
RETRIEVING AND ANALYZING DATA

FROM

DATABASES

CENTER FOR ARMY ANALYSIS

FT. BELVOIR, VA

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SYNOPSIS: All large organizations in today's world, including the Army, have accumulated large amounts of data in relational databases. Most courses in relational databases focus on the proper *design* of relational databases: setting them up right in the first place. Although this is clearly an important topic, it is a topic that many organizations have little control over because their databases have *already* been designed and populated with data. The important issues then become (1) how to retrieve data from databases and (2) how to get the retrieved data in a form that makes analysis possible. These two issues will be the focus of this course. As we cover them, we will also examine the basic functionality of Microsoft *Access* with a brief look at Microsoft *SQL Server* and the data analysis capabilities of Microsoft Excel.

More specifically, the course will focus on three essential aspects of database analysis. First, it will discuss the basic functionality of *Access* and how relational databases are implemented in this package. *Access* is an enormous program, with thousands (millions?) of features. Although a one-week course cannot possibly acquaint you with all of Access's capabilities, this course will make you comfortable with Access's most important features, and it will provide you with materials for learning more about Access, depending on your future needs. Second, the course will devote considerable time to *SQL* (Structured Query Language). *SQL* is a standard for writing queries that has been implemented in various forms in all relational database programs including Access. We will do a lot of hands-on examples to see how *SQL* is implemented within *Access* (and, to a limited extent, within *SQL Server*). Finally, we will see how easily data from *Access* can be imported into Excel, and we will use some of Excel's analysis tools to analyze the resulting data.

TOPICS TO BE COVERED:

- **Relational databases**
 - Records, fields, tables: designing a table in Access**
 - Forms: using Access's Form Wizard**
 - Reports: using Access's Report Wizard**
 - Queries: using Access's Query By Example interface**
 - Relations: using Access's interface for *seeing* relationships**
 - Viewing example databases in Access (from SQL CD-ROM)**

- **SQL**
 - 92 standard and implementation in Access**
 - Brief mention of implementation in SQL Server (Query Analyzer)**
 - SELECT queries based on a single table: examples in Access**
 - SELECT queries based on multiple tables (joins): examples in Access**
 - SELECT queries for summarizing data: examples in Access**

- Excel tools for importing and analyzing data
 - ❑ Importing data with *Microsoft Query*
 - ❑ Using *StatPro* (or Analysis Toolpak) for statistical analysis
 - ❑ Using Pivot Tables to "slice and dice" data
 - ❑ Using OLAP cubes for even more extensive "slicing and dicing"
 - ❑ Brief discussion of OLAP Services in *SQL Server*
 - ❑ Using VBA to automate analysis

TEXTBOOKS AND SOFTWARE: Students will receive the texts **Beginning SQL Programming**, which includes a CD-ROM containing sample databases and a trial version of *SQL Server 7.0*), and **Using Microsoft Access 2000**. Students will also receive a copy of *StatPro* - a statistical software add-in for Excel written by Chris Albright.

BIOGRAPHY: Chris Albright received his B.S. degree in Mathematics from Stanford in 1968 and his Ph.D. in Operations Research degree from Stanford in 1972. Since then he has been teaching in the Operations and Decision Technologies Department in the Kelley School of Business at Indiana University. He has taught courses in management science, computer simulation, statistics, VBA programming, and database analysis to all levels of business students: undergraduates, MBAs, and doctoral students. In addition, he has recently taught simulation modeling at General Motors and Whirlpool. He has published over 20 articles in leading operations research journals in the area of applied probability, and he has authored the books **Statistics for Business and Economics**, **Student Execustat 3.0 MiniGuide**, the Excel-based "trilogy" **Practical Management Science** (now in its second edition), **Data Analysis and Decision Making**, **Managerial Statistics**, and, most recently, the Excel-based **VBA for Modelers**. He is also currently working with the Palisade Corporation on a statistical software package called StatPro. His current interests are in spreadsheet modeling and the development of VBA applications in *Excel* and *Access*.

PLACE: Center for Army Analysis, Ft. Belvoir, VA.

ELIGIBILITY: Military Officers who possess OPMS Functional Area 49 (ORSA) and civilian GS-1515 analysts are the target audience. A graduate degree in ORSA or ORSA-related field is preferred. Others may attend on a space available basis only.

APPLICATION: Personnel desiring to attend should apply via their Training Officer through the Army Training Requirements and Resources System (ATTRS), School Code 907, Course Code ALMC-SE, offering 02-701.

CLASSIFICATION: Personnel attending the course must FAX their Security Status information via a Visitors Request Certification to the ATTN: Security Office at (703) 806-5723 or DSN 656-5723.

POINT OF CONTACT: Further information may be obtained from the ORSA CEP course director at DSN 539-4249/4226, commercial (804) 765-4249/4226, e-mail orsacep@lee.army.mil
