

Database Administration (DBA)

- DBA is a resource that supervises both the database and the use of the DBMS.
- DBA is usually a group, but sometimes it refers to the database administrator.

Figure 8.1

Responsibilities of DBA

FIGURE 8.1
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Responsibilities of
DBA

1. Policy Formulation and Implementation
 - a. Access privileges
 - b. Security
 - c. Disaster planning
 - d. Archives
2. Data Dictionary Management
3. Training
4. DBMS Support
 - a. DBMS evaluation and selection
 - b. DBMS responsibility
5. Database Design

Policy Formulation and Implementation

- Access Privileges
 - Users should access the database only in ways in which they are entitled.
- Security
 - Access restrictions ensure that the database is secure.
 - Passwords, encryption, and views implement security.
 - Effective password protection is critical.

Planning for Disaster

- Databases can be harmed from hardware and software malfunctions, and outside forces like floods and power outages.
- DBA's must take active role in formulating disaster recovery plans.

Figure 8.8

Disaster Recovery

FIGURE 8.8a
.....
Programs involved
in database
processing also
maintain a journal

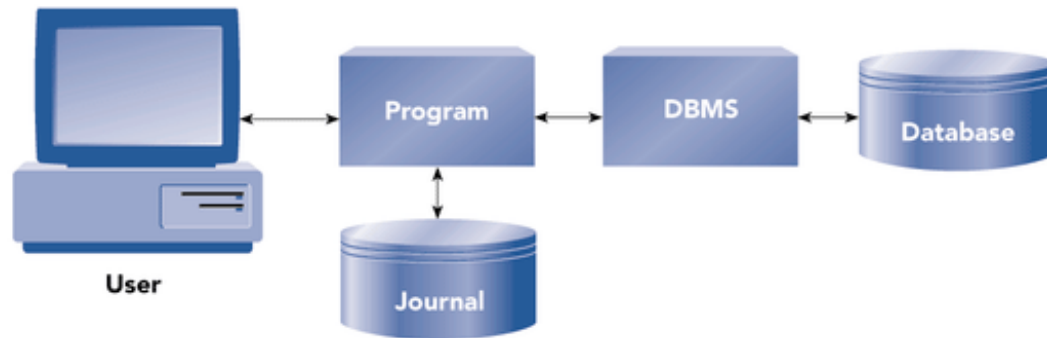
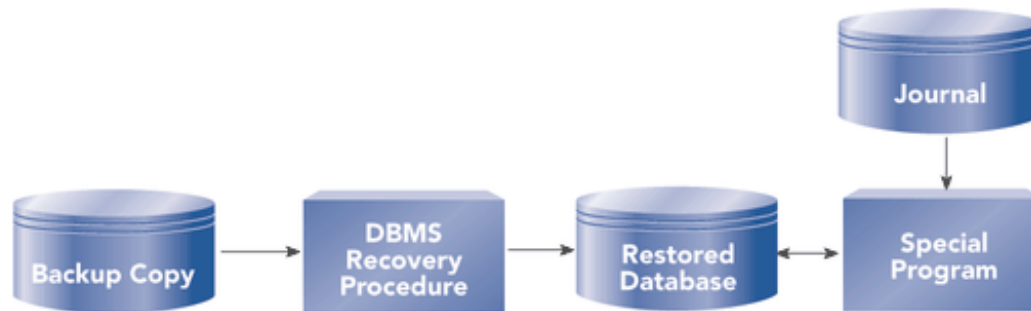


FIGURE 8.8b
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Journal is used in
recovery



Archives

- An archive is a place where corporate data is kept.
- Information in an archive is removed from the database and stored in the archive for future reference.
- Archives are usually kept in a mass-storage device like a disk, tape, CD, or a DVD.
- It is important such archives be kept off-site to allow recovery should disaster strike

Data Dictionary Management

- Essentially the catalog, but it contains a wider range of information, including information on tables, fields, indexes, and programs.
- The DBA manages and updates the data dictionary, which establishes naming conventions for tables, fields, etc., and data integrity rules.

Additional responsibilities of DBA

- Training
 - DBA gives training on the DBMS and how to access the database
- DBMS Support
 - The DBA is charged with all aspects of a DBMS, including selection and management
 - DBA must evaluate each prospective DBMS using a checklist like that shown in Figure 8.10.

Additional Responsibilities of DBA

- Database design
 - DBA is responsible for tuning the design, i.e., making changes that improve system performance.

- A database administrator's responsibilities can include the following tasks:
- Installing and upgrading the database server and application tools
- Allocating system storage and planning future storage requirements for the database system
- Modifying the database structure, as necessary, from information given by application developers
- Enrolling users and maintaining system security
- Ensuring compliance with database vendor license agreement
- Controlling and monitoring user access to the database
- Monitoring and optimizing the performance of the database
- Planning for backup and recovery of database information
- Maintaining archived data
- Backing up and restoring databases
- Contacting database vendor for technical support
- Generating various reports by querying from database as per need