

# COMP 3311 Assignment 1 (ER diagram) Fall 2023

**Due date: 18th Sep. 2023**

**(11:59 pm according to Canvas clock HK time)**

## **Assignment Rules:**

- 1) This is an individual assignment. The assignment solution you submit must be solely your own work; copying or letting others to copy are both considered cheating.
- 2) The submission should be uploaded your pdf file to Canvas only.

**No late submission will be accepted!**

## **Assignment description and specification:**

You are required to create an Entity-Relationship (ER) diagram to capture the information of the following scenario of an airport. Your ER diagram should clearly show all the entities (indicating by the words in **bold**), relationships, attributes, keys and relevant notation such as cardinality constraints and the participation constraints. You should follow the ERD convention such as underlining the primary keys with solid lines and underlining the discriminator(s) with dashed line(s). If you think some additional assumptions which are essential in the diagram, you have to clearly specify them in the work. All the

notation used should follow the course slides and the main textbooks.

Consider the following scenario of an airport:

- Every **airplane** has a unique registration number, and each airplane is manufactured according to only one type of specific airplane models. Each model has zero but no more than 1000 airplanes to be manufactured.
- The airport accommodates airplanes that are manufactured by a number of airplane **models**, and each model is identified by a model number and it specifies a passenger capacity and a plane weight.
- There are two categories of employees working in the airport as follows: technicians and controllers. All airport **employees** should be either a technician or a controller (but cannot be both), and all employees belong to a worker union. You must store the union membership number of each employee. You can assume that each employee is uniquely identified by an employee ID.
- For **technicians**, you need to store the name, an employee ID of each technician, the skill level of a technician, his or her phone number(s), and the address that is composed of city, street, house number. Salary that is computed from the skill level is also

recorded in the database. Each technician is an expert of one or more plane model(s).

- **Controllers** must have an annual medical examination. For each controller, you must store the date of the most recent exam.
- Every airplane has a number of **tests** that are done monthly to ensure that airplanes are still airworthy. All planes in the airport have been tested at least once.
- Each test has a test number, a name, and a score. The database records the test number that contains only three English alphabets running from Jan to Dec representing 12 months in a year. To distinguish a test, you also need to make reference to the registration number of a plane.
- Each test should be done by one or more technicians. The date and the number of hours that a technician spent on doing a test should also be recorded.

### **Submission:**

- You need to submit a clear **.pdf** version (in 2 A4 pages) assignment to Canvas. Please check out detailed instructions in the following link:  
<https://canvas.ust.hk/courses/51901/assignments/298849>