Transaction Requirements:

1. A contract agreed upon between a customer and salesperson is exactly 1 year long.
2. In order to purchase/receive a delivery of large water bottles, a customer must rent or have rented a water cooler.
3. When a customer rents a water cooler the deposit is automatically subtracted from their balance, which is then automatically given back to them upon return of the water cooler.
4. For a deposit to be waived the estimated frequency must be over a certain number.
5. Customers who do not pay the entirety of their billing before its due date receive a late fee equal to 10% of the original billing.
6. Each lead generated by a customer that is approved by the marketing department and turns into a referral provides the customer with a $25 dollar discount on their current billing.
7. For all customers with an active contract they receive last month’s billing on the first of the next month. Each billing is prorated by the number of days of service.
8. Every month, the delivery manager fills out the evaluation form for each driver, which includes the number of deliveries and the number of leads generated by that driver each week.
9. The manager records the evaluation of each employee every week (in the basis of number of deliveries) and averages it over a set of numbers, which is then used to ascertain bonus and promotions.
10. The evaluation record for a driver should be removed 3 years after the driver leaves.
11. Customers are charged 10% of the original bill per month if their bill is not paid on time.

Assumptions:

A delivery person has to be overseen by one and only one delivery manager. A delivery person can receive many evaluations but each evaluation is associated with one and only one delivery person and manager. Likewise, a delivery person can make many deliveries but each delivery is made by one and only one delivery person.

Each delivery can visit many different delivery stops and each stop can be part of many different deliveries. A delivery may include 0 or many different water coolers which can be rented by the customer organizations. A delivery can also, but doesn’t have to, include non-cooler inventory such as large water bottles, small water bottles, cups, etc.

A customer organization can receive none or many different deliveries. Each delivery is included as part of an individual sale where a particular sale can include many different deliveries. A sale, however, does not need to include a delivery as some items can be bought directly without doing a formal delivery. For example, at the delivery dropoff, a customer organization may buy some individual cups and small bottles of water. Each delivery is handled by one and only one salesperson who schedules the delivery and receives any post-delivery comments. Customers can also directly request zero or many deliveries directly from a delivery person. Each delivery person can fulfil zero or many of these direct delivery requests.

Customer organizations can purchase none or many different “sales”. However, in order for a customer organization to put in a sale, it must first sign a contract. Customer organizations can sign 0 or many different contracts. Each sale is then associated with 1 and only 1 active contract. Each contract is written by one and only one salesperson who is part of the non-delivery staff entity. Salespeople can write 0 or many different contracts. A contract can include 1 or many different locations to which deliveries can be made. Each location can then be part of one or many different contracts.

Sales made through an active contract are then included in the Customer’s monthly billing. Each sale is part of one and only one billing. A billing must contain at least one sale but can also include many different sales. Customer organizations can receive 0 or many different billings but each billing is sent to one and only one customer organization. Each billing is handled by one and only one member of the accounting staff (part of the non-delivery staff entity) but members of the accounting department can handle 0 or many different billings.

Customer organizations can pay their billing by making payments where each payment is associated with one and only one billing but a billing may contain more than one individual payment. Payments are handled by one and only one member of the accounting department. Accountants, however, can handle none or many different payments.

Customer organizations can also generate none or many different leads. Each lead is recorded by one and only one delivery person and sent to one and only one marketing manager. A lead can, if approved by the marking manager, turn into a referral. Each referral is associated with one and only one lead. Referrals are then also associated with one and only one billing where they lead to a $25 discount on that particular billing. Each billing can contain 0 or many different referrals.

Check Constraints:

The price of any item in the non-cooler inventory must be greater than 0.

The end date of a contract is exactly 1 year after the start date of the contract (Not a check constraint but should be enforced.)

The status for a billing can be one of three categories: (active, awaiting payment, or paid)

State should be a two digit code for one of the 50 states

Approved in leads can be one of three values: “Approved”, “Rejected”, “Under Review” (Default)

Estimated Frequency in contract has to be greater than 0

Initial Charge in contract has to be greater than 0

Estimated monthly cost must be greater than 0

Age has to be between 18 and 99

Individual Sale Eligibility can either be “yes” or “no”

Item type in non-cooler inventory has to be either “large water bottle, small water bottle, cup, miscellaneous)

Each evaluation score is between 1 and 10.

Each evaluation weight must be between 0 and 1. Default is equal weight at .33 a piece.