Exercises 1 – ER Diagrams

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For each of the situations below, build an ER diagram that describes the information, and propose a set of relations for the corresponding database.

Situation 1 (Airline company). An airline company wants to implement a database with the following information.

- The company has several airplanes. Each airplane has, besides its license number, a name, its maker, the number of seats and its autonomy.

- Several pilots work for the airline

- Each planes makes several flights. Each flight should have, at least, the indication of the date in which the flight occurs, departure time, and origin and destiny.

- Each flight is piloted by a pilot.

Situation 2 (Stocks). A factory want to have a database for managing its stocks, order and sales. To simplify the problem, do not consider the part of the sales. But you have to take into considerarton that:

- The factory deals with several products, each with a code, a name and a price. Moreover, they want to know, at each given moment, what is their stock of each product.

- An order must have a number, the date in which it was issued. It can have several products, but is only made to one supplier.

- From each supplier, the factory wants to know its name, fiscal number, address, term of payment, and an internal code of the supplier.

Situation 3 (Conference). A group of professors want to organise a conference and, to stores all the relevant information, decided to implement a database.

Several papers are presented in the conference, each with a title, and a number. Each paper has one or more authors. From each author, the organisers want to know, besides her name, her email address, name, and institution.

Besides the information on authors, the organisers also want to store information about the participants in the conference. For each participant, they want

to store information of their names, address, and email. Moreover, they want to distinguish between participants that are students, and those that aren't. Each non-student must pay the conference fee in advance by bank transfer. So, they have to store the information about the bank transfer number. In order to be exempt from the conference fee, each student must send a student certificate, and the database must store some information about this certificate. Namely: its issue date, and the name of the university that issued it.