FACTS AT YOUR FINGERTIPS

Computing is all about the storage and processing of information. One of the most important types of software for storing data is the database. We take a detailed look at the uses to which databases are put on home micros, pointing out the limitations of using them on the smaller machines and showing how they are used to best advantage.

A *database* is a collection of data about one subject. For example, a database could hold one of the following sets of information: the names and addresses of members of a club; the expenses incurred by club meetings; the dates and venues of club meetings; or the payment of club fees by the membership. However, a database system could just as easily include all of these sets of data in one large file.

A *file* is a collection of records, each of which comprises a number of fields. In some applications, such as accounts packages, the structure of the file is fixed by the software, but in a database system it is more usual for the file layout to be chosen to suit each task. This involves determining the size of each field and defining the type of contents to be stored in it. In a name and address file, for example, each person's details occupy an individual record: the name is stored in one *character field* and each line of the address in separate fields. Such fields are usually thirty characters long, allowing no more than thirty letters in each.

The alternative to a character field is a *number field*, which allows the program to do calculations on the data stored in it and thus produce useful reports. In our club membership file, the program might calculate how many members have paid their fees, what the total income has been for the year so far, or how much is still to be collected. Not all numerical data, however, needs to be stored in a number field. Telephone numbers are a good example of those on which calculations are never performed, and these are stored in character fields.

Before you can tell whether a file could effectively be used on your computer, you need first to estimate the maximum size of the file (how many records you will want to keep), calculate the amount of memory needed for each record, and then determine whether you have enough memory available to store the file. A record with a name and three address fields of 30 characters each and a telephone number taking 10 characters occupies a total of 130 bytes. If you have a disk

Collecting One's Thoughts
Most people keep personal information about themselves unsystematically filed on scattered pieces of paper. A home microcomputer database might be useful as a central store of insurance records, property details, bank account numbers, etc. Furthermore, it should be invaluable to anyone who collects stamps, coins, records, or any collection that lends itself to systematic classification

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