Databases Essay, Research Paper

The Many Faces of Databases

Large databases can contain hundreds of interrelated files. Fortunately a database management system can shield

users from the complex inner workings of the system, providing them with only the information and commands

they need to get their jobs done. In fact, a well-designed database puts on different faces for different classes of

users.

Downsizing and Decentralizing

The earliest file management programs could only do batch processing, which required users to accumulate

transactions and feed them into computers in large batches. These batch systems weren’t able to provide the kind

of immediate feedback we expect today.

Today disk drives, inexpensive memory, and sophisticated software have allowed interactive processing to

replace batch processing for most applications. Users can now interact with data through terminals, viewing and

changing values in real time. Batch processing is still used for printing periodic bills, invoices, and reports and for

making backup copies of data files. But for applications that demand immediacy, such as airline reservations,

banking transactions, and the like, interactive, multiuser database systems have taken over.

Until recently most databases were housed in mainframe computers. But for a growing number of organizations,

the traditional centralized database on a mainframe system is no longer the norm.

Some companies use a client/server approach: Database software in client desktop computers works with files

stored in central server databases on mainframes, minicomputers, or desktop computers.

Other companies use distributed databases that use data strewn out across networks on several different

computers.

From the user’s point of view, the differences between these approaches may not be apparent.

Tomorrow’s Databases?

Many computer scientists believe that the relational data model may be supplanted in the next decade by an

object-oriented data model, and that most future databases will be object-oriented databases rather than

relational databases. Instead of storing records in tables and hierarchies, object-oriented databases store software

objects that contain procedures (or instructions) along with data. Object-oriented databases often are used in

conjunction with object-oriented programming languages.

Tomorrow’s databases will be able to respond intelligently to commands and queries issued in natural human

language.

Rules of Thumb: Dealing with Databases

A few common-sense rules when working with file managers or relational database management systems are:

o Choose the right tool for the job.

o Think about how you’ll get the information out before you put it in.

o Start with a plan, and be prepared to change it.

o Make your data consistent.

o Databases are only as good as their data.

o Query with care.

o If at first you don’t succeed, try another approach.

NO SECRETS: COMPUTERS AND PRIVACY

The Privacy Problem

Businesses and government agencies spend billions of dollars every year to collect and exchange information about

you and me. For most of us this data is out of sight and out of mind. But every day lives are changed because of

these databases.

Big Brother and Big Business

With modern networked computers it’s easy to compile profiles by combining information from different database

files. When files share a unique field, record matching is trivial and quick. Sometimes the results are clearly

beneficial. But these benefits come with at least three problems:

o Data errors are common.

o Data can become nearly immortal.

o Data isn’t secure.

Protection against invasion of privacy is not explicitly guaranteed by the U.S. Constitution. Legal scholars agree

that the right to privacy-freedom from interference into the private sphere of a person’s affairs-is implied by

other constitutional guarantees, although debates rage about exactly what this means.

Federal and state laws provide various forms of privacy protection, but most of those laws were written years ago.

When it comes to privacy violation, technology is far ahead of the law.

Rules of Thumb: Your Private Rights

Here are a few tips for protecting your right to privacy:

o Your Social Security number is yours; don’t give it away.

o Don’t give away information about yourself.

o Say no to direct mail and phone solicitations.

o To maximize your privacy, minimize your profile.

o If you think there’s incorrect or damaging information about you in a file, find out.

o Support organizations that fight for privacy rights.

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