

The LittleDiagrams

The LittleDiagrams is the new nursery that is going to open at the University of Huelva. Part of the concern for quality is reflected in the exclusivity in dealing with children and families, in the importance given to the activities and the provision of the different classrooms. We will create a database that collects the following requirements:

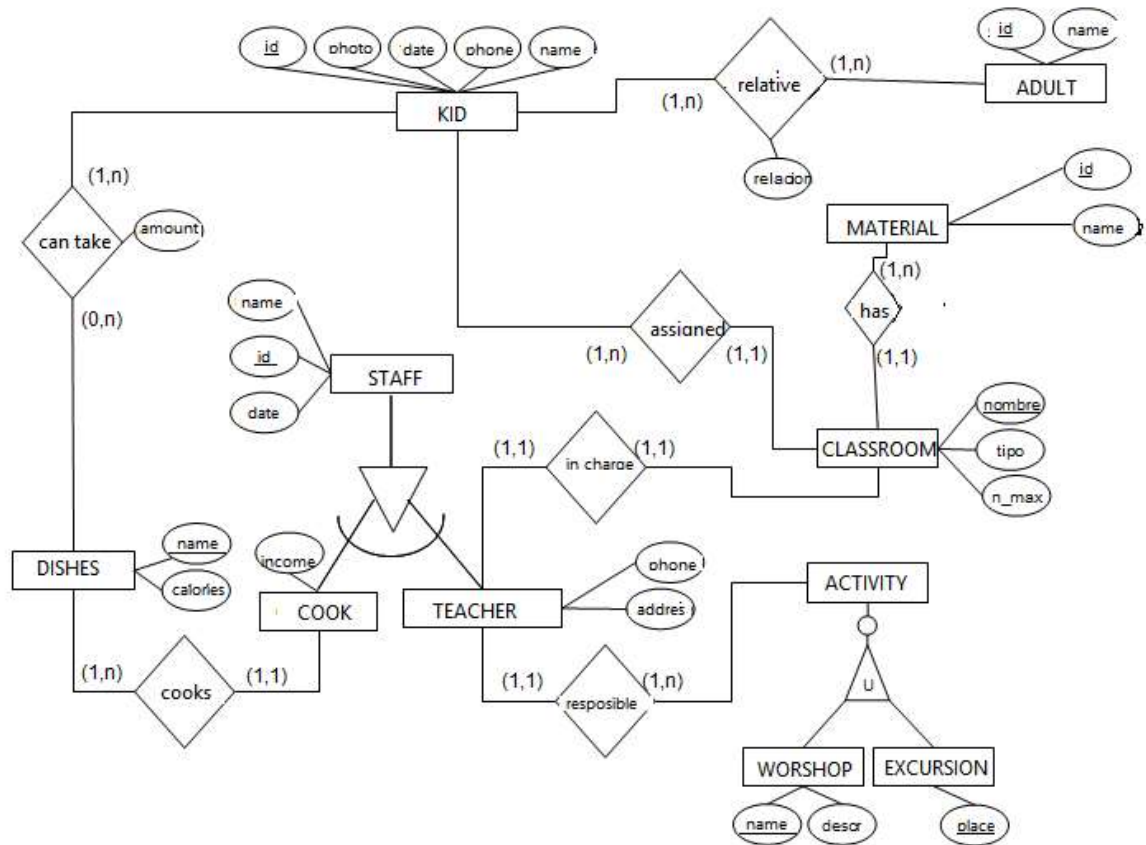
Each child must keep a unique identifier, name, emergency phone number, date of birth and photo. In addition, we will store data about family members or any other individual that is authorised to collect each child at the end of the school day (ID, name, and family relationship).

Depending on their age, children are distributed into small groups. Each group is assigned to a special classroom, equipped with objects, toys and materials appropriate to the age. Each classroom will have its name, the type of classroom, the list of materials it contains and the maximum number of children who, due to its size, can be part of the group assigned to that classroom.

The nursery staff is made up of three different positions: on the one hand, a group of cooks responsible for preparing the different dishes offered by the dining room service, on the other hand a group of nursery teachers, responsible for tutoring each group and directing activities with the children and finally, a group of Support Workers. Of these three jobs you must keep the name, ID and age. The kitchen staff 's salaries must be saved, and the group of nursery teachers will store their address and telephone number.

The activities can be either specialised workshops (music, painting, psychomotricity) or excursions to places of interest for children (trips to visit a farm school, attend a children's play, etc.). In both cases, there will be a teacher responsible for the Organisation of the activity.

With respect to allergies and religion, some children may have different dietary requirements. You must know which cook is responsible for preparing each dish, additionally, the maximum amount of each dish that the child is entitled to. The conceptual model that emerges from these requirements, in the form of extended entity-relationship diagram, is as follows:



PART 1

After this first version of the conceptual model, new requirements have arisen that suggest the existing model requires modification. Using the objects of the Entity-Extended Relationship diagram, modify the proposed scheme so that it collects the following new requirements:

- Some children may have brothers or sisters in this nursery. It is required to know who the brothers/sisters of each child are. Additionally, it is essential to store the following information about the Support Workers: telephone number, photo, and any criminal conviction
- It is possible to carry out the same activity on different dates, with different people in charge.
- Adults can participate in the activities organised by the nursery, however, if someone has participated in a workshop, he/she cannot do it on a trip and vice versa.

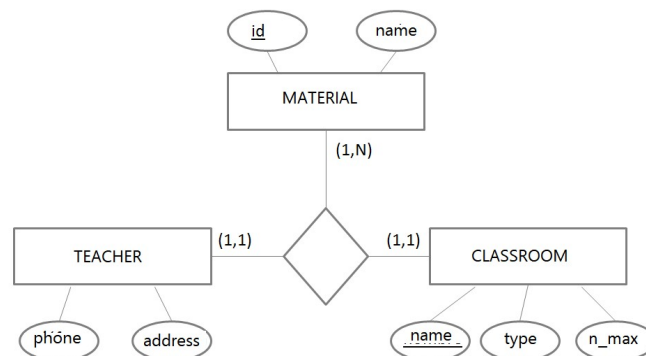
For each option you must redraw only the part of the diagram that is affected.

PART 2

After the first version of the conceptual model, new requirements arose that implied the modification of the existing model. Using the objects of the Entity-Extended Relationship diagram, modify the proposed scheme so that it collects the following new requirements:

a) For marketing reasons, it has been decided **To give significance to the excursions** that take place in the nursery. In addition to the place, we now want to save further information. **Excursions can be local or provincial**, but this **depends on the type of transport needed**. In the case of **local excursions**, we will keep the **time of departure**, the **time of arrival**, and the **distance to travel**. In the case of **provincial excursions**, a photo of the place where the visit takes place will be kept. On the other hand, excursions are **also classified according to their purpose**. In this way, there are **cultural excursions** (of which you must keep a brief description of the place to visit) and **excursions of relaxing** (of which you must save the maximum number of people that can do it).

b) Although **each classroom has a responsible child education teacher**, we also want to **assign a person responsible for each material** that is in each classroom. The teacher responsible for the material **Does not necessarily have to be the same teacher responsible for the classroom**. For safety reasons, we want to know, **which teacher is responsible for the material that is in the nursery**. To do this, the diagram was modified by adding:



However, there is a more effective solution. What is the more effective solution?

c) Before, only a record of what each child has eaten was kept. **Now you must record the date along with the food the child has eaten**.