Fall 2017 Comp 533
Assignment 2
Due: Sunday, October 12, 2017, by 11:45 PM

Entity Relationship Diagramming

The goal of this assignment is to create an entity-relationship model for the system described below. You must prepare your ER model using some electronic drawing program (there are many programs, like Microsoft Visio, that have ER capabilities built in; but it is also possible to draw a nice ER model using something like PowerPoint or Google drawings). However, you must upload a pdf of your final model to Canvas.

You must use the notation given in class, or something very close to it. Make sure to show the cardinalities (both minimum and maximum), keys for all entities, existence dependencies and everything else we talked about in class.

Take care when building this model, as we will be using it for future assignments.

What to turn in

You must upload a pdf of your final model to Canvas.

Grading

The model is worth 95 points. Points will be assigned based on the following guidelines:

- 0 points: Model not attempted.
- 25 points: All entities are present.
- 50 points: All entities and attributes are present and correctly assigned.
- 75 points: All entities and attributes are present, correctly assigned, and most of the relationships are present and correct.

- 95 points: The model is correct and includes all stated elements and relationships.
- Deductions: For missing attributes, incorrect use of notation or errors in, missing relationships, vague relationship names, etc.

Academic Honesty

The following level of collaboration is allowed on this assignment: You may discuss the assignment with your classmates at a high level. What is not allowed is direct examination of anyone else's model (on a computer, email, whiteboard, etc.) or allowing anyone else to see your model.

You may use the search engine of your choice to lookup additional details on the ERD notation, but may not use it to find solutions to the assignment.

1 ER Model – Ice Cream Food Truck Business

A local entrepreneur has recently purchased a food truck that serves soft-serve ice cream and related items. Seeing an opportunity, the business owner has decided to focus on selling ice cream to the Rice University community.

The food truck sells **product**s. **Product**s are items for sale. There are cups and cones (small, medium, large), sundaes (brownie, hot fudge, etc.) and different flavors of ice cream, to name a few. **Product**s are identified by a one - three letter alphanumeric code and have unique names.

Products are sold at **event**s. To accommodate different types of **event**s the truck has a number of different **menu**s, each of which has a different combination of products and prices (for a limited menu, faster service, sundae parties, etc.). Each **menu** is identified by a unique menu id and has a unique name. Each menu contains a set of **menu item**s. A **menu item** has a unique id as well as a product code, and price. **Product**s may be assigned to one or more **menu item**s, for example a Kid Cone may cost $3 on one menu, but $2 on a different, subsidized menu. A **menu item** is assigned to a single **menu**.

Each **product** has a number of **recipeItems** that, together, determine the parts that make up the **product**.

Let's talk about **product** recipes. Together, the **recipeItem**s assigned to a **product** form the **product**. For example, a kid cone will have 3 ounces of ice cream, a topping, a #10 cone, and 1 short napkin. In this case, there are 4 **recipeItem**s: one for the ice cream, one for the topping, one for the #10 cone, and one for the short napkin. Ice cream, toppings, cones and napkins are all components. Each **recipeItem** has a unique id, an associated product code, a component category id, the quantity of the component, a unit id, and an optional componentId. Another example: a large sundae comes with 8 ounces of ice cream (flavor decided when purchased); 1.5 ounces of whipped cream topping (this item's component id is not optional, since it is whipped cream); 1.5 ounces of a customer selected topping; a stem cherry, which is a specific topping; a 12 ounce dish; 1 short spoon; and 1 tall napkin. A **unit** is a measurement label (e.g. ounce, can, or singleton) and has a name and a unique id.

Each component belongs to a single **component category**. These categories include toppings, ice cream bases, baked goods, paper products such as napkins, cones, spoons, and so on. Each **component category** has a unique id and a name. **Component**s are specific items, including all the possible toppings (peanuts, sprinkles, candies, etc.), the flavors of slushies and ice cream, as well as different sized napkins, spoons, and so on. Each **component** has a unique id and a name, and is assigned to a single **component category**.

Since the business is a truck, it can be at different locations on different days and times. Each **location** has a unique location id, name, address, city, state and zip code.

Events are held at **location**s on certain days and times (eventStart, eventEnd), and have names and unique ids. Events also have an assigned **menu**.

Employees staff the ice cream truck. **Employee**s have an employeeId, a first and last name, date of birth, and any number of phone numbers. **Employee**s are assigned to work at different **event**s. There is no predefined number of **employee**s assigned to an **event**.

A **ticket** is created when a customer makes a purchase. A **ticket** has a unique id, an event id, the datetime when it was created, the employee id of the person who created the ticket, and the number of products on the **ticket**.

Associated with each **ticket** are **product(s) sold**. Each **product sold**

has a unique id, a product code, and the id of the ticket on which it was ordered. Similar to recipes, there are **item(s) sold**. Each **item sold** has a unique id, the id of the product sold, the component id, quantity and unit id. **Products sold** are different from **product**s, in that that are the real world instantiation of a set of **recipeItem**s. A recipe may specify a "topping," but the **product sold / item sold**combination shows exactly which topping was selected.

2 Survey (5 points)

It took me approximately N hours to complete this assignment, where N is:

Our ice cream truck business should be named: