Reasons Why You Need a Database Management System

The philosopher Aristotle did not have a database – not an electronic one, anyway. But he believed in the importance of differentiating and analyzing data. In his work “Categories,” he presented 10 ways of describing a thing. These included quantity, quality, place, time, position and action. He was prepared to group data, determine its inter-relationships and come to conclusions. Such a penchant for classification – which Aristotle applied to biology, among other things – was a driving force in creating the analytical mindset for all of Western civilization. He believed that how we approach data is important.

While ancient Greeks surprisingly seem to have calculated astronomical data with amazing analog computers such as the Antikythera mechanism, we are not aware of any that stored or analyzed data. But if it were possible, the ancients might well have been happy to employ a database management system (DBMS) to put their good thinking to good use. There are many reasons to support the idea that you too could use a good database management system in your life and work.

Computers Can Quickly Answer Lots of Questions

Susan: “John, may I have your email address please?”

John: “Sure, it's john.doe@example.com.”

Meanwhile John is getting a little peeved that this was the fifteenth time that he has been asked for his email address during his first week of employment. John is shocked to find out that there is no central database where he works, and everyone seems to have developed their own spreadsheets with varying levels of accuracy and completion. Even simple collections of data like a master contact list or database table are sometimes neglected by organizations in a rush to put out fires and be seen as productive.

The cumulative waste of time throughout the entire organization by individuals seeking out such information could be quite surprising. But a centralized database, easily accessible by all, can provide quick answers to questions that sound strikingly similar to the categories of our analytical ancient philosopher.

- How many units were sold last quarter?
- What colors does the product come in?
- Where is the conference located this year?
- What time is the meeting with the client next week?
- What are the actions required to meet our targets?

Some Questions Can Be Really Complicated

Being able to delve into data and discover insights is the reason for such new-fangled ideas as data mining and analytics. But conventional databases have been answering complex questions for decades. You may want to know how many employees are qualified in a certain area. A simple query of a spreadsheet or a search of data in a directory might easily give the information that you need. But what if you need to locate only qualified employees of a certain state who have five years of experience, are willing to relocate, and speak a

certain foreign language? To query data based upon multiple criteria, you need a database management system. The more complex the query, the more robust your DBMS will need to be. A good system tells you everything you need to know with a couple of mouse clicks.

Automation Is the Key to Efficiency

Normally you look to automation to perform repetitive tasks that would take you much longer by hand. The ENIAC created firing tables for military planners in a matter of minutes in comparison to the weeks required for human labor on a similar task. Charles Babbage cried out for a steam-powered solution to the calculation of navigational charts. You count on your personal computer to handle menial tasks that might have been time- and labor-intensive for previous generations. (To learn more about Babbage, see The Analytical Engine: A Look Back at Babbage's Timeless Designs.)

Compiling a wide array of inventory or other such information and making it available for queries and reports is a necessity in today's business world. A quick search of the Google database gives nearly instantaneous results based on analysis of perhaps millions of sources. As your collection of data grows, you will need more sophisticated automatic processes to find the level of efficiency that you desire for your company.

The exception to this might be when it would actually take longer to create the automated process than to perform the manual operation itself. It is quite easy to become absorbed in the development of a digital tool so much that it really becomes overkill. Suppose that in the time that it takes you to develop that killer app, the old-school admin who manages the office supplies could have cranked it out and headed on home for dinner. A DBMS is a tool that should be used over the long term.