P7 Project

Web Engineering Assignment

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0.1 Choice of Data Set and its Structure

We have decided to use the Mondial data set structure as a base for the database structure. We choose this geographical data set over the others because we found it well structured and suitable to implement as a database. The Mondial data is structured in a hierarchy which relative ease can be projected into a database and insures a relative low data redundancy. A issue that could arise would be connected to the low redundancy which can lead to more joins to achieve the desired information. We choose the low redundancy approach to lower the space usage and also the observation that relevant data would not involve a lot of join actions.

The Modial data sets hierarchy starts with declaration of continents. Then each country refers to the continent it resides in. Each country then have a series at city connected to it or provinces which contains the cities. Each level in the hierarchy have a set of attributes that describes information.

0.2 MVC pattern

The model-view-control pattern is a pattern which insures data binding between the interface, the view and the data, the model through interaction from the user, the controller. The general idea is to create a model which contains the data which is to be processed in somewhere and proceed to load the data into the model. Next step is to create views to display the information to the users in manageable and nice way. The last step is to create the controller, methods and functions for the user to manipulate the shown information and aggregated it back to model which then is updated.

0.2.1 Model-part

There are different structures that can used to construct the model of the data. One way is to a gateway, which through some functions finds the needed data in the database. Another method is to create an objects or records which is used to contain the data. A third method is to use transaction to get and update data in the database. A fought method is to create a object to contain the data and another object to map the data between the database and the application.

FiXme Fatal: skrive om view og controller parts ?

This is a widespread technique to create web application and us supported by many frameworks. An example could be angular which practices two way binding in their constructions.

0.3 Choice of Pattern in Model

We have chose to have a simple domain model with class table inheritance. This has been chosen due to the close connection between the database and the domain model. This will ensure that all columns are relevant for the rows, and the domain model will easily reflect the content of the database. In comparison to a concrete table inheritance, the primary keys are easily handled. In contrary to both the concrete table inheritance and the single table inheritance the class table inheritance do not do any irrelevant joins, and do not fetch any irrelevant data. This will ensure small, precise tables, which is faster to load from the database. In that way, we will not have to fetch on, possible very big, table. It has the consequence that multiple calls to the database could be required, but it is only the relevant data, which is fetched.

0.4 Implementation of Model

Each table in the database has one model class, and one meta data class. The meta data class is the direct representation of one row in the table. An example can be seen on Listing 1. The getters is a direct copy of the elements in the table on the database.

```
<?php class Country private $id; private $name; private $capital; private $population;
public function __construct($i, $n, $c, $p) $this->id = $i; $this->name = $n; $this-
>capital = $c; $this->population = $p;
public function getId() return $this->id;
public function getName() return $this->name;
public function getCapital() return $this->capital;
public function getPopulation() return $this->population;  ?>
```

Listing 1: An example of the country meta data class.

The model class for a table contains all database calls, an array of objects of the meta data class, and functions to update the database. An example can be seen on Listing 2.

```
public $string; public $listOfCountries;
public function __construct() $this->getData();
private function getData() $con = conFatory();
$result = mysqli_query($con,"SELECT * FROM country");
$counter = 0; $this->listOfCountries = array();
while($row = mysqli_fetch_array($result)) $tmp = new Coun-
try($row['id'],$row['name'],$row['capital'],$row['population']); array_push($this-
>listOfCountries,$tmp); $counter++;
mysqli_close($con);
```

Listing 2: An part of the country model class.

Bibliography