A telecommunications company has been expanding recently and requires a new information system in order to keep track of information about its customers. The company has hired you to build this new database, which the company will use to store data relating to individual customers, customers' phones, customers' phone plans, the sites at which customers purchased their phones, and customers' previous phone service providers. Additionally, the telecommunications company intends to use the database as a means of recording upgrades that might be awarded to customers, as well as whatever incentives the telecommunications company might offer said customer in order to prevent him/her from switching phone service providers. Also, the telecommunications company intends to record data about communications between their customers and their customers' contacts (in order to parse this information for insights that might lead to revenue generation). The telecommunications company plans to query their database in order to derive information about where their customers purchase their phones, the kinds of phones their customers purchase, and whom their customers communicate with. Queries will also be used to identify customers who ought to be given upgrades and incentives, as well as customers who have switched to the telecommunications company from a competitor, etc.

The database records information about each of the telecommunications company's customers, including: ID, name, phone number, address, Email, the date on which the customer became a customer of the company, the date on which the customer stopped being a customer of the company (if applicable), and billing information(card number and expiration date). Customers are periodically offered upgrades, such as a discount in the price of their plan or a reduced-price phone. The database should keep track of each customer's available upgrades, as well as a description of each upgrade.

Every customer in the database purchases a phone from the telecommunications company. A customer may purchase any number of phones, but each phone must be purchased by only one customer. Each phone may be one of two types: mobile or landline. The ID, serial number, model, producer, and price of each phone are recorded, too.

Every customer is enrolled in a phone plan. Each customer is enrolled in only one plan, but any number of customers may be enrolled in a particular plan (such as the "Unlimited Talk and Text" plan or the "Unlimited Everything" plan). The database records the ID and name of the plan, the date on which the customer enrolled in the plan, and the fixed cost of the plan per month. Each plan outlines the amount of data a customer can download per month, the number of texts a customer can receive per month, and the number of minutes a customer can spend calling per month. If a customer switched to the telecommunications company after using a different phone service provider (a competitor), the ID and name of the competitor is recorded.

Customers are often given retention incentives, such as a reduction in the cost of their plan. In such a case, the incentive ID and a description of the incentive are recorded in the database. Each customer can be given multiple incentives.

The database also records information about the site at which each customer purchased his or her phone, including the site ID, address of the site, and the date on which the phone was purchased. If a customer purchases a phone online, the store ID must be set to 1, and the address values must be left NULL.

Each time a customer texts or calls one of their contacts, the database records the content of the text message or duration of the call, as well as the date on which the communication was initiated. Each communication is received by one of the customer's contacts. If the contact is not another customer of the telecommunications company, the database records the phone number and ID of the contact, as well as the ID of the contact's telecommunications service provider (a competitor).