ECE467 Database Design & Management
CSC423 Database Systems
Case Study: Airport Information System

Develop an *airport information system* to organize all information about all the airplanes stationed and maintained at the airport in the XYZ county. You need to specify the assumptions that are used in your design, if there is any. The relevant information is as follows:

- Every airplane has a registration number, and each airplane is of a specific model.
- The airport accommodates a number of airplane models, and each model is identified by a model number (e.g., DC-10) and has a capacity and a weight.
- A number of technicians work at the airport. You need to store the name, SSN, address, phone number, and salary of each technician.
- Each technician is an expert on one or more plane model(s), and his or her expertise may overlap with that of other technicians. This information about technicians must also be recorded.
- Traffic controllers must have an annual medical examination. For each traffic controller, you must store the date of the most recent exam.
- All airport employees (including technicians) belong to a union. You must store the union membership number of each employee. You can assume that each employee is uniquely identified by a social security number.
- The airport has a number of tests that are used periodically to ensure that airplanes are still airworthy. Each test has a Federal Aviation Administration (FAA) test number, a name, and a maximum possible score.
- The FAA requires the airport to keep track of each time a given airplane is tested by a given technician using a given test. For each testing event, the information needed is the date, the number of hours the technician spent doing the test, and the score the airplane received on the test.

Sample Queries

1. Insert a new technician into the database.
2. Delete an existing airplane from the database.
3. Update the expertise of an existing technician.
4. List the details of the technician whose salary is greater than the average of the salary of all technicians.
5. List all the model numbers that a given technician has the expertise, along with their capacity and weight information.
6. List the total number of technicians who are experts in each model.
7. List the details (test number, test name, maximum score, etc.) of the FAA tests for a given airplane, sorted by the maximum scores.
8. List the most recent annual medical examination and his/her union membership number for each traffic controller.
9. List the total number of tests done by each technician for a given airplane.
10. List the name of the technician, the registration number of the airplane, and the FAA number of those tests done between September 2015 and December 2015, sorted by the FAA numbers.