

DATA STORING METHODS

The history of the filing method used in the storage of data in the computer environment, which is sometimes used today, is old. Today, although the so-called "database" systems have been developed under far superior conditions, the filing method may still be preferred in some small applications due to its simple structure and direct access. What are the differences and advantages of these two methods?

1. Classic Method: File Operations

In the filing process, the data is stored directly in the recording environment as one or more files, and operations (recording, query, correction, deletion) are performed on them by means of application programs. In the organization of the data filing method, each application program has direct access to the data files. While preparing the implementation programs, all kinds of activities in the recording environment from the place of registration to the place should be considered, kept under control and designed accordingly. These programs need to know how to store the data in the files. That is, application programs must contain all the commands required to access the data file. This leads to multiple repetitions. If any changes are made to the data files, the commands that provide access must also be corrected separately in each application program [1]. Another major problem arises when data files are shared by different users in different application programs in a network environment; it is security problem. The control and security of the data is not fully assured or requires a lot of effort. Which user is able to access the data, which is authorized to change ... these must be well thought out and planned and specified individually in the application programs.

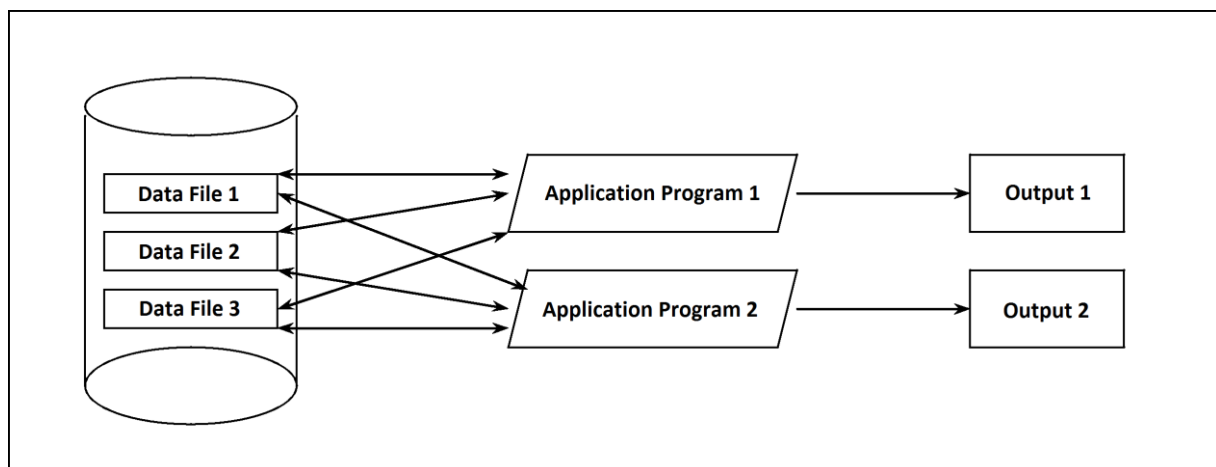


Figure 1.1. Data and application program relation according to file storage method.

EXAMPLE:

See the following examples for the filing method:

konuk01.htm, konuk02.htm, konuk_isle.asp : Entering data into a text file

konuk oku.asp : Reading data from text file

1.2. Databases

"The database is a software system that enables the storage, updating and accessing of data through special techniques, free of unnecessary duplication, accuracy, consistency, confidentiality and security, in order to use the database jointly in many independent applications. (Fischer, 1993))" [2]

The concept of database has been reached after long experience and stages in the computing world and as an alternative to classical file management, it is possible to carry out large capacity, fast, large data stacks, and to develop the appropriate, comprehensive, responsive network software. In a conventional filing system, the most important feature is application-dependent; that is, a file is created by which software can be accessed depending on the software; whereas in database management there is an principle data-application independence; that is to say, once created, theoretically it is possible to access any programming language or application program. [*] [3]

The database system consists of a database and special software that manages it. This particular software is named database management software / system (DBMS). Access, Dbase, Oracle, Paradox are such software. The database is a collection of related data and not only stores the data, but also the relationships between them. The structures of modern databases based on the relational model used today are similar to each other. [3] The data is saved in tables consisting of rows (records) and columns (fields) and different tables containing common or related data can be associated. "Database management software performs, organizes and controls data access paths, authorizations and data integrity, such as registration, deletion, correction, querying, indexing, multi-user reading, updating, sharing, etc. , forms, menus, reports, queries, macros, etc. are among the services provided by the database management software (Healey,1993)" [2].

One of the important benefits of database management software is to provide data independence. Application programs are not busy with where and how the data is saved, only transmitting the relevant request, the database software performs the requested process in the background and more quickly than the filing operations. This software acts as a means and controller between data and application programs. Any changes in the database or application programs do not affect each another, however, the database management software ensures that the data will be provided correctly. Thus, there is no need any effort to protect application programs and database. The services provided by the database system have also facilitated the development of new implementation programs [1].

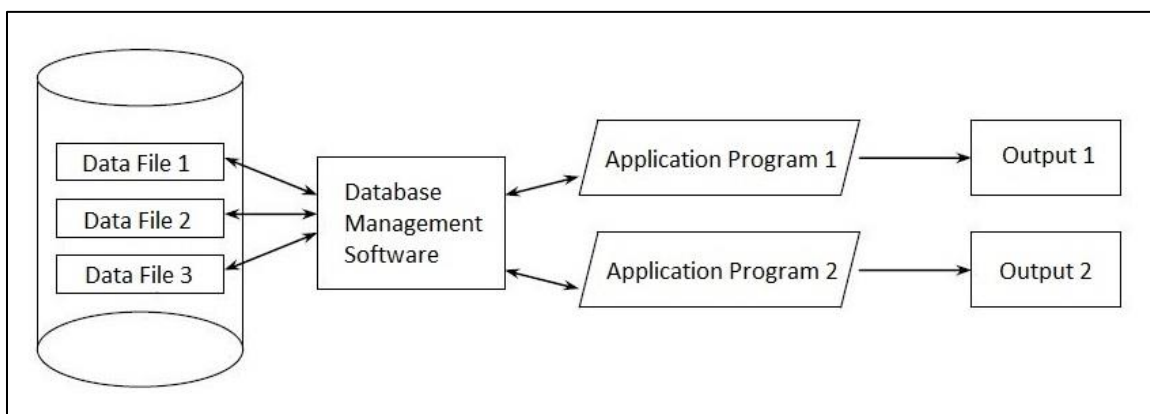


Figure 1.2. Relationship between data files, database management system and applications.

1.2.1. Advantages of Database

The advantages of the database over the filing method can be summarized as follows;

1. Database management software, which serves one or more users, ensures that data standards are determined and presented at the desired standard, fulfillment of security requirements, elimination of incompatibilities and integrity of the database from a single center. With this centralized control, user privileges are determined and continuously monitored.
2. Thanks to the database management software, a single database can be used by different users at the same time in different applications, can be shared safely and quickly
3. Application programs run independently of the physical environment in which the data is stored. As access to data is done through database management software, application programs do not need to know the data structure.
4. New application programs and database applications can easily be integrated into the system thanks to the services provided by the database management software.
5. In the filing process, different data files or files are used for each application, which results in significant data redundancy. There may be valid reasons for storing more than one copy of some data. However, over-repetition of data is a waste of labor, time and cost. An efficient database management software ensures that data is stored properly and copies are updated.
6. The database management software is easy to use thanks to its menus, queries, reports and interfaces. In case of deletion or unwanted changes in the data, functions such as backup and process monitoring can be restored.

1.2.2. Disadvantages of Database

Database systems may have some disadvantages as well as benefits. These are:

1. Software and hardware costs of database systems can be high. However, long-term benefits will overcome this through appropriate and efficient implementation programs.
2. Database systems are more complex than filing. In theory, complex systems are adversely affected by data processing.
3. Theoretically, to a large extent, there is a risk of loss or deterioration of data transfers during the application program is running. However, backup and correction procedures are often provided by the database management software and this risk is minimized.