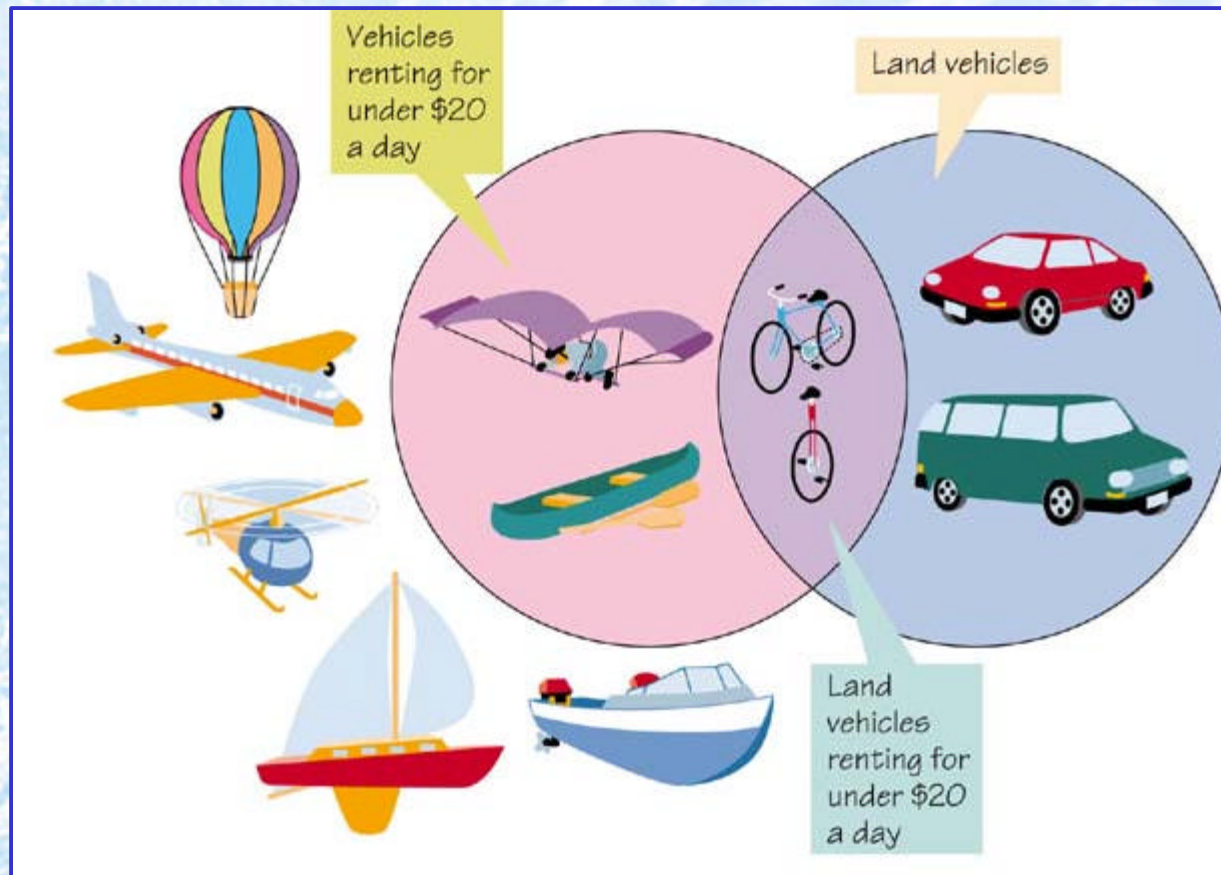




# Chapter Eight



## Database Applications and Implications

## After reading this chapter, you should be able to:

- Explain what a database is and describe its basic structure
- Identify the kinds of problems that can be best solved with database software.
- Describe different kinds of database software, from simple file managers to complex relational databases

After reading this chapter,  
you should be able to:

- Describe database operations for storing, sorting, updating, querying, and summarizing information
- Explain how databases threaten our privacy

# Chapter Outline

- The Electronic File Cabinet: Database Basics
- Beyond the Basics: Database Management Systems
- No Secrets: Computers and Privacy

# The Electronic File Cabinet: Database Basics

Like word processors, spreadsheets, and graphics programs, database programs are applications - which turn programs into productive tools.





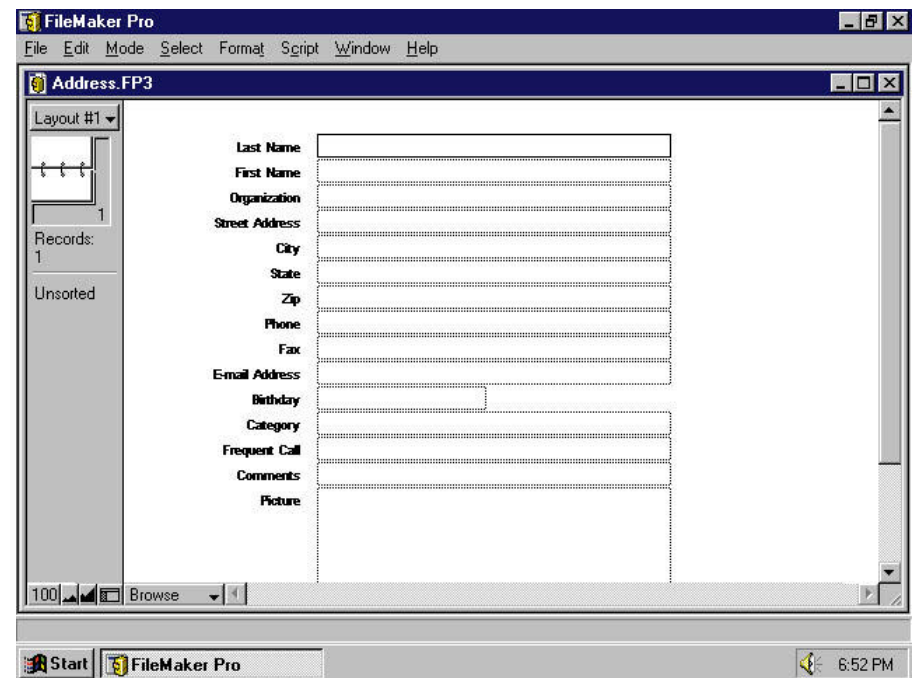
# The Electronic File Cabinet: Database Basics

Database programs are designed to maintain collections of information stored on computer disks.

- What Good Is a Database?
- Database Anatomy
- Database Operations
- Special-Purpose Databases

# What Good Is a Database?

A **database** is a collection of information stored in an organized form in a computer.



# What Good Is a Database?

Computerized databases offer several advantages such as:

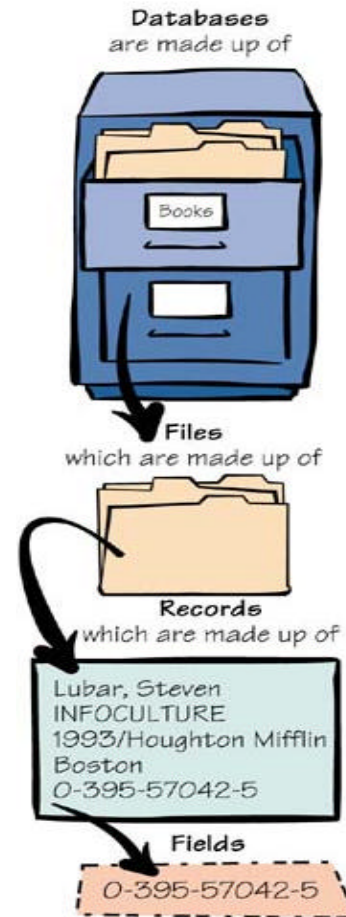
- Make it easier to store large quantities of information.
- Make it easier retrieve information quickly and flexibly.
- Organize and reorganize information.
- Print and distribute information in a variety of ways.



# Database Anatomy

A **database** is a collection of one or more database files records.

A **file** is a collection of related information (records).



# Database Anatomy



Microsoft Access - List View of Compact Disc Collection : Table

ID	Rack Number	CD Title	Artist	Last Listen
1	32	Revolver	The Beatles	3/30/97
2	18	Biograph	Bob Dylan	2/22/97
3	40	Kind of Blue	Miles Davis	3/18/97
4	7	Bring on the Night	Sting	3/2/97
5	16	Trance Planet	Various Artists	3/30/97
6	14	No Need to Argue	The Cranberries	3/21/97
7	19	On Stage	Doc Watson	3/20/97
8	18	Bones	Gabriella Roth	3/18/97
9	13	UFOrb	Orb	2/14/97
10	5	American Dawg	Neal Gladstone	3/28/97
11	24	This Timeless Turning	Sky Cries Mary	3/17/97
12	7	Strange Angels	Laurie Anderson	3/5/97
13	8	Indigo Girls	Indigo Girls	3/2/97
14	16	Eric Clapton Unplugged	Eric Clapton	2/20/97
15	12	The Outro	Bonzo Dog Doo Dah Band	3/26/97
16	10	J. S. Bach Unaccompanied Cello Suites	Yo-Yo Ma	3/26/97
17	21	Mozart's Horn Concerti	Berry Tuckwell	3/21/97
18	8	Take a Dance	Bare Necessities	2/10/97

Record: 15 of 20

Datasheet View

Microsoft Access - [Li...]

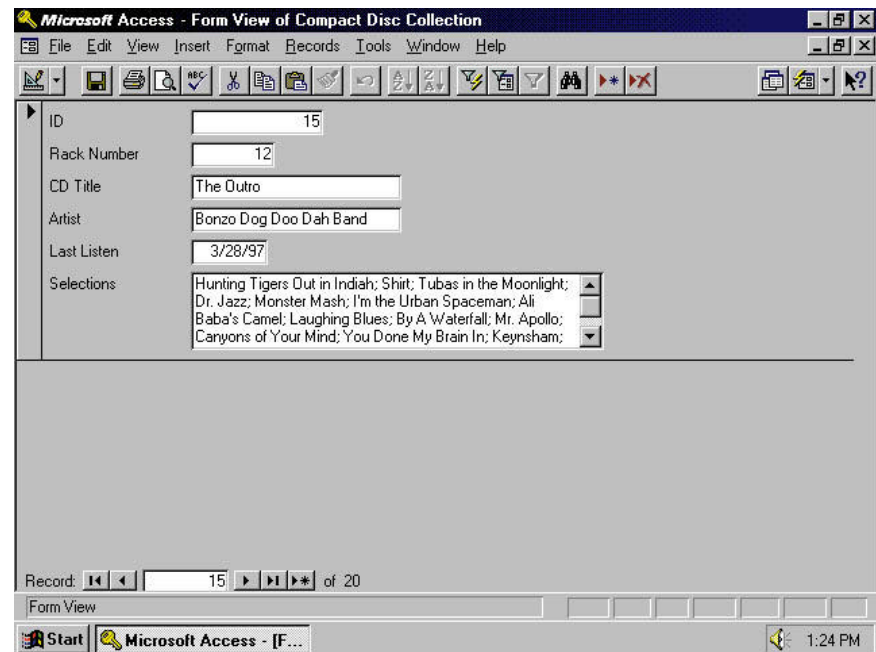
1:22 PM

A **record** is the information relating to one person, product, or event.

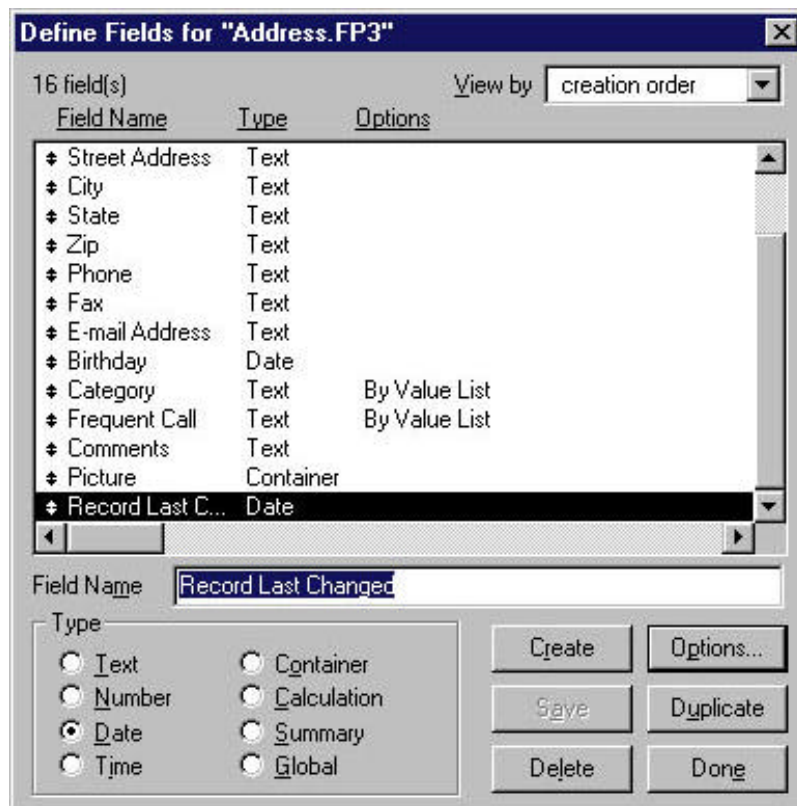
A **field** is a discrete chunk of information in a record.

# Database Anatomy

- The **view** is a display of the information in fields based on a particular layout of field data.



# Database Operations



Database commands are used to retrieve, organize, print and distribute database information.

- **Import:** receive data in the form of text files.
- **Browse:** navigate through information by just looking at it.



# Database Operations

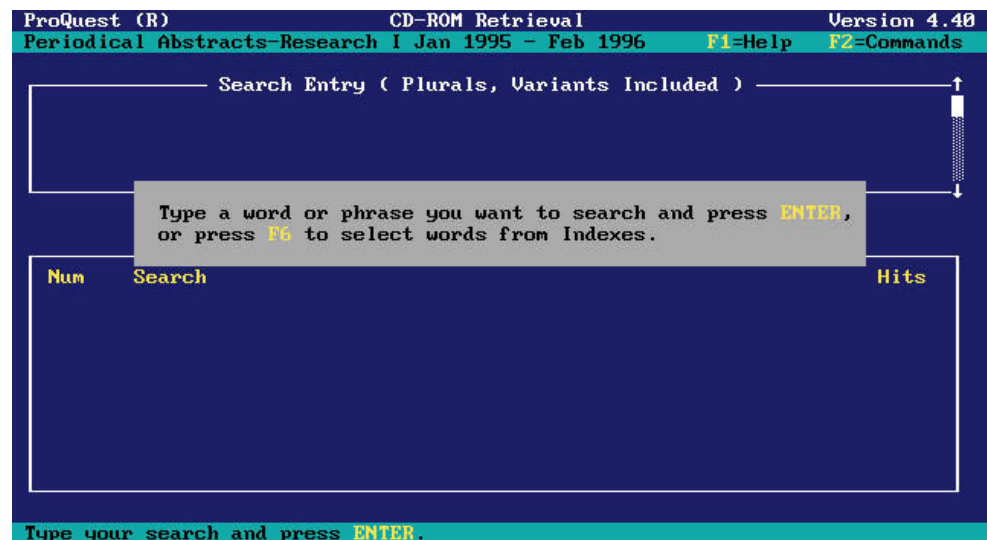
- **Query:** search or select one or more specific records.
- **Sort:** rearrange records (alphabetically or numerically).
- **Report:** printout of an ordered list of records.

Last name	First name	Phone
Row	Mike	804/969-8088
Feyerham	Bernie	413-2879
Parker	Sheryl	821-0719
Knutson	Clara	772-1503
Alvarez	Joe	954-3324
Reigelman	Laurel	818/444-5745
Savage	JoAnn and Jim	754-1212
Westfall	Rosalind	255-2558
Cochrane	Lynn	808-8245
Holmes-Swanson	Anna Marie	322-2877
Dengler	Chelsea	422-7014
Putnam	Matthew	265-1215
Heisner	Philbert	802/433-7348
Cadlitz	Asa	314/442-1811



# Special-Purpose Database Programs

**Specialized database software** is preprogrammed for specific data storage and retrieval purposes.



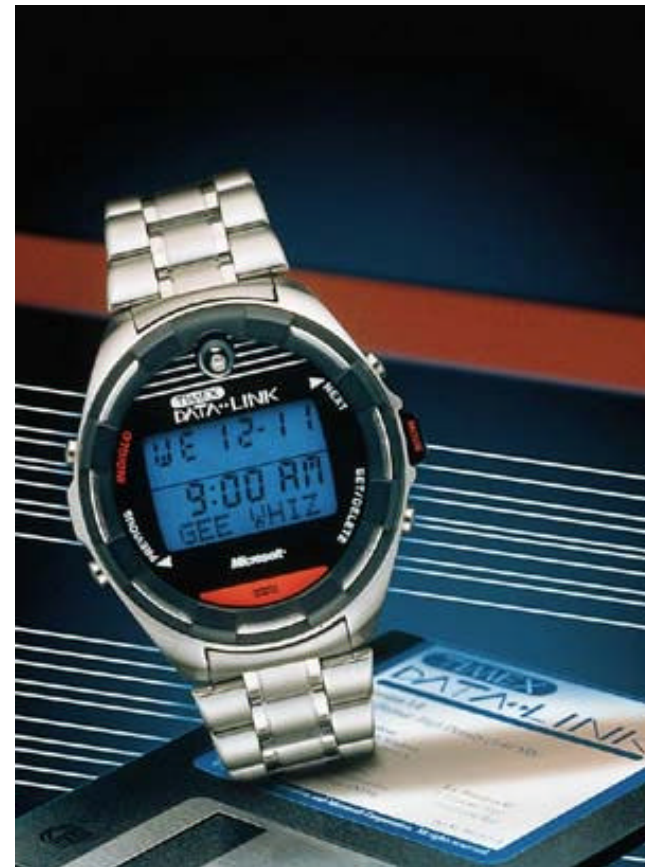
# Special-Purpose Database Programs

**Geographical information systems (GISs):**  
include geographic and demographic data in map form.



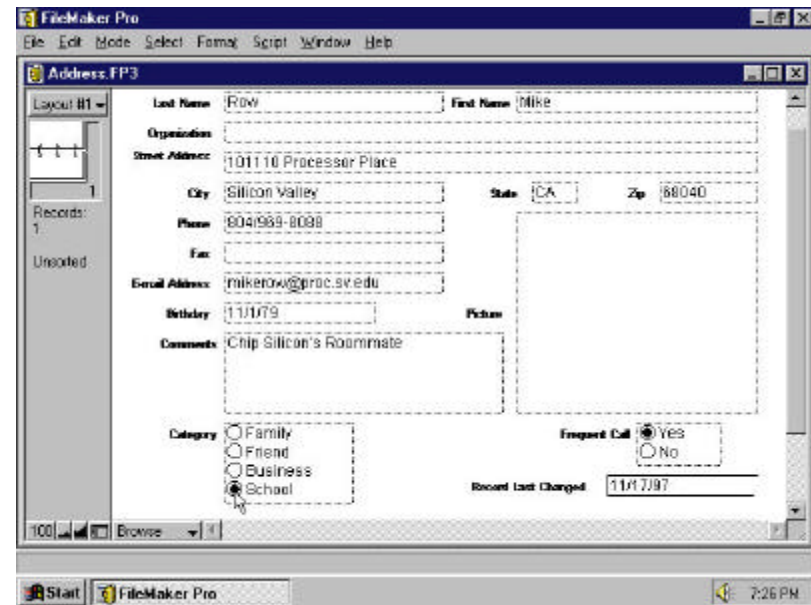
# Special-Purpose Database Programs

- **Personal information managers (PIMs):** an electronic organizer that is customized to fit individual needs.



# Beyond the Basics: Database Management Systems

A **file manager** is a program that allows users to work with one file at a time.



# Beyond the Basics: Database Management Systems

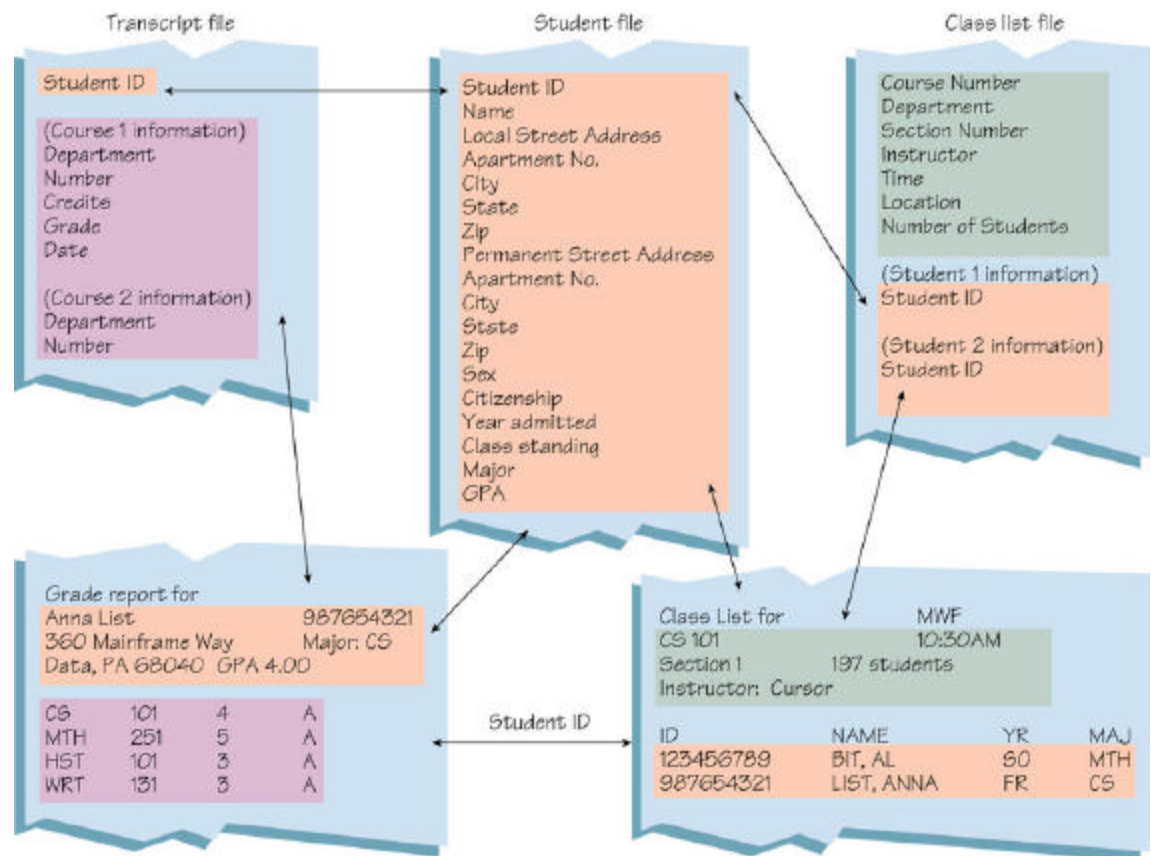
## Database Management Systems (DBMSs)

- is a program or system of programs that can manipulate data in a large collection of files
- redundant information is stored as a *key field*
- different users see different points of view
- may be interactive



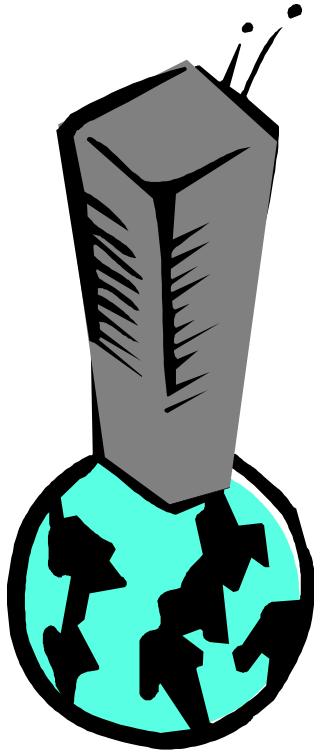
# What Makes a Database Relational?

- **Relational model** - a mathematical model that combines data in tables.



# No Secrets: Computers and Privacy

Big Brother and Big Business

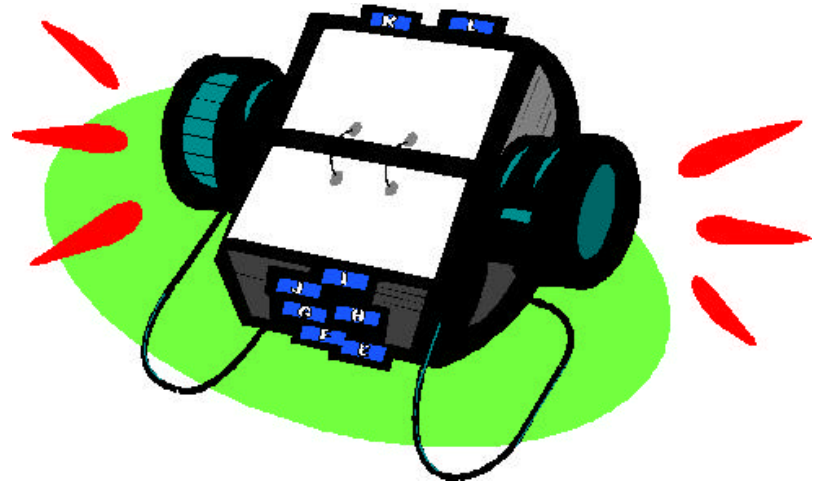


Telemarketers

# The Privacy Problem

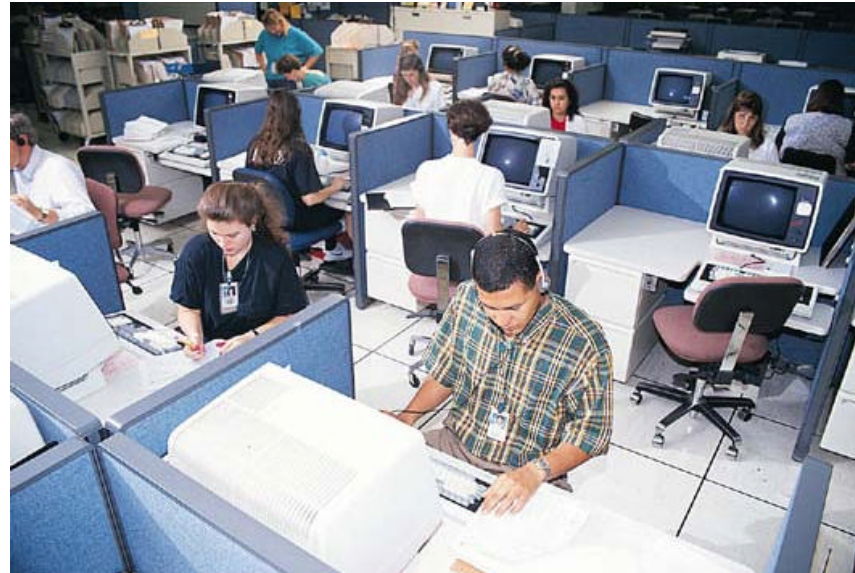
More than 15,000 specialized marketing databases contain 2 billion names.

These databases contain characteristics like age, income, religion, and even sexual preference.



# Big Brother and Big Business

- Government uses record matching to locate criminals ranging from tax evaders to mass murderers.
- Credit bureaus collect about us and allows us to use credit cards.



# Big Brother and Big Business

- With the increased amount of information available, problems that arise include:
  - Data errors are common
  - Data can become nearly immortal
  - Data isn't secure