

University of Al-Anbar
College of computer and
Information System

System Analysis and Database Design

2nd class

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1.1 Introduction

Today, people use computers to perform many tasks formerly done with other tools. Computers have replaced typewriters for creating and modifying documents.

They've surpassed electromechanical calculators as the best way to do math.

They've also replaced millions of pieces of paper, file folders, and file cabinets as the principal storage medium for important information. Compared to those old tools, of course, computers do much more, much faster — and with greater accuracy. These increased benefits do come at a cost, however. Computer users no longer have direct physical access to their data. When computers occasionally fail, office workers may wonder whether computerization really improved anything at all. In the old days, a manila file folder only “crashed” if you dropped it — then you merely knelt down, picked up the papers, and put them back in the folder. Barring earthquakes or other major disasters, file cabinets never “went down,” and they never gave you an error message.

A hard drive crash is another matter entirely: You can't “pick up” lost bits and bytes. Mechanical, electrical, and human failures can make your data go away and never to return.

If you are storing important data, you have four main concerns:

- 1- Storing data needs to be quick and easy, because you're likely to do it often.
- 2- The storage medium must be reliable. You don't want to come back later and find some (or all) of your data missing.
- 3- Data retrieval needs to be quick and easy, regardless of how many items you store.
- 4- You need an easy way to separate the exact information that you want today from the tons of data that you don't want right now.

What is data?

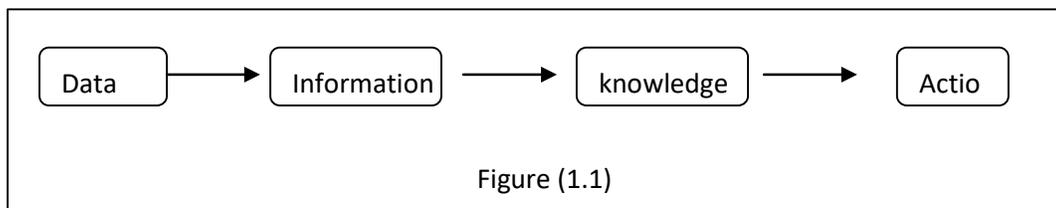
**** Data can be defined in many ways. Information science defines data as unprocessed information.**

What is information?

**** Information is data that have been organized and communicated in a coherent and meaningful manner.**

- Data is converted into information, and information is converted into knowledge.

**** Knowledge is information evaluated and organized so that it can be used purposefully as shown in figure (1.1)**



1.2 What is a Data Base ?

A **database** is an organized collection of data for one or more uses, typically in digital form. The data can be textual, like order or inventory data, or it can be pictures, programs or anything else that can be stored on a computer in binary form.

One way of classifying databases involves the type of their contents, for example: bibliographic, document-text, statistical.

The purpose of a database is to store and retrieve related information, so databases are designed to offer an organized mechanism for :

- Storing
- managing
- and retrieving information.