**Veterinary medical systems**

**Background**

Veterinary medical systems are very similar to human medical systems. One of the biggest differences is that patients are animals and clients are people who own the animals. This introduces some interesting complications when it comes time to pay for the bills. The system keeps track of what procedures and medicines were used on the patient, but when it comes time to pay, the bill is sent to the client.

This would be straightforward, except in the area of some animals (like horses). Since racehorses are quite expensive, it is very common for a single horse to be owned in various percentages by several owners. This adds several interesting possibilities to handling the billing. Often, each owner is responsible for their proportion of the total bill. Each owner would like to receive a complete invoice with his portion already calculated. However, if a horse is treated for a condition that one owner considers to be "their fault" that owner may pay for the entire procedure. As a third possibility, the owners may divide up the bill along line items. One owner will pay for some of the line items, while other owners are responsible for other line items.

Please remember that in a typical clinic <5% of all of the bills will be this complicated with the single-owner patient being the most common. The system should be designed so that the common case is not too slow or overly complicated.

**Usage Scenarios**

1. Dave Atkins brings his pet Doberman named Fluffy into the clinic for a routine examination and shots. The veterinarian charges him for the routine office visit and the Rabies vaccination. Dave pays cash before he leaves for the day and is provided with a receipt for the services.
2. Traci Heinrich brings in both her cats, Tweedle Dee and Tweedle Dum to be spayed. Dr. Roberts performs both spays (which has a standard rate). Traci picks up her cats that evening, but wants to be billed for the service. That day she receives a single invoice with the itemized charges. At the end of the month, she receives a statement for her account, which she pays.
3. The racehorse "Polymorphic Message Send" is owned by Grady Booch (30%), Martin Fowler (20%), Ralph Johnson (20%), Erich Gamma (10%), and Brian Foote (20%). The horse is beginning to show some signs of lameness, so Ralph brings the horse in for an examination. Dr. Roberts decides that it is not a matter of concern and prescribes some topical analgesic. Ralph is provided with an invoice itemizing the charges. The invoice also shows what percentage of the charge each owner is responsible for. At the end of the month, a statement is sent to Grady, Martin, Ralph, Erich and Brian detailing the amount that they owe.
4. "Polymorphic Message Send," who is stabled on Ralph's ranch, gets spooked by one of his grad students and runs through a fence resulting in severe lacerations. Ralph calls Dr. Roberts who makes an emergency farm call to suture up the lacerations. Ralph feels responsible and wishes to pay the entire bill himself. At the end of the month, only Ralph receives a statement which contains the charges for the emergency call.
5. Ralph brings "Polymorphic Message Send" in for a routine checkup, but he also brings his pet iguana, "Generational Scavenger", who hasn't been eating well. Dr. Roberts examines both. Ralph gets an invoice, which he pays, that day that includes his portion of the horse's bill and the entirety of the iguana's charges. Later that month, the horse's co-owners receive a statement with their portion of the charges.
6. Everytime a patient is brought into the clinic, if the patient has been there before, Dr. Roberts looks up the patient's history on the computer. This history includes every procedure that has been performed on the patient along with any prescribed drugs.
7. When a client does not pay their bills in a timely fashion, statements are issued each month. If the client continues nonpayment, eventually their account is "written-off." If a client that has been written-off brings a patient to the clinic, they will not receive treatment until their outstanding balance is paid. Written-off accounts no longer receive bills monthly, however the information is kept active so that if the person ever comes back, they can be charged.
8. Some procedures need to recur at regular intervals (e.g. yearly immunizations, checkups, monthly heartworm treatment). The system should keep track of which patients require which treatments and issue reminders that are mailed to their owners the month before the treatment is due. When a patient is marked as deceased, such reminders should cease.