Database Design

1-2

Data vs. Information

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Objectives

- This lesson covers the following objectives:
  - Distinguish between data and information, and provide examples of each
  - Describe and give an example of how data becomes information

Purpose

- All kinds of information (school records, mobile telephone records, ring tone downloads, grocery purchases) are stored in databases

- We interact with databases every day, consciously or unconsciously

- It is important to understand what is stored in a database and what can be retrieved from it

Data Compared to Information

- If you work in the information-technology industry, it is essential to understand how data is modeled and stored in a database

- If you work in any other industry, you will most likely have to work with data stored somewhere on a computer and probably be required to use data in your job to create reports and/or make decisions

Data vs. Information

- The words "data" and "information" are often used as if they are synonyms
  - Nevertheless, they have different meanings
- Data:
  - Raw or unprocessed material
- Information:
  - knowledge, intelligence, a particular piece of data with a special meaning or function
  - Information is often the result of combining, comparing, analyzing or performing calculations on data

Data vs. Information

- Whenever a student, teacher, administrator (or any person using a computer) interacts with a website, pieces of data are collected

- The website application may be unique to that school or company, but what happens in the background?

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7

Data vs. Information

- Think about test scores, for example
- In one class, if every student receives a numbered score, the scores can be calculated to determine a class average
- The class averages can be calculated to determine the school average

Data in...

1997 $1,000,000
1998 $2,000,000

"Article VI prohibits use of School property for..."

312 graduates

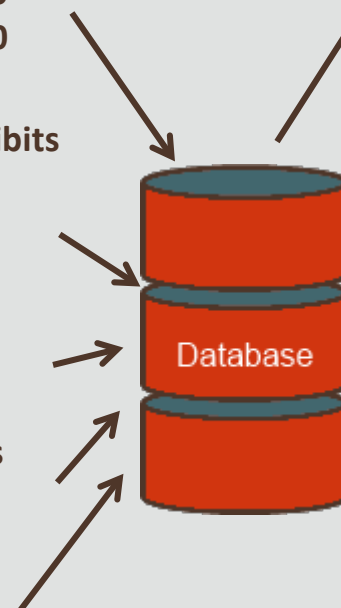98% of students pass the Math exam...

Student test scores were...

Database

Information out...

...Next year's budget

Regulatory Implementation

...Where are they going?

By how much?

...Class average or school average

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Data vs. Information

- The Oracle database software will transform recorded/stored data and statistics into useful pieces of information

- Data: Each student's test score is one piece of data

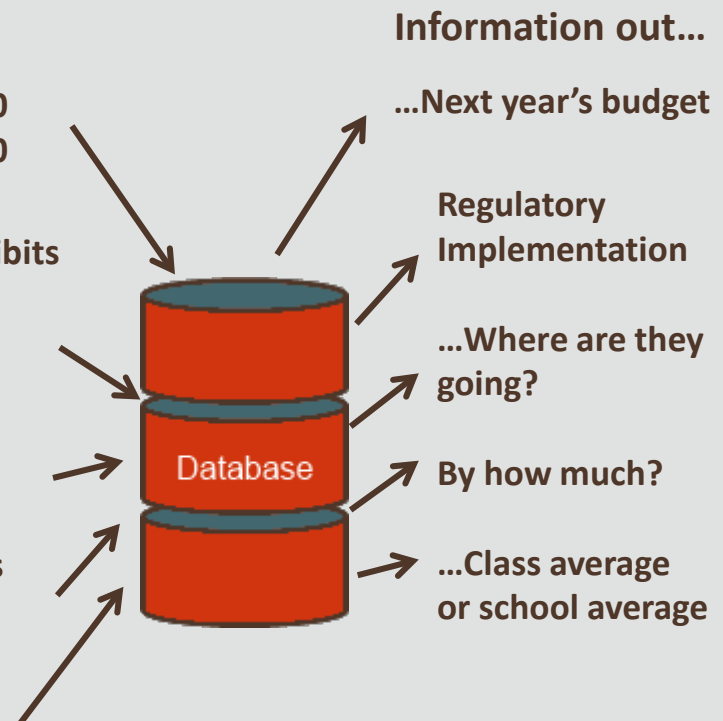- Information: The class's average score or the school's average score

Data in...

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1998 $2,000,000

"Article VI prohibits use of School property for..."

312 graduates

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9

What is a Database?

- A database is a centralized and structured set of data stored on a computer system

- It provides facilities for retrieving, adding, modifying, and deleting the data when required

- It also provides facilities for transforming retrieved data into useful information

- A database is usually managed by a Database Administrator (DBA)

DDS1L2
Data vs. Information

Documents, Pictures, Video, and Sound

- Within most modern databases, you can store and retrieve a wide variety of data and documents

- Inside the database, data is stored in its "raw" form

- When this raw data is queried or retrieved, it is transformed into more useful information

Different Data/Sources

Operational   **Media-rich**

External

YAHOO!

Decision support   **Documents**

DDS1L2
Data vs. Information

11

Question:
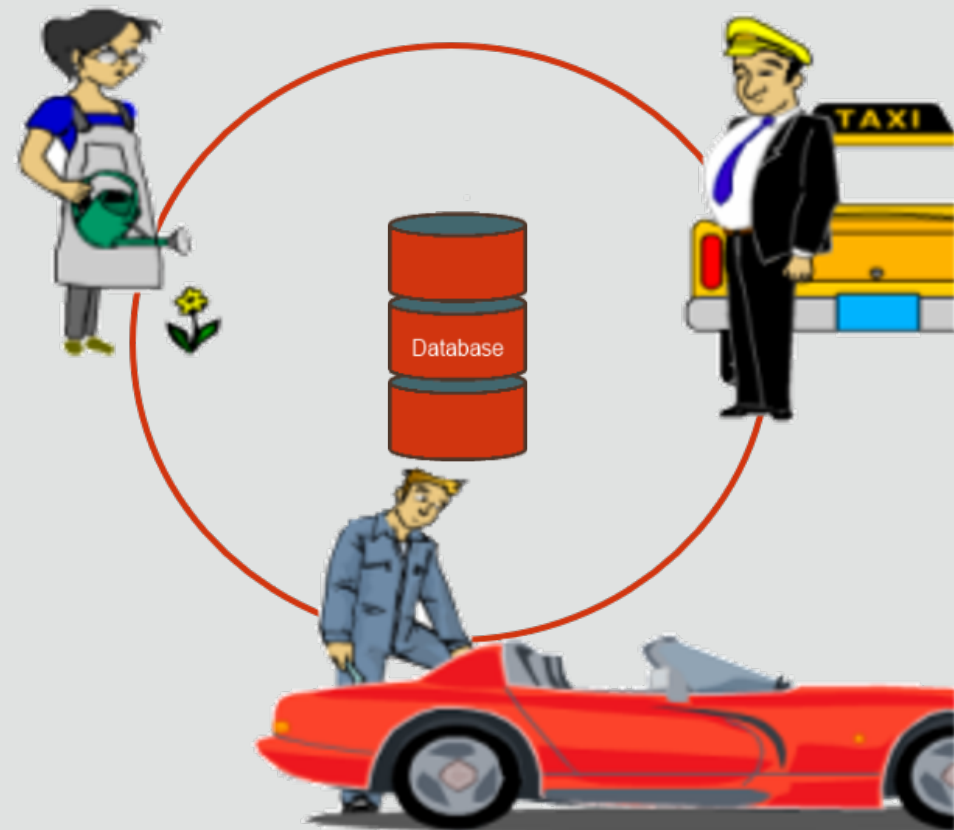
- What Does a Database Have to do with My Everyday Life?
  - Answer: More than you may realize...
  - A lot of websites that you visit are driven by a database

12

Question:

- If You Had One of the Jobs Listed Below, How Might You Use a Database?
  - Mechanic in a repair shop
  - Taxi driver
  - Landscaper

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Question:

- Have You Ever Returned an Item to a Store Without a Receipt?
  - What information did you have to provide?
  - Were you able to return the item?

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Terminology

- Key terms used in this lesson included:
  - Data
  - Database
  - Information

Summary

- In this lesson, you should have learned how to:
  - Distinguish between data and information, and provide examples of each
  - Describe and give an example of how data becomes information