5.3 Data structures

Data is often stored in **files**, which consist of **records**, which in turn consist of **fields**, as illustrated in Figure 5.1.

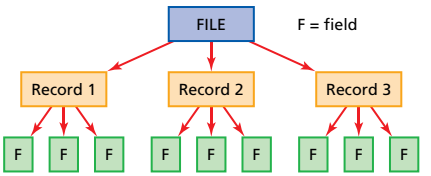

Figure 5.1 Structure of a data file

For example, a company may have set up a file to include information about their employees in the following format:

reference number/name/date started/department

Figure 5.2 shows a possible structure for the file COMPANY EMPLOYEE FILE. The information is held in one file with five records and four fields per record. In this example, the first field (the reference number) is known as the **key field** or **primary key**. Each primary key is unique and is used to locate a record in a file during a search operation.

Record 1	1416	J. Smith	30/05/2003	Sales
Record 2	1417	K. Shah	11/02/1989	Manager
Record 3	1431	R. Marques	15/10/2001	Finance
Record 4	1452	T. Rodriguez	27/09/1995	Sales
Record 5	1461	V. Schultz	09/12/2005	Graduate
	field	field	field	field

FILE

Figure 5.2 The file 'COMPANY EMPLOYEE FILE'

Also note the data types for each field:

reference number	numeric data (integer)
name	text
date	date format (dd/mm/yyyy)
department	text

In reality, COMPANY EMPLOYEE FILE would be much larger, containing all the records for all the company's employees. This type of file is often referred to as a **flat file structure**.