

An example of the application of a relational databank

The program COMPINDX

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1. Introduction

The demonstration of the program COMPINDX is meant to illustrate the use of database-management systems in practical applications. The program COMPINDX has been written in the programming language connected with the database-management system dBASE III plus, a software package commercially available for IBM-PC/XT and compatible micro-computers. dBASE III plus as well as other database-management systems does not only provide the means for easy storage and retrieval of data but also the means of writing application programs.

dBASE III plus (like most other database-management systems available for micro-computers) is a relational database system. The following simple example will show how relations can be used to combine information contained in two different files and how this information can be used to facilitate data entry and data correction.

2. Using dBASE III plus

dBASE III plus can be used by both the programmer and the non-programmer. dBASE III plus provides the means of easy creation of database files and with a set of some 30 basic commands it is possible for the non-programmer to create database files, enter and modify data, produce reports or select subsets of his data. The special dBASE III plus program ASSIST makes it easy for an inexperienced user to get started with dBASE III plus. ASSIST allows the interactive creation of database files, entry and modification of data etc.

It is, however, the dBASE III plus programming language, which makes dBASE III plus an extremely powerful tool for data management and data processing. The following example will show, how this programming language and the possibility of defining relations between files can be used in practical applications.

3. Example

The program COMPINDX was written for database storage of price data and the compilation of a price index. In this demonstration data storage and data entry will be emphasized. The problem to be dealt with here is the correction of price data entries.

Price data are generally collected for a list of goods (items) identified by numbers.

For the correction of price data entries the following information will have to be displayed on the screen:

- the number of the item the price refers to (item number)
- the description of the item the price refers to (item description)
- the old price of the item.

3.1. Structure of the files

In this example the item descriptions and the price data are stored in two separate files. The information contained in the two files is displayed in the following tables (The names in brackets are the names of the variables (fields) in the database file).

Table 3-1: File containing prices (File A)

Item number (itemno)	Price (newprice)
1111	1.00
1122	1.20
2222	1000.00
2233	10.00

Table 3-2: File containing item descriptions (File B)

Item number (itemno)	Item descriptions (itemdesc)
1111	Bread
1122	Butter
2222	Car
2233	Life insurance

3.2. Combination of information in the files

If not only prices and item numbers but also item descriptions are to be displayed on the screen information has to be extracted from both files. This can be done in different ways. The most efficient way of doing this in dBASE III plus is to define a relation between the two files.

The two files have the variable item number in common and so this variable (field) can be used to define the relation between the two files. The file containing the prices is related into the file containing the item descriptions through the variable "itemno".

This means, whenever a new record in the file containing the price data is accessed (File A) the record with the same item number in the file with the item descriptions (File B) will be accessible.

The program source text in the dBASE III plus programming language given below is extracted from the source code of the program COMPINDX. It creates the data correction screen displayed in the following table.

Table 3-3: Data correction screen

D A T A C O R R E C T I O N F O R M O N T H : 8701	
ITEMNUMBER:	1111
DESCRIPTION:	Bread
PRICE:	1.000
ENTER NEW PRICE OR PRESS <RETURN> TO LEAVE UNCHANGED	

Table 3-4: Program source code in dBASE III plus language

```

*****
*** open the file containing the price data under the alias A *
*****
SELECT A
USE PR8701
*****
*** open the file containing the item descriptions under the *
*** alias B. An index file is necessary to relate the two files*
*****
SELECT B
USE itemdesc INDEX itemdesc
*****
*** define the relation between the two files. *
*** File A (containing the prices) is related into file B *
*** through the field itemno *
*****
SELECT A
SET RELATION TO itemno INTO itemdesc
*****
*** go through the following loop until there are no more *
*** price data *
*****
DO WHILE .NOT. EOF()

    STORE newprice TO inewprice
    @ 12,10 SAY [ENTER NEW PRICE OR PRESS <RETURN> TO LEAVE UNCHANGED]
    *****
    *** display the item number, the item description and the price*
    *****
        @ 6, 2 SAY [ITEMNUMBER:]
        @ 6,15 SAY itemno
        @ 7, 2 SAY [DESCRIPTION:]
    *****
    *** the symbol "b->itemdesc" tells the program to look for the *
    *** item description in file B. Due to the relation defined *
    *** above the program will find the item description for the *
    *** current itemnumber *
    *****
        @ 7,15 SAY b-> itemdesc
        @ 10, 2 SAY [PRICE: ] GET inewprice
        READ
    *****
    *** replace the old value with the new value *
    *****
        REPLACE newprice WITH inewprice
        @ 5,1 CLEAR TO 12,78
    *****
    *** go to next record *
    *****
        SKIP

ENDDO

```

4. Conclusion

dBASE III plus can be used to implement both, easy and more sophisticated applications of databank systems. Applications which are not very complicated can be implemented without in-depth knowledge about programming and databases.

The dBASE III plus programming language can be used to implement data entry programs with programmed plausibility checks and with facilities for easy data entry. Well written data entry programs can enable staff who are inexperienced in the use of computers to enter data quickly and without errors.

The demonstration of the program COMPINDX will show, how the dBASE III plus programming language can be used to implement an easy-to-use system for data entry, data correction and data retrieval.