Education and Training

This chapter briefly discusses the main features of a training program suitable for the database environment.

The following topics are covered:

- Overview
- Database Concepts
- Database Design
- Programming
- Operating Procedures and Techniques
- Data Entry
- Database Query and Report Generation

Overview

The DBA is responsible for education and training in database concepts and the procedures and techniques involved in operating in the database environment. The DBA develops the training curriculum and selects the content of the training materials to be used. Information systems personnel must be trained to implement, operate, and maintain the database environment. Users external to the data processing area should receive training in database concepts, data availability, data entry, report generation, and the use of query facilities.

It is wise to produce a general training program for each type of person who will come into contact with the database environment. In this program, input (knowledge) expectations and output (performance) expectations should be recorded together with the training that is to be given, to ensure that the person meets the output expectations. A person requiring training can then be readily evaluated with the input criteria and remedial training, or pre-course reading can be prescribed before attending the appropriate training course. This approach will ensure the effectiveness of training.

The training given should correspond with the work requirements of the individual. The DBA’s training should be carefully planned; it should be timely (i.e., not several months before or after the DBA is called upon to use it); and it should be immediately followed by a period of "reinforcement" (i.e., practical use of what the DBA has been taught.

When the DBMS is initially installed, a significant number of people will require training. The same is true when a new project starts or a new system is installed. Apart from these major requirements, ongoing training will be needed (for example, for new employees). For this reason, "packaged" training (for example, tape cassettes and workbooks) is recommended for the small numbers of staff and full courses for the large numbers.

Database Concepts

All personnel who interact with the database environment should have an understanding of the concepts of database management systems that includes

- why DBMSs evolved;
- similarities and differences between conventional data processing systems and DBMSs;
- advantages and disadvantages of the reduction of data duplication;
- flexibility inherent in the DBMS;
- ease of use and accessibility;
- the end user; differing "views" of the same data; the logical structuring capability of the DBMS;
- functions provided by the DBMS;
- importance of security, data integrity and recovery procedures in the database environment;
- need for database standards and controls.

Database Design

Database designers need training in the design methodology preferred at the site so that they can quickly become productive.

A large portion of training time should be spent on practical exercises that teach and give practice in the use of the site’s standards, particularly for documentation. In a public course provided by Software AG, this may not be possible. In that case, the student should receive training in site standards immediately after returning to work.

The subjects taught should include

- a high-level understanding of Adabas facilities, their control and operation;
- loading files and file definitions; Adabas direct access method (ADAM) files; estimating disk space requirements;
- transaction processing; ET/BT logic;
- integrity; restart/recovery; autobackout; autorestart;
- security; passwords; ciphering;
- an overview of the Adabas utilities;
- program design and efficiency.

Programming

Training for computer programmers should be based on installation procedures and standards. The training must be as practical as is possible with a large portion of the time spent on exercises.

During the course, students should be expected to write an application program which will actually be run on a computer. To provide some measure of continuity and reinforcement, provision should be made for them to complete this exercise after the course has ended.

The subjects taught in this training should include

- an overview of the Adabas facilities applicable to the applications programmer;
- Adabas direct mode commands and/or high level programming interfaces (SQL, Natural) facilities available to the programmer;
- designing an Adabas program for efficiency and ease of maintenance.

Operating Procedures and Techniques

Training provided for computer operations personnel should be based on installation procedures and standards. It should also be as practical as possible (for example, running application systems, executing recovery and restart procedures).

The subjects taught should include

- operating procedures; starting an Adabas session; shutting down an Adabas session; normal operation; exceptions; problem recovery and restart;
- running utilities: what they do and what to expect;
- scheduling computer time; communication with the DBA;
- performance management;
- controls and audit trails;
- error reporting and follow-up.

Obviously, these topics are heavily installation-dependent and as such, the training provided in this area will need to be given by the installation’s own staff.

Data Entry

This form of training will be an essential part of that given to personnel in the user department when a new application system is installed. As such, it is heavily application system-dependent. However, it is possible to give some general guidelines.

Training should include

- input procedures, whether at a terminal or by input document; application rules;
- standards and control; auditing;
- what the system does with the input;
- input errors and their correction.

Database Query and Report Generation

The content of this type of training will depend largely upon whether it is being given to data processing or user personnel. The former will require training in the commands and facilities of the query facilities to be used (for example, Natural) together with details of how to construct and run a request.

The user, on the other hand, will require much more specialized training. It will need to be geared much more closely to the application system that the DBA is to use.

The subjects that should be covered include

- how the query facility works (an overview only); for example, Natural or SQL;
- the standard reports produced by the application system-their contents and adaptability;
- the query facility commands, functions and use with an emphasis being given to the standards in force.