

Databases and Killing Birds With Stones

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When speaking with technology teachers in secondary schools and asking about what they teach, I rarely receive an answer that includes relational databases. Similarly, when teaching adult groups how to use Office Suite products I often discover that most adults have difficulty understanding how to create, or simply use databases effectively. Is there a correlation between these observations?

What is a Database?

A database is a collection of records and files that are organized for a particular purpose. A database can be as simple as an address book, or as complex as a human resources and payroll system for a large company.

Some common examples of databases are:

- Library catalogue systems
- Job bank systems for employment centers
- Cash register and client information systems

A database application can help you track information and allow you to perform searches on your data. For example, you may want to find all customers with outstanding bills of more than 30 days. A database allows you to do this in a fraction of the time it normally would take using other methods.

Are Databases Worth the Time I Will Give Up Teaching Other Topics?

Databases are commonly used in many professions including retail, business, and human resource professions. Storing and retrieving information efficiently is becoming extremely important. The current trend in technology education, at upper grade levels, is to focus on web development and programming. While these topics are perfectly valid, it is likely that only those who continue to study computer sciences at post secondary institutions, and obtain jobs in the technology sector will use these skills. However, a far higher percentage of your class will likely be required to either use or manipulate databases (e.g. create queries to obtain specific information) in the general duties of their jobs. Databases are boring, have little glitz and glamour, but are extremely useful and commonly used.

What Key Concepts Should Be Taught?

Key concepts that one would need to understand in order to create a successful 'framework' of information to allow for future development is as follows:

1. What is a database
 1. Creating a database
2. Creating a table

1. Design view and table view
2. Fields
3. Data types
4. Primary keys
5. Entering data
3. Field Properties
 1. Size
 2. Caption
 3. Format
 4. Creating value lists
4. Relationships
 1. Defining relationships
 2. Rules of Normalization
5. Creating Queries
 1. Sorting
 2. Criteria
 3. Using Or, Between and In
 4. Date and Time Criteria
 5. Concatenation of Strings
 6. Calculating Values
6. Forms
 1. Using controls
 2. Moving sizing and aligning controls
 3. Form View
 4. Properties
 5. Creating a subform
7. Reports
 1. As with forms

Where Do I Start?

For heavy technology users who are highly proficient with a variety of areas within the technology sector, simply purchasing a book about databases from your local [Chapters](#) bookstore may be enough to fill in the necessary gaps. Books that contain a lot of screen shots are often easier to get through than those that are predominantly text. However, for most people, taking a course from your local college or university is recommended. Some schools/businesses hire consultants to provide a 'crash course' lasting anywhere from 3 to 24 hrs. If you are extremely proficient with related applications (like Excel or Works), this may be an option to consider. However, the majority of users are able to develop a framework of understanding after a 'crash course', but not able to create good databases or teach about them without assistance.

What Product Should I Use?

[Microsoft Access](#) is a good product to work with for a number of reasons. Like a high quality camera with both automatic and manual modes, Access has many automated processes and wizards that can be used. However, Access also allows for sophisticated design through development at the most basic levels. Using Access, you can teach about the backend of databases (tables, queries, etc) but also have the option of creating user interfaces to accept and display information in an aesthetically pleasing manner. For those who want to focus on writing code, Access provides a robust version of [Visual Basic](#) that can be

used to provide complex automation to a database while teaching programming logic and structure. By using Access, many birds can be killed using only one stone.

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