**MIS 584 Data Warehouse Design Exercise (in-class)**

You are a business analyst in a company that services snack food and soda vending machines. It has machines at various schools and companies throughout the northeastern U.S. The company purchases the products for the vending machines and delivers them to the vending machines. When the delivery truck arrives at a location, e.g., WPI, there may be many vending machines to refill. At each machine, the driver removes any stale stock (any stock past its expiration date) and then refills the machine with new items. Each machine is either a soda machine or a snack food machine. The driver uses an application on a smartphone to track the number of stales of each product that he/she removed from each machine and the number of each product that is restocked in each machine. These data are automatically sent back to corporate headquarters and stored on a server.

Because the server is always busy capturing data as vending machines are served, there is no time available to query the data. Management believes that analysis of the data could lead to increased sales at the vending machines and reduced number of stales. Thus, they have agreed that a data warehouse should be developed to facilitate analysis of the stale and refill data, with the goal of increasing sales and reducing stales.

The operational systems that store the data contain the following attributes which might be useful in the data warehouse.

* Information about vending machines: a machine serial number, type (soda or food), capacity of the machine, what company/school the machine is at, and the exact location of the machine at that company/school.
* Information about products to put in the vending machines: unique product identifier, product name, product size (in ounces), product selling price, product cost, which vendor produces that product.
* Information about vendors: unique identifier, name, full address.
* Information about a restocking event: date and time of restocking, machine that was restocked, driver that did the restocking, number of stales of each product that were removed, and number of new items of each product that were put into the machine.
* Information about drivers: employee id, name, full address, hire date, salary.

Your job is to select the information to be put into the data warehouse so that the desired analyses can be performed, and to do a prototype design for the data warehouse. Specify your answer by listing what the star schema dimensions are, what attributes will be stored in each dimension, and what facts will be stored in the fact table. Also, draw an entity-relationship diagram that models the data warehouse.