Unit - 1: Database Concepts

Introduction

Basic Concepts and Definitions

The key to organizational success is effective decision making which requires timely, relevant and accurate information. Hence information plays a critical role in today's competitive environment. Database Management Software (DBMS) simplifies the task of managing the data and extracting useful information out of it. In this chapter, we shall learn about the basic concepts of databases and also learn how to use DBMS for some applications.Data is a collection of raw facts which have not been processed to reveal useful information. Information is produced by processing data as shown in Figure
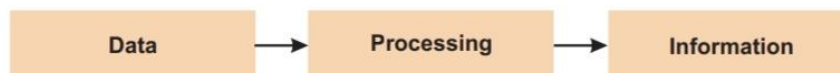

Figure 1.2(a): Data Processing

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For example, given the data of the test marks of all the students in a class (data), the average, maximum and minimum marks in the class can be used as indicators of

the performance of the class (information). In other words, we can say that we have extracted the information about average, maximum and minimum marks for given student data in Figure 1.2(b).

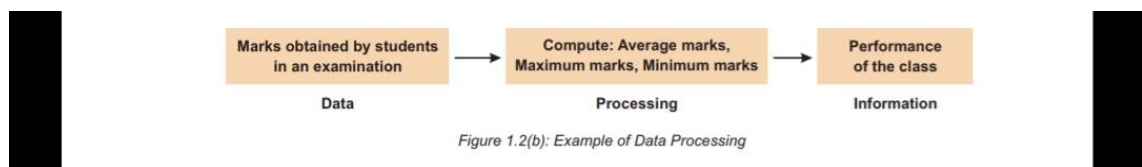Figure 1.2(b): Example of Data Processing

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Databases are being used extensively in our day-to-day life. Be it business, engineering, medicine, education, library, to name a few. For example, consider the name, class, roll number, marks in every subject of every student in a school. To record this information about every student in a school, the school might have maintained a register, or stored it on a hard drive using a computer system and software such as a spreadsheet or DBMS package. Such collection of related data that has been recorded, organized and made available for searching is called a Database.

A database has the following properties:

1) A database is a representation of some aspect of the world also called miniworld.

Whenever there are changes in this miniworld they are also reflected in the database.

2) It is designed, built and populated with data for specific purpose.

3) It can be of any size and complexity.

4) It can be maintained manually or it may be computerized.