LIFEPAC®

Business Computer Information Systems
Student Book

Unit 5

Alpha Omega Publications®

BUSINESS COMPUTER INFORMATION SYSTEMS

UNIT FIVE

Databases

Unit 5: Databases
Introduction

This unit will focus on working with a database. You'll learn about what a database is and how it compares to a spreadsheet. After you learn about database basics, you'll turn your attention to its powerful features that can help you manage data and produce business reports.

Your goals for the unit include the following:

- Understand the benefits of using a database.

- Apply database technology to work with data and records.

- Perform data management procedures using a database.

- Use database technology to produce and analyze business reports.

The objectives for this unit include the following:

- Distinguish between a database and a spreadsheet.

- Describe the functions and purposes of fields, records, and files in databases.

- Manipulate data and records in a database.

- Use a database to generate mailings such as address labels and form letters.

- Conduct a search and a query.

- Create business reports from a database.

Note to Students:

The lessons in this unit are intended to provide general information about using database programs to organize and work with information. You will learn the basics involved in creating databases and using them efficiently. You'll also see some ways in which a database can help to organize business and personal information.

There are many different database applications on the market, and some programs have commands that are unique to their design. For this reason, the course developers have designed this unit to apply to database programs in general.

Some of the demonstrations in this unit were created using Open Office Base. Your database software may use a different process than the one demonstrated. If this is the case, you will need to learn the process used by your software to complete the projects.

I. Database Basics
Comparing Databases and Spreadsheets

Grace worked in a library thirty years ago. When she was given the task of renumbering the library catalogue, she had to do it by hand. There were more than 30,000 cards in the library catalogue to represent the books in the library. The cards were numbered from 1 to 30,000 and her task was to renumber them 0 to 29,999 so that each batch of a hundred cards would start with the same digits. If only those cards had been in a **database**! With a database, this job, which took her several weeks to complete, could have been done in a matter of seconds.

Objectives:

- List actions a database can perform.
- List the differences and similarities between a database and a spreadsheet.
- For a specific business task, select a spreadsheet or a database, based on which is more appropriate.

Vocabulary:

database - a software program for storing, managing, and retrieving information.
query - to ask a question about data.
table - rows and columns that are used for organizing data.

Let's define exactly what a **database** is. A database is powerful software for storing, managing, and retrieving information. Databases do so through the use of **tables**. Just as with spreadsheets, databases organize data in columns and rows. Spreadsheets are used to manage and manipulate numbers, whereas databases are used to manage and manipulate information.
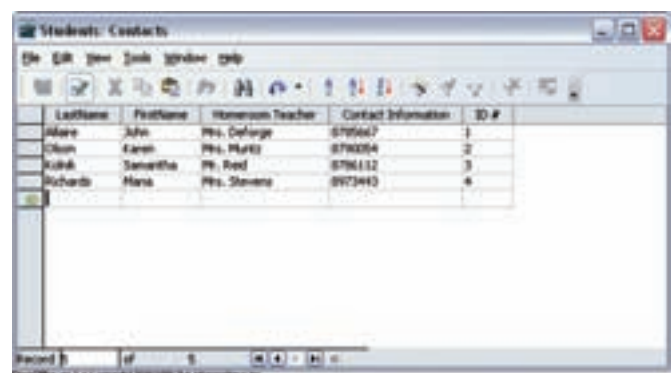
However, databases are actually much more powerful than spreadsheets at manipulating data. Here are just a few of the actions that you can perform in a database that would be difficult to perform in a spreadsheet:

- Retrieve all data that match certain criteria.

- Update information in more than one place at the same time.

- Compare data.

- Create data entry forms so you can easily enter information.

- Perform complex calculations on different sets of data at the same time.

- Validate the data entered and check for inconsistencies.

- Sort and manipulate the data in the database.

- Merge data with text in a word processing document.

- **Query** the database. In other words, ask questions about the data.

- Produce flexible reports, both on screen and on paper, that make it easy to comprehend the information stored in the database.

As you will see, databases do extremely well at managing and manipulating information. Let's look at how these actions work on a simple database. For this example, let's use a list of students in a school. The database would contain the same set of data or structured information for each student—last name, first name, homeroom teacher, and contact information.

**The student database may be viewed in datasheet view like this.**

What actions can you take with this simple database? You can retrieve all students that are in Mr. Reid's class and print the list. Or if Mr. Reid retires and a new teacher is hired, you could update the homeroom teacher for all students in that homeroom at the same time. You could also perform the action of sorting the data in a database. You could choose to sort alphabetically by last name. This means that after sorting, the students would appear in alphabetical order by last name. You could also sort by homeroom teacher. This means that the students in Mrs. Deforge's class would be grouped together as would the students in Mrs. Muntz's class. These are just a few of the actions you could perform on this database.

Furthermore, when one hundred new students enter the school at the beginning of the school year, the staff may want to use a data entry form to make it easier to enter the students' names and information.

So far, you have learned that databases can be looked at in datasheet view and in data entry form view. The great thing about databases is that you can look at the data in different formats or views such as the design view or report view. The design view allows you to design a database. In other words, in design view you can decide where the data will appear on the screen. You can drag labels and fields to the desired locations. This is an example of the design view.
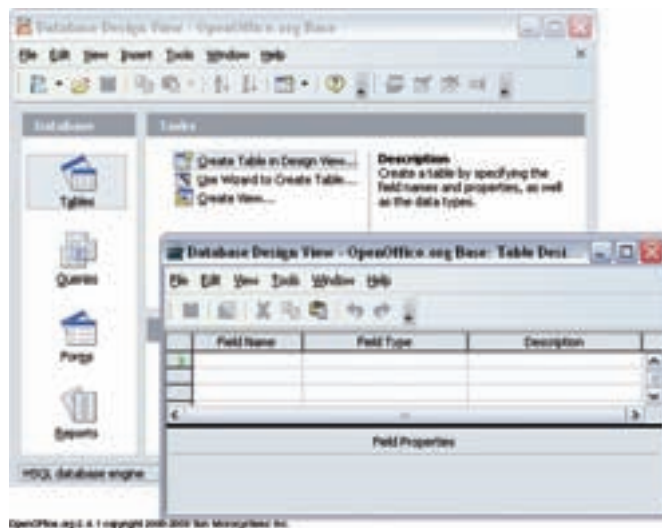

Uses of a Database

What else could a database be used for? Computer databases typically contain collections of data records or files, such as sales transactions, product catalogs and inventories, and customer profiles. Other examples of databases are club membership lists, library catalogues, business card files, and parts inventories. The list could continue on and on. You can use a database to do anything from tracking the results of market research to collecting information from the Mars Rover.

Database or Spreadsheet: Which Should You Use?

There are many times when you could use either a database or a spreadsheet to complete the same task. If the task involves numbers and calculations, think spreadsheet. Remember, spreadsheets typically contain financial information and numbers. A spreadsheet may be used to track stock, calculate a loan payment, find averages, and compute just about any math problem. If the task involves a large quantity of information, think database.
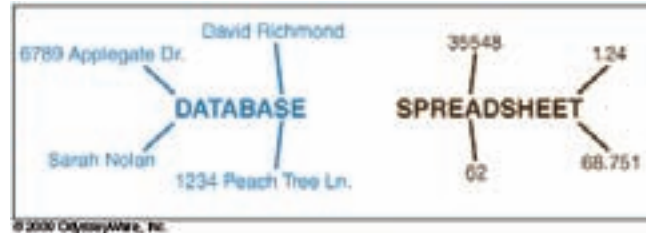
Another way to help distinguish a database from a spreadsheet is in terms of what sort of information you can get out of it. A spreadsheet helps you answer questions such as "Can I afford the monthly payments on that $290,000 house?" or "What's the average daily rainfall for the first six months of this year?" or "If we increase our sales of widgets by four percent while reducing the price by a dollar a piece, how will it affect profits?" Spreadsheets are extremely useful for answering financial, numerical, and statistical questions such as these.

You can ask quite different questions of a database. For example, "What are the phone numbers and addresses of the five nearest post offices?" or "Do we have any books in our library that are about tarantulas? If so, on which shelves are they located?" or "Show me the personnel records and sales figures of our five best-performing salespeople for the current quarter."

Employees in the workplace, when given a task, need to decide whether to use a spreadsheet or a database to complete the task. Review the following scenarios and decide whether a spreadsheet or a database should be used to complete the task.

✓ **Your Turn**

Please refer to the media CD to complete Spreadsheet or Database?

Lets Review!

In this lesson, you reviewed what a database is and how it compares to a spreadsheet. Both spreadsheets and databases use tables to organize data. However, a spreadsheet is used for finances, numbers, and calculations. A database is used to store, manage, and retrieve information.

✓ **True or False**

1.1   **True/False**   A spreadsheet is a software program for storing, managing, and retrieving information.

✓ **Multiple Select**

1.2   Select all actions that a database may perform._____

      A.   Update information in more than one place at the same time.
      B.   Write a business letter.
      C.   Create data entry forms.
      D.   Find the average of four numbers.
      E.   Validate the data entered and check for inconsistencies.
      F.   Sort and manipulate the data in the database.
      G.   Conduct a query.

✓ **Multiple Choice**

1.3   The following database is displayed in _____.

      A.   data entry form view
      B.   datasheet view
      C.   design view
      D.   query view