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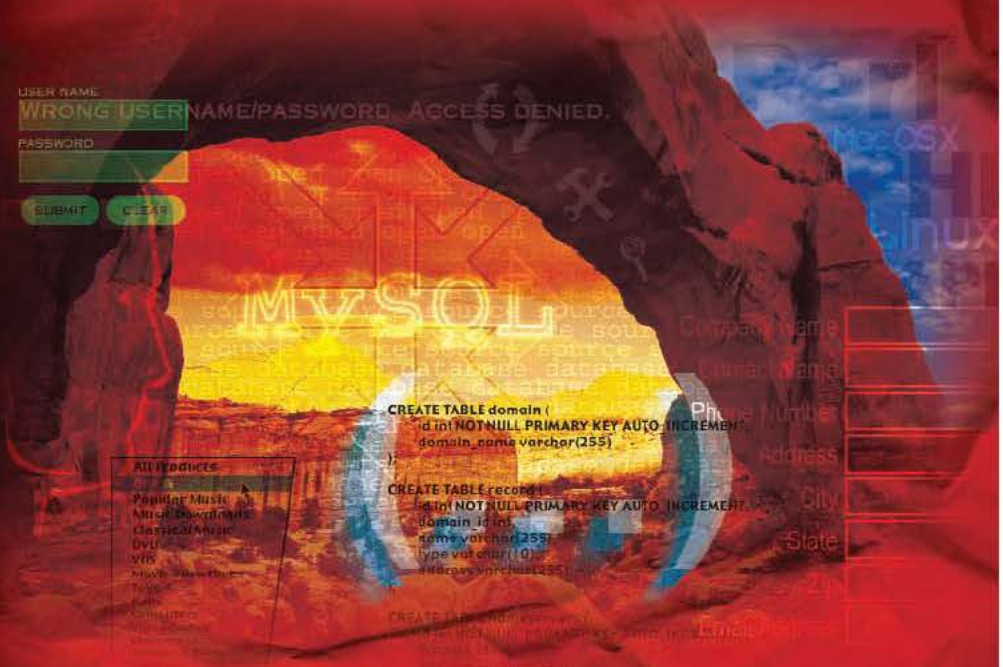

MySQL™ Bible

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Steve Suehring

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MySQL™ Bible

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CHAPTER 1

Relational Database Management

In This Chapter

Considering applications for databases

Comparing SQL implementations

Introducing MySQL

Before you sound the depths of MySQL, it would be helpful to look at some applications for databases and at other implementations of SQL servers.

This chapter lays out some groundwork for the rest of the book — in particular, with tables that illustrate MySQL's extensions to the SQL-92 standard and compare some popular functions of database servers.

Applications for Databases

Databases are a part of everyday life, usually without your knowledge. From obvious applications (like customer databases for insurance companies) to not-so-obvious uses (such as storing actual images within a database for recognition), database use is pervasive and increasing.

Customer databases

Not a day goes without telephone calls from people trying to sell products or new long-distance plans. You and I are in more than a few customer databases — and some of the places I've done business with have shared my telephone number with some of their friends, who've then shared it with some of their friends — another fact of life that's traceable to the proliferation of databases.

Taking a look at some information stored in a few "everyday" databases can serve as an example of the different types of information each one collects, tracks, and sometimes stores — about you, me, and probably everyone you know. Whatever your views on issues of politics and privacy, these common examples form a picture of databases in action.

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Telephone companies

The telephone company that owns my area stores basic information about me — first and last name, address, city, state, ZIP code, and telephone number — information that's not only basic but also common across almost all customer databases. Beyond the basic information, the local telephone company also requires my social security number (which helps them find me should I attempt to forego payment and leave the area).

Within the telephone company database is a system to keep notes and correspondence. For example, each time I call to talk with a customer service representative, a note goes into my file — indicating what I was calling about, the outcome (if any), as well as the date, time, and representative's name — all of which is recorded automatically when the note is entered.

Beyond the personal information and correspondence notes, the telephone company database also serves as a billing system that generates my phone bill automatically on the fourth day of every month. The database tracks what services I have (such as Call Waiting, Caller ID, and so forth), associates each service with a price, and tallies my bill for the month.

Having customer, billing, and rate information in a database allows the telephone company to produce reports that can pinpoint how many customers have a certain rate group, how many live in a certain area, how many have delinquent payments, and so on.

Beyond customer reports, the telephone company has become much more sophisticated in its use of the data. Previously when I would call for customer service, I would get to talk to a live person after a bit of a wait. They then improved their customer service by allowing me to punch in my 10-digit telephone number and look up my records. From there, I might eventually get to talk to a live person (if I didn't select any of the common tasks on the voice-mail menu). The latest improvement is the use of caller identification to ask me whether I'm calling in regard to the number that I'm calling from. After more menus and prompts, I may be able to reach a live operator.

Behind the scenes during this process is a database that can look up my information when it is fed my 10-digit number. The telephone company database can then give me choices based on the current status of my account. I once had the misfortune of fraudulent charges on my telephone bill — about $650 worth. I immediately put that amount into dispute and was told to pay my normal $45 bill — but I still ended up receiving a disconnection notice. When I called back to inquire into the notice, I was forwarded automatically to the collections department (who, after some discussion, handed me off to the regular customer service department). Moral: Databases can speed up only those aspects of a transaction that don't require the use of common sense.

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Online or mail-order stores

Another type of customer database is kept by an online store such as Amazon.com or a mail-order catalog store. The basic information is kept (name, address, and so on); most online and many catalog stores also keep your e-mail address as well. In addition, many stores track payment information so you don't have to give your credit card number every time you want to make a purchase.

As monopolies, most telephone companies can afford to do minimal marketing of their products and services. To survive in a competitive market, however, catalog and online stores keep track of how their customers heard about them. From that information, they can produce a report that helps identify the most effective means of advertising (or look for wiser ways to spend marketing money).

Major catalog and online stores also track your purchases through a database and offer recommendations based upon previous purchase patterns. For example, if you frequently buy books on Linux, Amazon.com might custom-build a page for you of newly released Linux books. All such information is stored in one or more databases.

Catalog and online stores can use the reporting capabilities of an electronic database to watch which items are selling best, discern and track patterns of visitors, and gather data on sales totals for items and departments.

Custom-service Web sites

Another interesting use of customer type databases is to track user preferences. An example of this would be the Web site Slashdot, `http://www.slashdot.org/`. At Slashdot, they don't keep information like credit card number or address, but they do keep track of your e-mail address and what news modules you want to see, among other things. In this manner, you can customize the news you see, as well as other Slashdot features. Some user-preference sites do keep personal information such as name and address.

Though all three examples of customer databases — telephone company, online store, and user-preferences site — track some of the same information, they also track their own, task-specific information. This makes it difficult for an identity thief to gain access to all your personal information in one place. However, personal information security seems to be taking a backseat to the rise of all-in-one tracking services that keep information centrally. Imagine what the telemarketers could do if they had access to all my purchase histories and even my e-mail address!

Internet service providers' databases

Internet service providers (ISPs) use electronic databases more heavily than many other industries. Almost everything an ISP does is in electronic format; being relatively young as an industry, they've grown up with good database tools readily available. In many ways, ISP databases combine the functions of all three types of customer databases I referred to earlier.

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