CO22001 Database Administrator

Section 5.1a

Database Administrator

The database administrator (DBA) should be positioned in middle-top management in an Organisation. DBAs are highly paid, due to the nature of their responsibilities and technical know-how.

The importance of their role varies according to the complexity and number of databases in the organisation.

A DBA is involved in a large number of tasks:

- design and organisation
    - Data Definition
    - Physical Structure
    - Data Dictionary/Directory

DBA cont...

- user interface
  - Provision of documentation
  - Liaison with users/Education
  - GUI
- security
  - Normal Operations
  - Failure Conditions
  - Compatibility with non-DBMS
  - Test Databases
- system performance
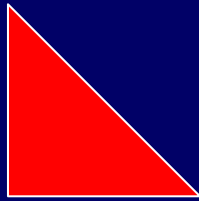 - Timing
  - Performance tuning

DBA Tools
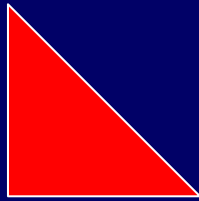
To assist the DBA in his or her duties, a number of tools are available:

- Loading routines
- Reorganising routines
- Journaling routines
- Recovery routines
- Statistical Analysis routines
- Data Dictionary

DBMS Product Evaluation

Another task performed by the DBA is the evaluation and comparison of DBMS's, so that the correct product can be selected to meet the database and customer specification. This cannot be done in isolation from the context in which the product will operate, and should be done before database implementation. Consider:

- Price
- Documentation
- Support Agreements
- Data Structurer supported
- Performance
- Tools

Data Structures Supported
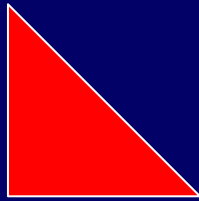
The DBA must select which data model to use. In this module on relation data models have really been considered. There are also object-oriented, hierarchical, and network models. Some data sets will fall naturally into one model. For instance, a hierarchical model can be specified as a network, but network has more overheads. The DBA must weigh up all the pros and cons of each model.

Note that the selection of DBMS should not occur until after proper business analysis, data analysis, and logical design. Thus model used should not be affected by the DBMS selected.
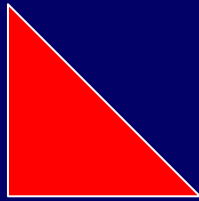
Performance
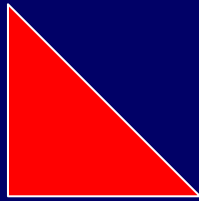
Response depends on a variety of factors

- Quality of software-implementation and engineering
- Hardware support
- CPU power
- Main memory
- Disks
- Dedicated DB machine
- Volume of data
- Series of benchmarks available.

Tools

- Faculties offered in addition to DBMS, eg
  - Report writer
  - Forms generator
  - 4GL
  - Query Language
  - Data Dictionary
- How user-friendly are the tools?
  - Query language - adhere to any standard? (eg SQL for a relational (DBMS)
  - If the DBMS selected is relational, one can check how it measures up against Codd's rules.