

3BIM Data Bases Exam (1h30)

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1 Conceptual - Relational models (5 points)

A researcher has decided to study the social organization of the research environment. He has collected a lot of data related to this topic, and he wants to organize such information using a relational database. Unfortunately, he is not an expert in data bases, and he needs some help:

A researcher is characterized by his name, his last name, his day of birth and his ID number. A Researcher works for a given institution, which is characterized by its name, and its number of employees. Each institution is located in a given city. Each city is characterized by its name, the name of the country where it is located, and its zip code (which is unique for each city). We consider that it is impossible to identify fully an institution without specifying its city (e.g., the INSA institution is not fully specified, if the city where it is located is not specified). The salary of a researcher depends on the institution where he works. A group of researchers can work together, and present their results in a paper. A paper is characterized by its DOI identifier, its title, its abstract and a list of keywords. Papers are published in journals, each journal is described by a name and an impact factor. We consider that each journal name is unique. When a paper is published in a given journal, it is important to record its publication date. Finally a researcher could have been the PhD supervisor of another researcher(s), in this case, its is important to record the period during which he has been his supervisor (first and last day). Notice that a PhD student can have more than one supervisor at the same time.

- Write the entity-association model, explaining briefly the most important choices.
- Write the corresponding relational model, explaining briefly the major steps.

Entity Association Model:

Relational Model:

