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| UTBM - Autumn 2024 semester |
| IF3E Project Report |
| Board Game Tournament Management |

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| Mathis Richard  28/10/2024 |

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# The goal

## The objective

The objective of this project is to design and develop a relational database system to manage board game tournaments. This system will allow organizers to register players, schedule matches, track results, and manage scores for various board games such as chess, Settlers of Catan, Ticket to Ride, or any other popular tabletop game. The system will also support team-based games, track individual or team performance, and generate rankings.

## The scope of the project

The system will manage different types of board games, player registrations, tournament schedules, match results, and final rankings. It will support both single-player and team-based tournaments. Users can use this system to create tournaments, register participants, and follow the progress through different rounds of play.

# How it is done

## The thinking part

The first step was to analyze the subject in depth, and to understand and imagine the first ideas for the construction of the project. Some points were rather obscure, but were quickly clarified with the help of the teacher. I then created the database in the form of an entity-association diagram. This stage was rather crucial, as it determined the rest of the project, i.e. the actual creation of the database, then the queries that would be useful for the website's operation.

## Creating the entity-association diagram

After several attempts, modifications, additions and deletions, I finally came up with a diagram that spoke to me, and that seems correct for the rest of the project. Here's a picture of the diagram :

Une image contenant diagramme, dessin, croquis, origami

Description générée automatiquement

As you can see, this diagram contains many relationships 1..1, 1..N, or N..N. It's important to know that each user can become an “organizer” (i.e. create games, tournaments, matches, etc.), by having the “is\_organizer” data set to 1. This will give him/her access to more features on the website.

## Database creation

The next logical step after creating the diagram was to put the database into practice. The database was created using PhpMyAdmin. The .sql database file is attached to the project folder. The creation of the database also enabled us to perfect the previous diagram. Here's an image of the database's relational schema:

Une image contenant texte, capture d’écran, diagramme, Police

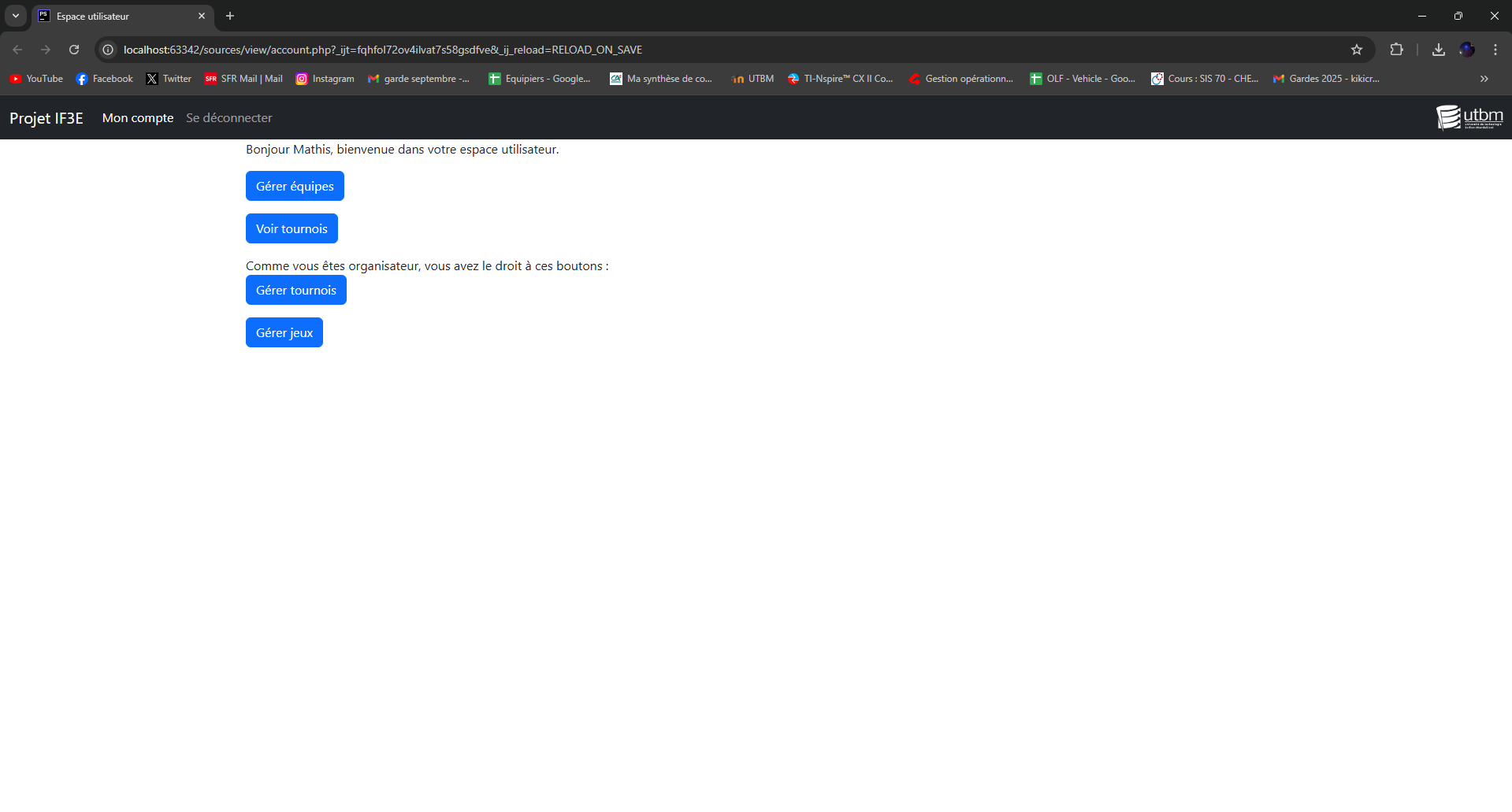
Description générée automatiquement

## Website design

The next logical step was to start creating the website. First, I created the user registration and login interface. But I found the interface rather sad. So I decided to start from scratch, taking the database given to me by my teacher and adapting it to my needs. This basis was used to create a graphic charter for the rest of the website.

After that, I created the “team-based” part, i.e. team creation, the fact of being able to join a team, then the creation of games and tournaments, and finally the last stage: the creation of matches and rankings.

Once players have registered, they can access their account page, where a multitude of actions are possible, such as viewing current tournaments, or managing their teams. If the player is also an “organizer”, he or she has access to two further buttons enabling him or her to manage games and tournaments, by creating, adding or modifying matches.

 As the website developed, I was able to improve certain pages or perfect database queries. One of the queries that took me the longest was the one that calculated the ranking of a player or team in a tournament according to the number of matches won, lost or drawn.

Then I move on to the finishing touches, which consist in visually improving the site, correcting and optimizing certain codes, and giving it a more “personal” look. This also allowed me to redo certain pages from scratch, to maintain a certain harmony with the rest of the site.

## Objectives achieved

* - The first objective was to create a login and user authentication, which was made possible by taking over the elements that had been provided to us in a correction. In addition, the password is encrypted in the database, for added security.
* The second objective was ultimately player registration, enabling players to enter their personal information, favorite games and rankings. Once their account is created, they can create or join a team.
* Players registered in the database as “organizers” can create games, specifying the number of players, the rules and the type of game (single-player or team-based).
* Players registered in the database as “organizers” can create tournaments, defining the rules, the game, the number of teams/players, then adding participants.
* The organizer can also manage matches in a tournament he has created, not only by creating them, but also by managing the score and match status.

# Description of certain pages

## Login page

Une image contenant capture d’écran, texte, logiciel, Système d’exploitation

Description générée automatiquement

As you can see, the main page is login.php, and this is where it all starts. On this page, you can log in with an email address and password. A check is made to ensure that the account is registered in the database. If it is not, or if the password is incorrect, the customer is sent to an error page. If everything is correct, the customer is sent to the account.php page, where they can manage several functions. From the login page, they can also access the register page to register an account, which leads to the page shown in the photo below.

## Registration page

Une image contenant texte, capture d’écran, nombre, ligne

Description générée automatiquement

Once you have reached the page for creating an account, you can enter your email address, password, password confirmation and other information. Information followed by an \* is required to create an account. Each piece of information, such as the password and its confirmation, is checked. If everything is correct, the account is registered in the database. In addition, the choices for selecting the preferred game are retrieved from the existing games in the database.

## Account page

Une image contenant capture d’écran, texte, logiciel, Système d’exploitation

Description générée automatiquement

When you get to the account page, you can have either 2 or 4 buttons. The last two are only displayed if the user has the ‘is\_organizer’ information set to 1 in the database.

## Default buttons

Une image contenant texte, capture d’écran, logiciel, Icône d’ordinateur

Description générée automatiquement

When you click on the ‘Manage teams’ button on the account page, you can join an existing team or create your own. Everything is managed via database tests (if the name already exists, error message).

Une image contenant texte, capture d’écran, logiciel, Page web

Description générée automatiquement

When you click on the ‘View tournaments’ button on the account page, you can see all the existing tournaments, with the number of players, the creator, the rules, the name of the tournament, etc... You can then select a tournament for more information. When you click on the button to view information about a tournament, you can see the teams/players taking part, the tournaments that have been or are being organised there, and a ranking that is automatically updated as matches are played. For the ranking, 1 draw gives 1 point for each player/team and 1 match won gives 3 points to the winner and 0 to the loser.

## Organizer buttons

Une image contenant texte, capture d’écran, logiciel, affichage

Description générée automatiquement

When an organiser clicks on the manage tournaments button, they can manage existing tournaments (by adding teams/players, creating or modifying matches), or they can create a new tournament. I've deliberately not developed this point any further so that you can test and understand for yourself.

Une image contenant texte, capture d’écran, logiciel, Icône d’ordinateur

Description générée automatiquement

Finally, an organiser can create a new game, as requested in the instructions.

# Areas for improvement

As far as I'm concerned, there's one thing that spoils everything a bit, despite the fact that I've looked into a number of ways of dealing with it. It's the fact of displaying error messages on an already existing page. For example, when the password is incorrect, I redirect to a blank page or display a sentence specifying the error. I'd like to display this error on the base page instead of redirecting. I wasn't able to go into this in more detail due to a lack of time.

# Conclusion

The project was a real learning experience, not only in the use of databases, but also in the basics of html and php. By putting our knowledge into practice, we were able to develop techniques and designs that we hadn't necessarily been able to work on during tutorials. It also helped us visualize the application of what we had seen. Last but not least, there may be a bit more than we bargained for, for the sake of practice and testing !

Github of the project is just here :   
<https://github.com/ByScream/UTBM-IF3E-Projet-BGTMS>