IT414

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Chapter 01

1.4 What are the responsibilities of the DBA and the database designer?

There is a need for a chief administrator to oversee and manage these resources. The DBA is responsible for authorizing access to the database, coordinating and monitoring its use, and acquiring software and hardware resources as needed. The DBA is accountable for problems such as security breaches and poor system response time. The Database designer are responsible for identifying the data to be stored in the database and for choosing appropriate structures to represent and store this data. It is their responsibility to communicate with all prospective database users in order to understand their requirements and to create a design that meets these requirements. They interact with each potential group of users and develop views of the database that meet the data and processing requirements of these groups.

1.8 Identify some informal queries and update operations that you would expect to apply to the database shown in Figure 1.2.

Informal queries

1. Retrieve the transcript- a list of all courses and grades- of ‘Smith’.

2. List the names of students who took the section of the ‘Database’ course offered in fall 2008 and their grades in that section.

3. List the prerequisites of the ‘Database’ course.

Updates

1. Change the class of ‘Smith’ to sophomore.
2. Create a new section for the ‘Database’ course for this semester.
3. Enter a grade of ‘A’ for ‘Smith’ in the ‘Database’ section of last semester.

1.10 Specify all the relationships among the records of the database shown in Figure 1.2.

The relationships of the tables

Course and section both have course\_number, therefore the table section is related to course through course\_number.

Student and grade\_report both have student\_number, therefore the table grade\_report are related to student table through student\_number.

Course and prerequisite both have course\_number, therefore the table prerequisite is related to the table course through course\_number.

Section and and grade\_report both have section\_identifier, therefore the table grade\_report is related tot able course through section\_identifier.

1.13 Give examples of systems in which it may make sense to use traditional file processing instead of a database approach.

Using a traditional file processing might be advantageous when a DBMS may involve unnecessary overhead costs that would not be incurred in traditional file processing

Certain industries and applications have elected not to use general-purpose DBMSs. For example many computer-aided design tools used by mechanical and civil engineers have proprietary file and data management software that si geared for the internal manipulations of drawings and 3d objects.

Communication and switching systems designed by companies like AT&T were early manifestations of database software that was made to run very fast with hierarchically organized data for quick access and routing of calls.

GIS implementations often implement their own data organizing schemes for efficiently implementing functions related to processing maps, physical contours, lines, polygons, and so on.

Single user applications

Embedded systems with limited storage capacity.;