**Assignment: ER Modeling**

Create an ER model for the following two scenarios. Make sure that you read the description carefully. Your diagram should reflect all entities, attributes, and relationships mentioned in the text. You may need to add a primary key (a unique identifier) if one hasn’t already been specified in the instructions. Use the relationship types we used in class (one-to-one, one-to-many, or many-to-many). Don’t forget that attributes can describe both entities and relationships.

You must submit your diagrams on paper. Either draw them out or use ERDPlus to create your diagrams (http://www.erdplus.com). It’s free, and there is a short YouTube tutorial on the site that shows you how to export the diagrams as a graphic which can be placed into a Word document.

**Guidelines**

* You must submit your diagrams on paper before the class on September 11th.

***If you do not follow these instructions, your assignment will be counted late.***

**Evaluation**

Your diagrams will be graded using several factors:

* The correct identification of entities and attributes.
* The correct identification of relationships between your entities.
* The identification of cardinality between entities.

**Scenario 1: Daycare Center**

Big Bank Daycare is a day care center in a large financial organization – it is free service provided by the company to its employees. The company wants to track which employees are using the service, and how much the service is used.

The primary client of this service are the company employees. An employee is described by their employee ID number, first name, last name, title, office location, office phone, and email. Some employees of the company work in the day care center, and their children also use this service. Each employee can have multiple children enrolled in the daycare center, and it’s possible for a child to have more than one employee as parents.

Children are assigned to a room based on their age (computed from their date of birth). Other data recorded about a child is their first name, their last name, and their gender. The database should also be able to record which children have dietary restrictions. Possible dietary restrictions include gluten-free, vegetarian, vegan, and food allergies (but there could be others). The database should allow a general description of the restriction, but also notes for the specific case of that restriction for each child. A child can have more than one dietary restriction, and a restriction can be shared by many children.

It is important to know how many children can be in a room at one time because (1) each room has a capacity, (2) and the company has a policy that for every 10 children in a room, there has to be one additional employee (of the daycare center) assigned. So a room may have more than one employee, but an employee can only be assigned to one room. Each room also has a unique number that identifies it. Finally, rooms are built for children of specific ages (for example, rooms with older children have more computers), so the grade level of each room should also be tracked to ensure children are assigned to the correct room.

**Scenario 2: TUWreck Auto Insurance**

TUWreck Auto Insurance wants to create a database to track accident claims. A claim is associated with a car, an insurance policy, an accident type, and one or more repair types.

When a claim is filed, it is given a claim identification number (Claim ID). Other information recorded is the location of the accident, the date of the accident, and the status of the claim. The status of the claim is “in process” until the repairs are done – then the status is changed to “closed.”

Each claim only has one car associated with it (if it is a multicar accident, each owner must file a separate claim). A car is described by its unique VIN, its current mileage, the make, the model, and the year. A car can be associated with more than one claim.

Each claim is also associated with one accident type. Accident types are generic descriptions of the accident (i.e., object fell on car, sideswipe, rear end), and are described by an Accident ID and that description. Of course, an accident type can be associated with multiple claims.

Claims can have multiple repair types (more than one thing may need to be fixed on the car), and a repair type can belong to multiple claims. Each repair type has a Repair ID and a description. However, the cost and details (called “notes”) of a repair type can be different depending on the claim, because different claims have different levels of damage.

A claim is also associated with an insurance policy. A policy has several attributes, including a policy number, a deductible, a coverage limit, a premium, a start date, and an end date. A policy can be associated with more than one claim (you can make several claims against a single policy), but each claim can only be associated with one policy. Also, every claim has to have at least one policy.

Policies are also associated with cars. Each policy has to have at least one car on it, and you could have multiple cars on a single policy. Each car, however, must be covered by exactly one policy.

Finally, customers should also be tracked by the database. A customer is described by their customer ID, address, first name, and last name. A customer can have only one policy with the company, but a policy can have multiple customers listed on it.