User Story Labo 1 Database

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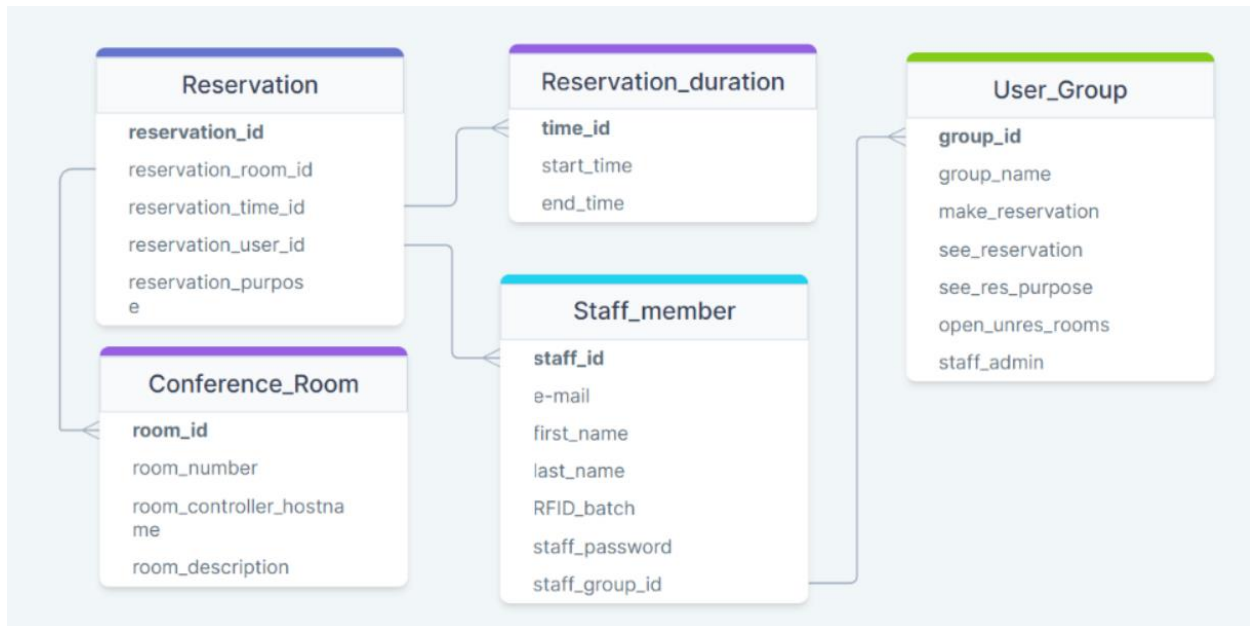# • Introduction

This is a documentation about creating a database according to the task:

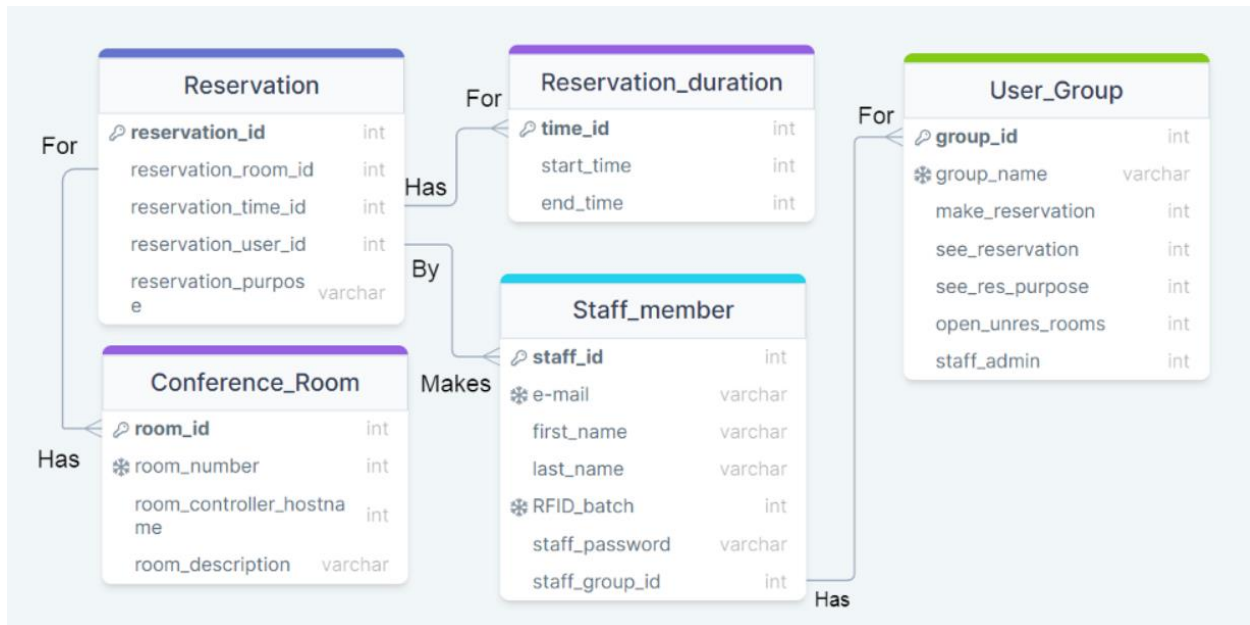| Story Name	Database		Duration	2 weeks
Informal description	As an employee of the IT department			
	... I would like a MySQL database			
	... so that I can develop the website.			
Requirements according to the work order	- Must - The database can: - Save the users with their user group affiliation - Save the conference rooms - Save the reservations - Save the user group rights - The database contains realistic sample data - The documentation contains the MCD and the MLD - Should - Optional elements of the website should already be considered in the MCD			
Tasks according to the work order				
Create MCD				
Create MLD				
Set up local development environment (e.g. UniServerZ)				
Convert MySQL database and insert sample data				
Create documentation				

Conceptual Data Model

The CDM is s an organized view of database concepts and their relationships. The purpose of creating a conceptual data model is to establish entities, their attributes, and relationships. In this data modeling level, there is hardly any detail available on the actual database structure.

Reservation
- reservation_id
- reservation_room_id
- reservation_time_id
- reservation_user_id
- reservation_purpose

Reservation_duration
- time_id
- start_time
- end_time

User_Group
- group_id
- group_name
- make_reservation
- see_reservation
- see_res_purpose
- open_unres_rooms
- staff_admin

Conference_Room
- room_id
- room_number
- room_controller_hostname
- room_description

Staff_member
- staff_id
- e-mail
- first_name
- last_name
- RFID_batch
- staff_password
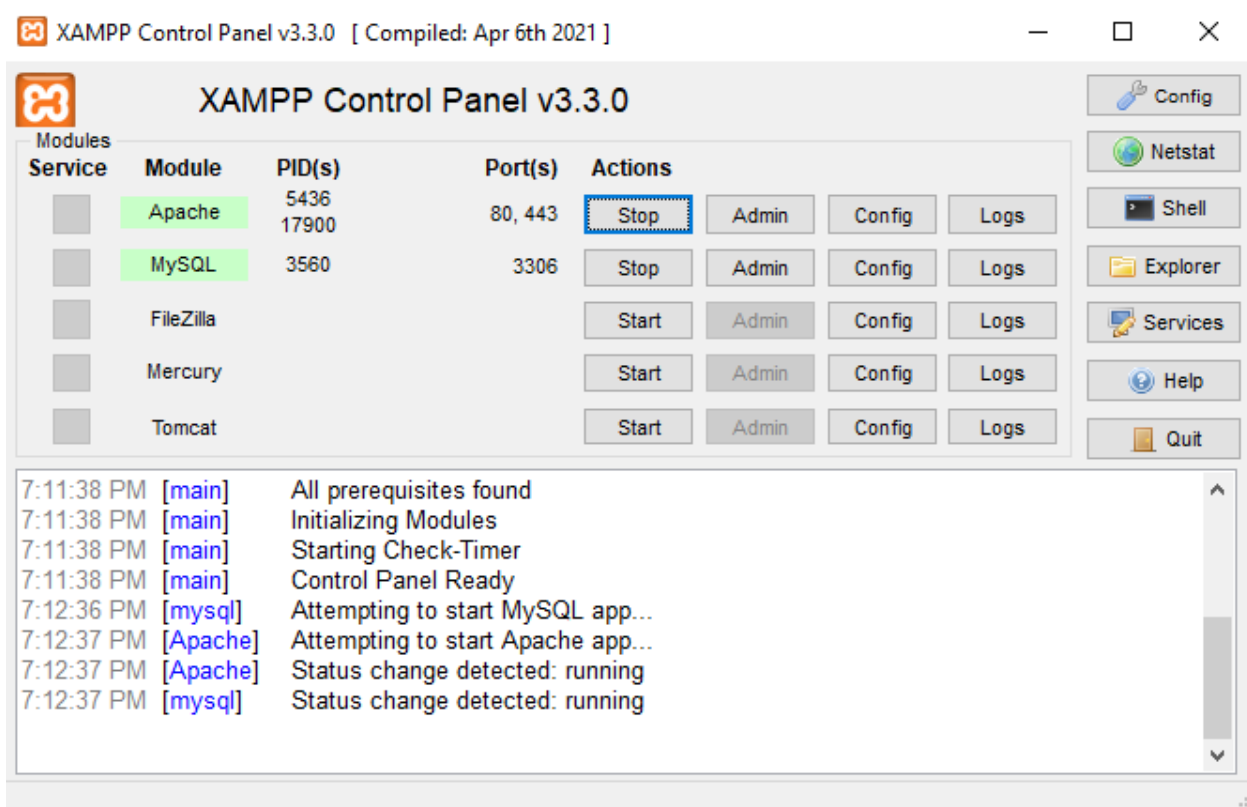- staff_group_id

Logical Data Model

Logical Data Model is used to define the structure of data elements and to set relationships between them. The logical data model adds further information to the conceptual data model elements. The advantage of using a Logical data model is to provide a foundation to form the base for the Physical model. However, the modeling structure remains generic.

Filip Nonkovic
1TPIFI

Local Development Environment

My choice for the LDE is XAMPP, it's a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages.

In my case I'm using Apache and MySQL

I can customize the ports in the Config file if certain ports are already taken

MySQL

After creating my database, I will export it as ".sql" such as I can use it on my website

```sql
create database PIFILIP;
use PIFILIP;

CREATE TABLE Reservation_time(
    time_id INT  NOT NULL AUTO_INCREMENT,
    start_time INT NOT NULL,
    end_time INT NOT NULL,
    PRIMARY KEY (time_id)
);

CREATE TABLE Conference_Room(
    room_id INT  NOT NULL AUTO_INCREMENT,
    room_number INT NOT NULL,
    room_description VARCHAR(255) NOT NULL,
    room_controller_hostname VARCHAR(255) NOT NULL,
    PRIMARY KEY (room_id)
);

CREATE TABLE Permission(
    permission_id INT NOT NULL AUTO_INCREMENT,
    permission_add_date DATE NOT NULL,
    make_reservation INT NOT NULL,
    see_reservation INT NOT NULL,
    see_purpose INT NOT NULL,
    open_unreserved INT NOT NULL,
    user_admin INT NOT NULL,
    PRIMARY KEY (permission_id)
);


CREATE TABLE User_Group(
    group_id INT NOT NULL AUTO_INCREMENT,
    group_name VARCHAR(255) NOT NULL,
    make_reservation INT NOT NULL,
    see_reservation INT NOT NULL,
    see_res_purpose INT NOT NULL,
    open_unres_rooms INT NOT NULL,
    staff_admin INT NOT NULL,
    PRIMARY KEY (group_id)
);
```

```sql
CREATE TABLE Staff_member(
    staff_id INT NOT NULL AUTO_INCREMENT,
    email VARCHAR(255)  NOT NULL,
    first_name VARCHAR(255) NOT NULL,
    last_name VARCHAR(255) NOT NULL,
    RFID_batch INT  NOT NULL,
    staff_password VARCHAR(255) NOT NULL,
    staff_group_id INT NOT NULL ,
    PRIMARY KEY (staff_id),
    FOREIGN KEY(staff_group_id) REFERENCES User_Group(group_id)
);

CREATE TABLE Reservation(
    reservation_id INT NOT NULL AUTO_INCREMENT,
    reservation_room_id INT NOT NULL,
    reservation_time_id INT NOT NULL,
    reservation_user_id INT NOT NULL,
    reservation_purpose VARCHAR(255) NOT NULL,
    PRIMARY KEY (reservation_id),
    FOREIGN KEY(reservation_time_id) REFERENCES Reservation_time(time_id),
    FOREIGN KEY(reservation_room_id) REFERENCES Conference_Room(room_id),
    FOREIGN KEY(reservation_user_id) REFERENCES Staff_member(staff_id)
);
```

To check if it's correct I will make some sample data:

```sql
INSERT INTO Reservation_time (start_time,end_time)
VALUES ("10:00","12:00");
INSERT INTO Conference_Room
(room_number,room_description,room_controller_hostname)
VALUES ("1","Room with 15 seats and whiteboard","Room 1 Controller");
INSERT INTO User_Group
(group_name,make_reservation,see_reservation,see_res_purpose,open_unres_rooms,sta
ff_admin)
VALUES ("Teacher","0","0","0","0","0");
INSERT INTO Staff_member
(email,first_name,last_name,RFID_batch,staff_password,staff_group_id)
VALUES ("NikolaJokic@gmail.com","Nikola","Jokic","1124","Nikola114","1");
INSERT INTO
Reservation(reservation_purpose,reservation_time_id,reservation_room_id,reservati
on_user_id)
VALUES ("Mathematics","1","1","1");
```

With this command I will extract certain information based on the connection of staff_member,staff_reservation,resetvation_time

```php
<?php
    $host = "localhost";
    $user = "root";
    $psw = "";
    $dbName = "PIFILIP";
    $portNo = "3306";
    $connection = new mysqli($host, $user, $psw, $dbName, $portNo);

    $sqlStatement = $connection->prepare("SELECT * FROM Staff_member join
Reservation on staff_id=reservation_user_id join Reservation_time on
reservation_time_id=time_id");
    $sqlStatement->execute();
    $result = $sqlStatement->get_result();
    $row = $result->fetch_assoc() ?>
<body>
    <?php
    include_once("Navbar.php");

    ?>
<div class="container">
    <div class="txtpad text-white">
    <p>This is the Official website for room reservation at DataCorp S.A, In
order to proceed you must be logged in</p>

Show all reservations made:
    <p>Reservation name:<?=$row["first_name"]?> <?=$row["last_name"]?></p>
    <p>Reservation room:<?=$row["reservation_room_id"]?></p>
    <p>Reservation time:<?=$row["start_time"]?>-<?=$row["end_time"]?></p>
    <p>Reservation purpose:<?=$row["reservation_purpose"]?></p>
    </div>
</div>
```
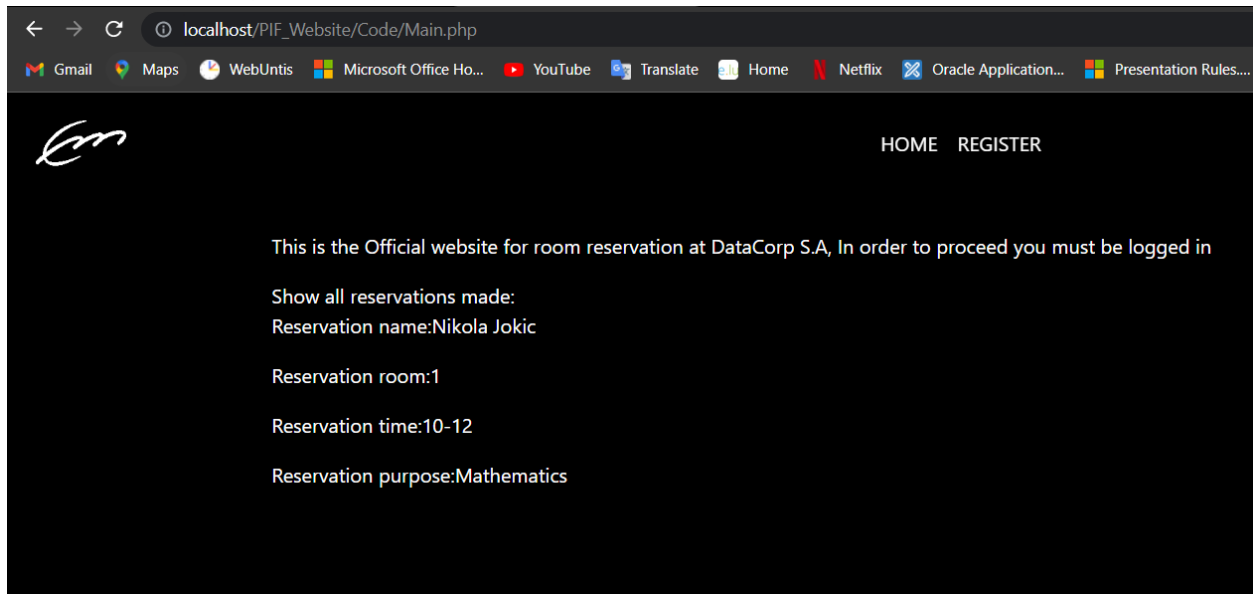
Using xampp I open my page where I test the code:

I get the information same as entered in the database

End of documentation

Thank you for reading