Advantages and Disadvantages of Database Systems

Advantages
A number of advantages of applying database approach in application system are obtained including:

1. Control of data redundancy
The database approach attempts to eliminate the redundancy by integrating the file. Although the database approach does not eliminate redundancy entirely, it controls the amount of redundancy inherent in the database.

2. Data consistency
By eliminating or controlling redundancy, the database approach reduces the risk of inconsistencies occurring. It ensures all copies of the data are kept consistent.

3. More information from the same amount of data
With the integration of the operated data in the database approach, it may be possible to derive additional information for the same data.

4. Sharing of data
Database belongs to the entire organization and can be shared by all authorized users.

5. Improved data integrity
Database integrity provides the validity and consistency of stored data. Integrity is usually expressed in terms of constraints, which are consistency rules that the database is not permitted to violate.

6. Improved security
Database approach provides a protection of the data from the unauthorized users. It may take the term of user names and passwords to identify user type and their access right in the operation including retrieval, insertion, updating and deletion.

7. Enforcement of standards
The integration of the database enforces the necessary standards including data formats, naming conventions, documentation standards, update procedures and access rules.

8. Economy of scale

Cost savings can be obtained by combining all organization's operational data into one database with applications to work on one source of data.

9. Balance of conflicting requirements

By having a structural design in the database, the conflicts between users or departments can be resolved. Decisions will be based on the base use of resources for the organization as a whole rather that for an individual entity.

10.Improved data accessibility and responsiveness

By having an integration in the database approach, data accessing can be crossed departmental boundaries. This feature provides more functionality and better services to the users.

11.Increased productivity

The database approach provides all the low-level file-handling routines. The provision of these functions allows the programmer to concentrate more on the specific functionality required by the users. The fourth-generation environment provided by the database can simplify the database application development.

12.Improved maintenance

Database approach provides a data independence. As a change of data structure in the database will be affect the application program, it simplifies database application maintenance.

13.Increased concurrency

Database can manage concurrent data access effectively. It ensures no interference between users that would not result any loss of information nor loss of integrity.

14.Improved backing and recovery services

Modern database management system provides facilities to minimize the amount of processing that can be lost following a failure by using the transaction approach.

Disadvantages

In split of a large number of advantages can be found in the database

approach, it is not without any challenge.   The following disadvantages can be found including:

1. Complexity

Database management system is an extremely complex piece of software. All parties must be familiar with its functionality and take full advantage of it.   Therefore, training for the administrators, designers and users is required.

2. Size

The database management system consumes a substantial amount of main memory as well as a large number amount of disk space in order to make it run efficiently.

3. Cost of DBMS

  A multi-user database management system may be very expensive.   Even after the installation, there is a high recurrent annual maintenance cost on the software.

4. Cost of conversion

When moving from a file-base system to a database system, the company is required to have additional expenses on hardware acquisition and training cost.

5. Performance

As the database approach is to cater for many applications rather than exclusively for a particular one, some applications may not run as fast as before.

6. Higher impact of a failure

The database approach increases the vulnerability of the system due to the centralization.   As all users and applications reply on the database availability, the failure of any component can bring operations to a halt and affect the services to the customer seriously.