List tables and fields

We propose to use two main databases. The first one will handle the player base. And the second one will take care of the maps since we want to give the option to edit their own map and publish them

1) Player Database

In this database, we will control all the players and their personal stats. The fields will be the following:

- PlayerID : an integer it will be the primary key of the database. This allows for different user to have the same user name
- Username : The name of the player. A string of up to 10 characters. Not null
- Experience : a float. We will use a float to allow for bigger numbers. It will be the main reason to help compute the level
- Level : An integer will determine the player level.
- Number of wins : an integer
- Number of game played : an integer
- Number of reports : an integer. This item will only be visible by admins to handle.
- Password : We will actually store a hash code of the password to insure security of it. When the user logs in we hash his password with the same hash function and try to see if it matches. We can add a salt to minimize hash collision / increase risk of attacks.

We hesitated to include the list of friend in the database. But after looking online it looks like it is not a good idea to store a list in a database.

2) Map database :

This database will store all the things related to the maps. This will allow player to fetch a particular map from the database in order to play it. It will hold the following fields :

- MapID : the ID of the map (primary key)
- MapName : The name of the map.
- CreatorID : It will reference PlayerID. (Primary key with MapID) The reasoning behind this, is that this way a Map can be taken and re-edited by a different player and he can release the map with the same ID but with his playerID on it. It allows also to find all the players who contributed on a map.
- Map: List[char] : it will be a compressed version of the map. It will also include the description of the byte. Since our map will be composed of a square of 15x15 and a description will hold up to 225 characters. This will allow a maximum of 225 bytes. Not even a kilobyte which is quite light for a map, and that is if we don’t compress it. (Will be encoded with RLE).
- Description : a char string of up to 255 characters. Describes the maps briefly.

Files

The main files outside of the source codes, will be all the files related to the graphical interface. We will need sprites to represent all monsters and tower. And also resources sprites to represent the map. All those resources will be included in the app that way no graphical components will travel across the network while playing.

Source for the latex template : https://www.latextemplates.com/template/stylish-title-page