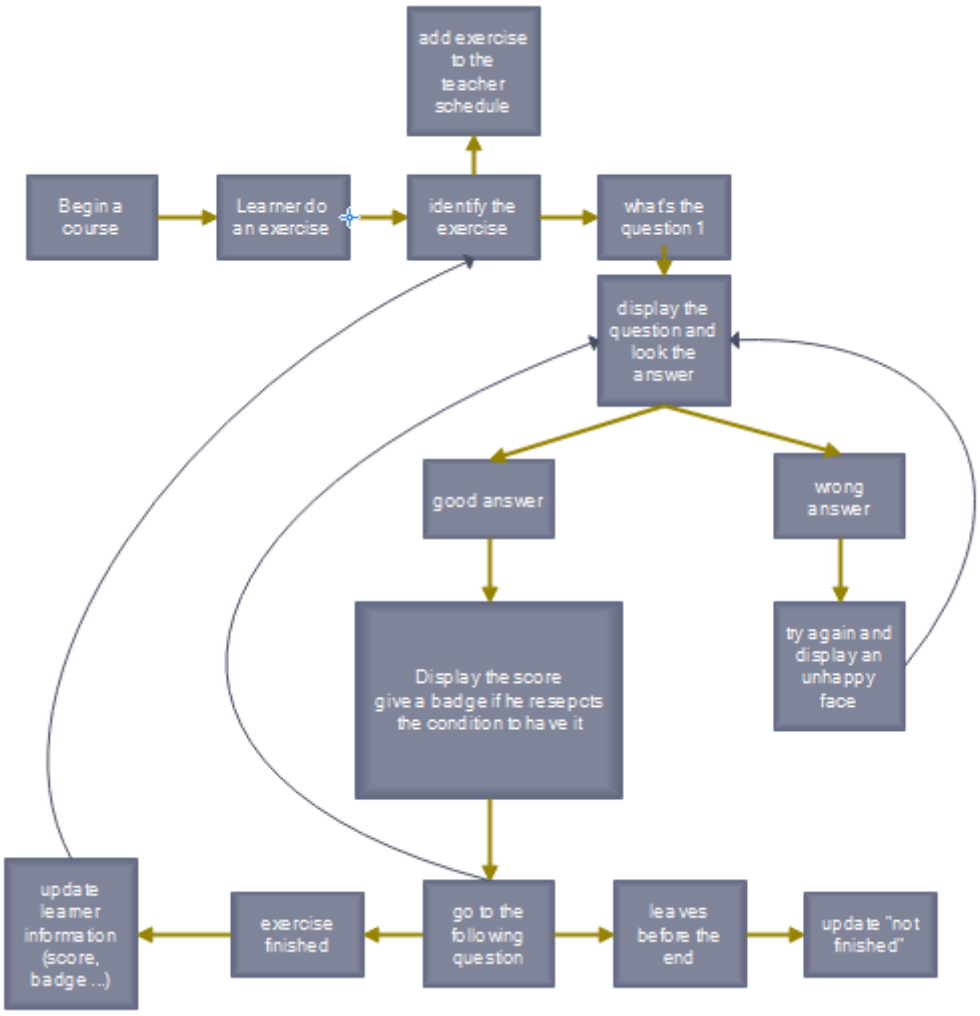
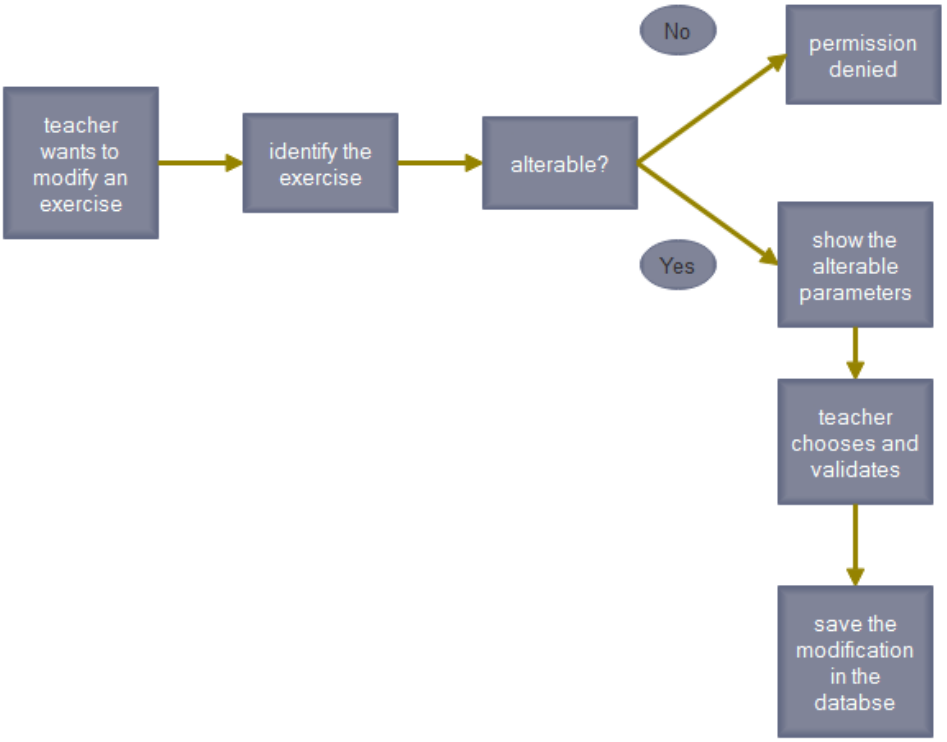
DB documentation

What are the objectives?

“learner do an exercise”:



“Teacher wants to modify an exercise”



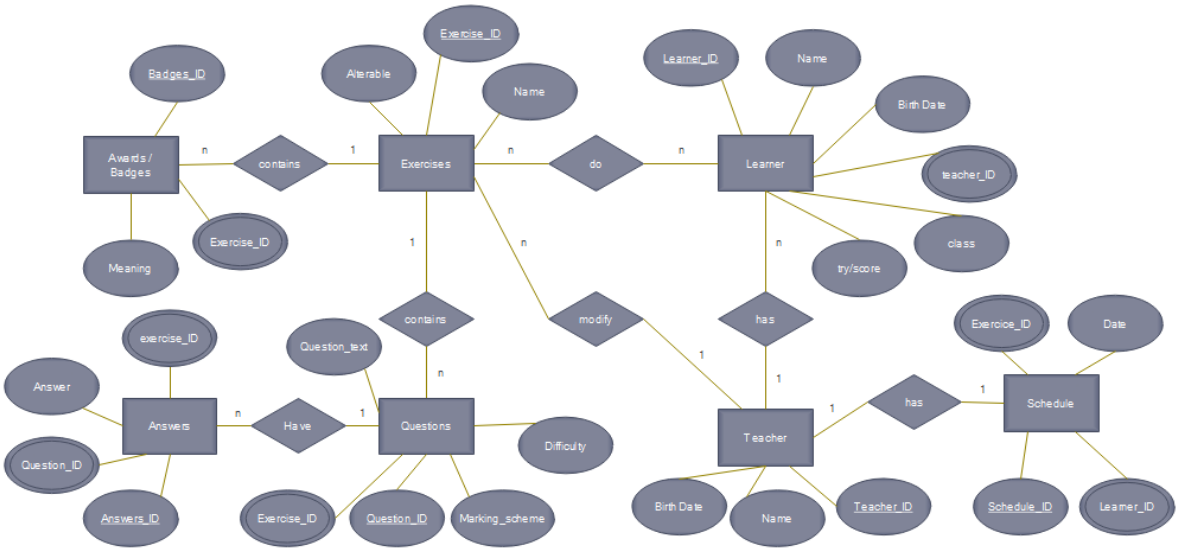
Business rules:

Firstly, business rules impose some form of constraint on a database, that’s why we need to determine our objectives. An important thing on database is to make choices. For example, in our project, with the generation of new exercises, we must choose which data to store in the database. Therefore, that’s the use of business rules, it will influence the database issues, such as the collecting or storing data, the manner in which you define and establish relationships, the types of information that the database can provide, and the very security and confidentiality of the data itself.

In our case, we can have these business rules:

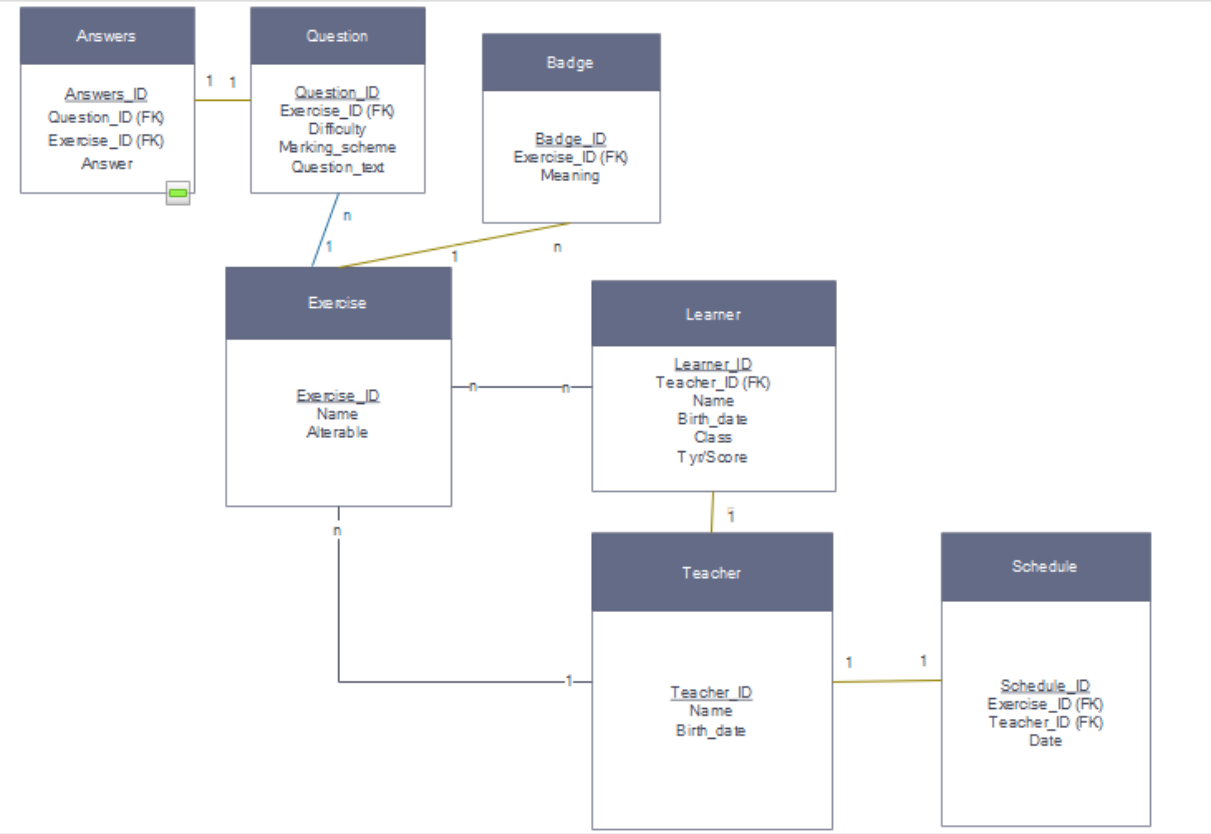
- Trigger the mark on the learner table only IF the learner has done the exercise
- Trigger the badges/awards only IF the learner has the appropriate score (“Questions” table)
- The teacher can modify the exercise IF the exercise is alterable
- Create a new learner/teacher/exercise only IF the ID is not already used.
- Learner can’t have more than one teacher

Diagram E/R:



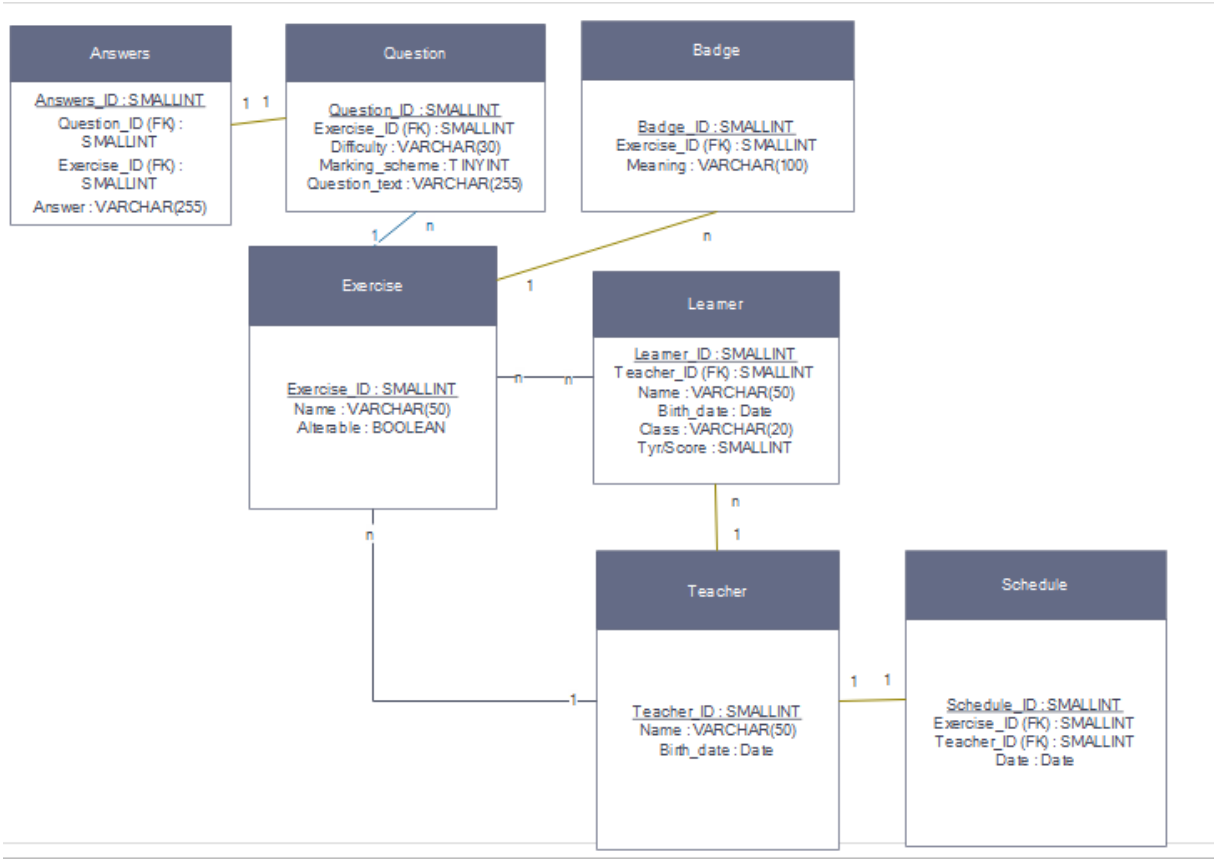
An entity-relationship model describes the link between each entity in a database. It permits to define what is important in our project, and it presents it in a graphical form. In the diagram above, the boxes (entities) are linked with lines (relationships) to other boxes. The entities have also some attributes. One of them is a primary key, which identifies the entity uniquely. There are also the foreign keys that identify uniquely a row of another table.

Logical data model:



The logical data model describes the project in as much detail as possible. With this model, we ignore the technical and physical implementation in the database. In this model, we represent the relationships and the entities with square and lines. The primary key and foreign keys are also represented in this model.

Physical model:



Physical data model represents how the model will be built in the database. A physical database model shows all table structures, including column name, column data type, column constraints, primary key, foreign key, and relationships between tables.