RETRIEVING AND ANALYZING DATA FROM DATABASES

CONTINUING EDUCATION PROGRAM COURSE 04-502

Location: US ARMY LOGISTICS MANAGEMENT COLLEGE

26-30 JULY 2004

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***).

TOPICS TO BE COVERED:

- **Relational databases**
- **Records, fields, tables: designing a table in Access**
- **Queries: using Access's Query By Example interface**
- **Relations: using Access's interface for *seeing* relationships**
- **Examining example databases in Access**
- **SQL: 92 standard and implementation in Access**
- **Brief mention of implementation in SQL Server**
- **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**
- **INSERT, UPDATE, and DELETE queries: examples in Access**
- **Excel tools for importing an analyzing dataUsing 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**
- **Statistical analysis of data using Excel add-ins (StatPro and StatTools)**

TEXTBOOKS AND SOFTWARE: Students will receive the following: ***SQL Fundamental, 2nd edition*** by John Patrick, ***Microsoft Access Version 2002 Inside Out*** by Helen Feddema and ***StatPro*** a statistical software add-in for Excel written by Chris Albright.

CHRIS ALBRIGHT: 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, database analysis, and .NET programming 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" (all now in their second editions) ***Practical Management Science***, ***Data Analysis and Decision Making***, and ***Data Analysis for Managers***, and, most recently, the Excel-based ***VBA for Modelers***. (Information about these books can be found at http://www.indiana.edu/~mgtsci. He has also worked with the Palisade Corporation on a statistical software package called StatTools (the successor to his own StatPro add-in). His current interests are in spreadsheet modeling, the development of VBA applications in Excel, and Web development with .NET programming.

ADMINISTRATIVE INFORMATION

PURPOSE: The ORSA CEP was initiated to support the OPMS Functional Area 49 Program and now supports the overall Department of Army analytical effort by providing instruction in highly demanded and used ORSA techniques in DOD.

PLACE: Bldg. 12500, Fort Lee, VA.

TIME: Class will begin at 0900 Monday 26 July with graduation at 1100 Friday 30 July.

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.

CLASSIFICATION: Unclassified.

APPLICATION: Personnel desiring to attend should apply via their Training Officer through the Army Training Requirements and Resources System (ATRRS), School Code 907, Course Code ALMC-SE, offering 04-502.

POINT OF CONTACT: Further information may be obtained from the ALMC web site at http://www.almc.army.mil/SED/ALMC-SE/INDEX.ASP.