COMP 3005
Assignment #4
Due: March 19

Instruction

1. This is an individual assignment. Copying is not allowed.
2. You should not include any attributes not specified here in the EER diagram and do not use SQL to create any table for this assignment.
3. Submit your assignment as a single word/pdf document on culearn by the due date.

Part 1 (20 marks)

Movie enterprises include movies, actors, and studios that produce movies. Actors are people with normal attributes, like Id, name, date of birth. Actors play in movies. A movie has the usual attributes: title, release date, director. Studios are companies. A company has an address, phone numbers (typically more than one), name. Studios have additional attributes, such as the artistic director. A movie has at least one actor, and exactly one studio makes each particular movie. Every actor played in at least one movie. Some studios may be brand new and had no time to make any movies yet.

1. Design an EER diagram that describes this database application with all relevant constraints represented using *Method 1*. (10 marks)
2. Map the EER diagram into the relational schema that consists of relation names, their attributes with primary keys underscored and foreign keys pointing to the corresponding attributes properly (8 marks)
3. Specify which constraints are not supported by SQL. (2 marks)

Part 2 (20 marks)

Publication enterprises include books, authors and publishers. Authors are people with normal attributes, like name, date of birth, but in addition they wrote one or more books. A book has the usual attributes, such as title, ISBN, publication date. Publishers are companies that publish books. They have an address, phone numbers (typically more than one), name. A book can be written by more than one author, but it can be published by only one publisher. An author can write more than one book and to be called an author one, of course, has to write at least one book.

1. Design an ER/EER diagram that describes this database application with all relevant constraints represented using *Method 2*. (10 marks)
2. Map the ER diagram into the relational schema that consists of relation names, their attributes with primary keys underscored and foreign keys pointing to the corresponding attributes properly (8 marks)
3. Specify which constraints are not supported by SQL. (2 marks)

Part 3 (20 marks)

Automotive enterprises involve cars, car manufacturers, and car dealerships. Car Manufacturers are companies that build cars and they have attributes such as name, headquarters address, country of incorporation. Cars have attributes such as make (e.g., GM, Mercedes, Chrysler), model, kind of car (e.g., sedan, SUV, wagon). A

dealership sells cars. It has a name, address, and telephone numbers (typically more than one.) A manufacturer may make several different kinds and models of cars (as, for example, the manufacturer Mercedes/Chrysler does). A car is made by a single manufacturer. A dealer can sell cars from several different manufacturers but does not have to sell all the cars from a single manufacturer. For example, Nardy Honda-Pontiac in Smithtown sells Pontiacs from manufacturer GM and Hondas from manufacturer Honda, but it doesn't sell Chevrolets that are also made by GM. A manufacturer can make a car (such as a racing car) that is not sold through dealerships.

1. Design an EER diagram that describes this database application with all relevant constraints represented using *Method 3*. (10 marks)
2. Map the ER diagram into the relational schema that consists of relation names, their attributes with primary keys underscored and foreign keys pointing to the corresponding attributes properly (8 marks)
3. Specify which constraints are not supported by SQL. (2 marks)

Part 4 (20 marks)

Figure 7.8 shows an EER diagram for a database that may be used to keep track of transport ships and their locations for maritime authorities. Map the ER diagram into a relational schema that consist of relation names, their attributes with primary keys underscored and foreign keys pointing to the corresponding attributes properly without using SQL.

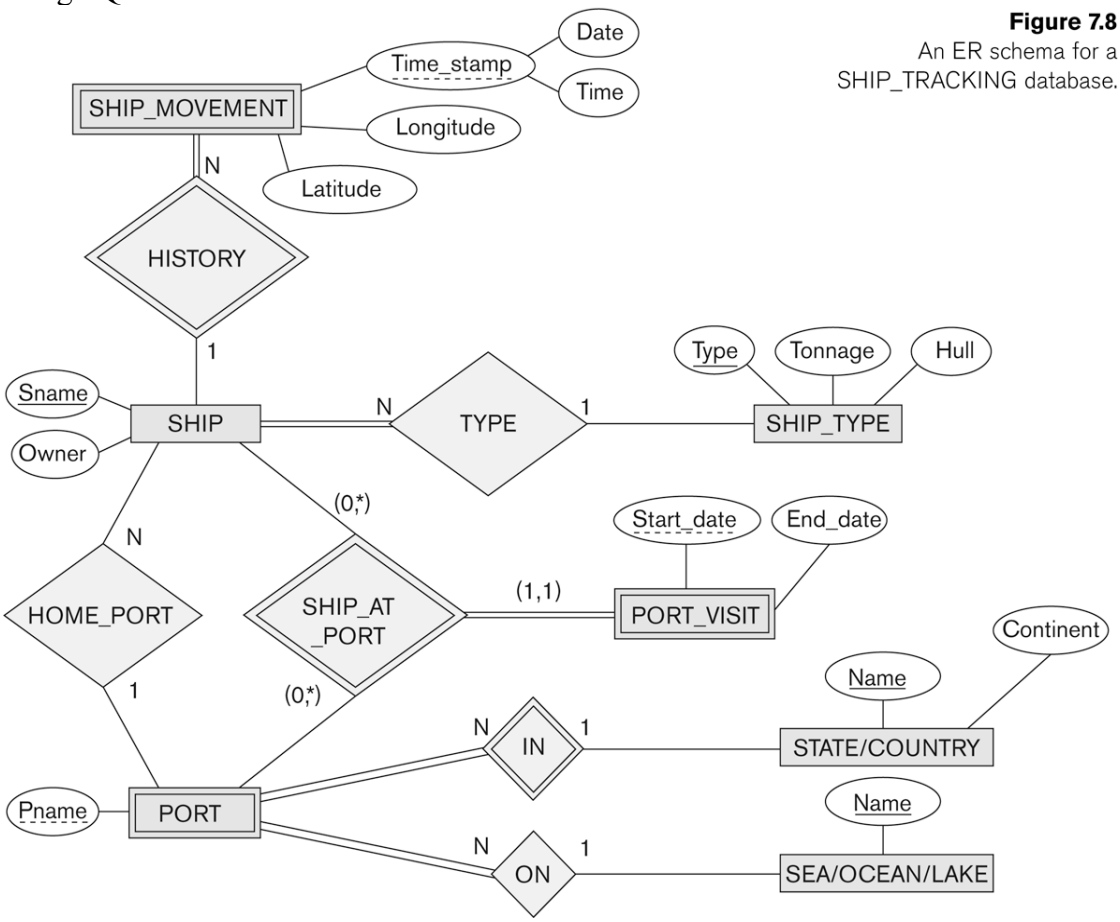

Figure 7.8
An ER schema for a SHIP_TRACKING database.

Part 5 (20 marks)

Figure 4.12. shows an EER diagram for a small airport database. Map EER diagram into a relational schema that consist of relation names, their attributes with primary keys underscored and foreign keys pointing to the corresponding attributes properly without using SQL.

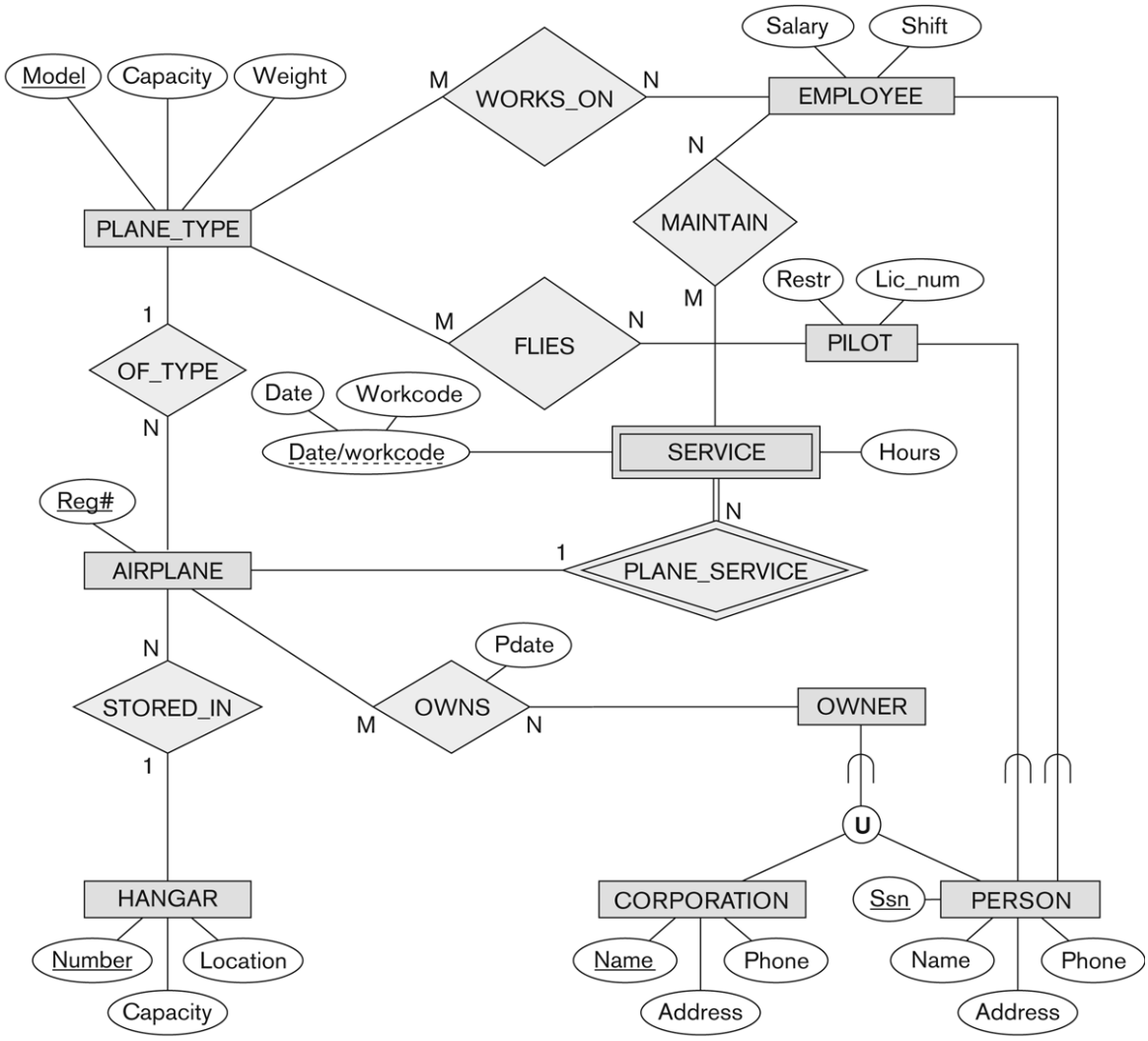

Figure 4.12
EER schema for a SMALL_AIRPORT database.