

Introduction to Database Fundamentals

Course Code: CIS231

Module Title: Database Management System

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What is a database?

“A database is a computerised record keeping system”

Date, C.J. (2003). *An Introduction to Database Systems 8th Edition*. Pearson Education

Record Keeping Systems

- File system on a computer
- Word document
- Excel Spreadsheet
- Access database
- Manual card index file
- Files on a USB stick
- Are these all databases?

Database Functions

- Databases should be able to:
 - Store
 - Manipulate
 - Retrieve

But databases aren't like buckets!

- Database systems are not just a mass of data
- It isn't just about what they can hold
- They are organised
- So we need a more precise definition



More Detailed Definition

- “We define a database as an organised collection of logically related data”.

Hoffer, J., Ramesh, V. and Toppi, H. (2010). *Modern Database Management, 10th Edition*. Pearson Prentice Hall.

What does this mean?

- Organised
- Logically related
- Data

Organised

- Data is structured so as to be easily stored, manipulated and retrieved by users.
- It is no good just having some data if we don't know how to get it in order to look at it and use it.

Related

- Pieces of data do not exist in isolation
- For example:
 - In a salesperson's database, it is natural for the customer's name and the customer's address to be stored together
 - They are ***related***
 - Together, with other data about the customer, they are part of a meaningful set

Types of Data 1: Traditional

- Text such as names, address etc.
- Numbers such as: how many children.
- Dates such as a date of birth

Types of Data 2: Multi-media

- Images
- Sounds
- Video
- Scans of documents

Data and Information

- Traditionally there has been a distinction made between ‘data’ and ‘information’
- Data are ‘*raw facts*’

Baker, Kenneth	19.01.80	98778373
Bagum, Ammena	01.02.81	97327627
Ako, Sarah	08.08.81	98737373
Finkle, Clive	09.09.81	93838383
Mc Farren, Debra	01.01.80	98383837
Sinseros, Douglas	27.05.80	99344222

Information

- Data that has been *processed* and *given meaning*

Class list for Databases Module

Autumn Semester 2010

Student Name	Student ID	Date of Birth
Kenneth Baker	98778373	19 th Jan 1980
Ammena Bagum	97327627	1 st Feb 1981
Sarah Ako	98737373	8 th Aug 1981
Clive Finkle	93838383	9 th Sep 1981
Debra McFarren	98383837	1 st Jan 1981
Douglas Sinseros	99344222	27 th May 1980

Examples of Use

- Supermarket checkout
- Purchasing using a credit card
- Booking a holiday
- Using a library
- Taking out insurance
- Obtaining a passport or other official document
- Using the Internet
- Studying at college or university