Project specifications

Sup Air Line is an air transport company which calls upon you to design its information system.
The objective stated by Sup Air Line is to manage employees, flights and aircraft, on the one hand, and, on the other, customer and ticket management.
Before proceeding to the implementation phase of the database, Sup Air Line would first like you to provide it with a general diagram of the future database, using the entity / association model. This conceptual diagram must represent all the entities to be transformed then into an equivalent relational diagram to be able to be implemented.

All of the employees are aircrew and ground staff. Among the flight crew, there are pilots and crew members (hostesses, stewards). An employee is characterized by a social security number, a name, a first name, an address and a salary. Cabin crew record a certain number of flight hours. A pilot has a license defined by a number and a validity date. A crew member performs a certain function (hostess, steward, etc.).

A device is uniquely identified by a registration number. It has a type (A320, B747, ...) and it offers a certain capacity in terms of number of passengers.

Each route served by at least one airline flight is defined by a city of origin and a city of destination; moreover, it is identified by a number.

A flight is identified by a flight number. It is characterized by a validity period defined by two dates. During this period, this flight has fixed timetables (departure time and arrival time). One flight serves one route and only one. What is more, one device and only one is associated with a given flight. For each flight recorded, it is assumed that there is a departure every day during the period of validity of this flight.

A departure is defined by a flight number and a departure date. A departure is associated with one or two pilots, and two to four crew members. A departure is also characterized by a number of free places and a number of occupied places. An occupied space is a space that gave rise to a reservation with the issue of a ticket.

A passenger is identified by a number. He has a name, a first name, an address, a profession and a bank. It makes reservations which give rise to the issue of tickets.

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A ticket is identified by a number. It includes an issue date and a price. One ticket refers to one departure and only one. For simplicity, it is assumed that a ticket concerns a customer and only one.

Work to be done:

• Propose a modeling that meets these criteria, containing the entities and associations
• Propose a schema of the database, containing all the tables with their attributes, primary / foreign keys
• Create the database with all tables in MySQL
• Fill the tables with the most realistic dataset possible
• Perform each of the following requests:

- o List of company aircraft
- o List of Sup Air Line pilots
- o List of personnel by category
- o List of passengers per flight
- o List of flights to a given city
- o List of departures for the day
- o List of cities served by Sup Air Line
- o List of destinations served by a captain
- o List of pilots whose license must be renewed
- o Lists of regular passengers who fly more than 2 flights / month
- o Professions with the most regular passengers
- o Number of hours worked by a captain
- o Number of flight hours of each aircraft
- o Number of passengers transported by plane over a given period
- o Number of passengers carried over a given period
- o Number of tickets sold per day / week / month
- o Total sales
- o Average flights per pilot
- o Most profitable destinations (high occupancy rate)
- o Average occupancy rate by plane / flight / destination
- o Which pilots fly to their city

Bonus:

• Adding new features
• Create a web interface for using the database
• Integrate Security Management

Work group :

2~ 3 students

Duration:

Three weeks

Rendering:

A docx or pdf file containing:

• Your approach to the information system, explaining the choices made as well as any options
• The conceptual diagram
• The schema of the database
• The scripts for creating the database, tables
• SQL queries requested
• The web interface

Rating:

The project is rated on 100 points + 20 bonus pts

- Writing: clarity, explanation / justification : 10 pts
- Entity-association diagram : 10 pts
- Relationship diagram : 10 pts
- Database creation scripts : 5 pts
- Tables creation script : 15 pts
- Data insertion : 10 pts
- SQL queries : 40 pts
- Web interface : 15 pts
- Security management : 5 pts