

Chapter 1 :-

1
Data : Collection of data objects and their attributes.

Attribute : description (Property) of entity.

entity : Object in the real world that is distinguishable from other objects

Tuple : Collection of attributes

DBMS (Database Management System): Integrated set of programs used to create and maintain a database.

example: MySQL

Advantages of DBMS :

- o Data independence
 - 1- generated and stored data should be kept ~~data~~ separate from applications
 - 2- Same data can be used in many different ways
- o Efficient data Access
 - 1- data can stored on external storage devices.
- o Data integrity and security
 - 1- enforce ^{قواعد تكامل البيانات} integrity constraints on the data
- o Data Administration
 - 1- Data sharing between multiusers
So it reduces the ^{ازدواج} redundancy on data
- o Concurrent Access
 - 1- Many users can access same data without occur problem in consistency or integrity
- o Crash Recovery
 - 1- Protect data from system failures
- o Reduce Application development time
 - 1- Many important function that are common to many application are stored in DBMS $\Rightarrow$ High level interface.
facilitates quick development of Application

Data Model : collection of concepts for describing the data

Semantic data model : معنى البيانات

⇒ Model easier for user to describe the data, example ERD ⇒ ER Diagram

Schema : description of data without data

DBMS ~~are~~ considered to be 3-levels

1- external schema

الشكل الخارجى

2- Conceptual =

3- Physical. =

كيف البيانات مخزنة
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Data Independence : ~~data~~ gives the ability to modify in one level without affecting the next level.

Logical D.I : محمى / Isolated (Isolated) Users are shielded (Protected) from change in the logical structure

Physical D.I : = = = = = = = = physical
Storage details

Queries : Means question to DBMS

example, what is the name of student with id = 1160022