and execute the command inside the client:

   ```
   show tables;
   ```

   The result should look like this:

   ```
   +------------+
   | table_name |
   +------------+
   | city       |
   | country    |
   +------------+
   ```

7. Add the additional class

   ```
   <class: Province(name:text, population:integer, established:date)>
   ```

   in the model-file `exercise_1.model` and re-execute the program `exercise-1.php`

8. Analyze the error and change the code in file model.php, so that the datatype *date* is also a valid datatype.

9. Extension: Take a look at https://www.smiffy.de/icwe-2022/exercise-Ib.pdf. That exercise continues this one by also considering relations between classes.

Appendix A (MySQL Schema):

```
drop database if exists exercise_1;
create database exercise_1;

use exercise_1;

create table City (
    id integer auto_increment,
    name text,
    population integer,
    latitude float,
    longitude float,
    primary key(id)
);


create table Country (
    id integer auto_increment,
    name text,
    population integer,
    primary key(id)
);
```