

Faculty of Economic Sciences, Business, and Management Sciences

Department of Accounting

2nd Year License

Module : Computer Sciences

Definitions

Data : refers to raw facts, it being unprocessed and lacking significance.

Exemples : numbers, textes, images, audios, videos.

Information : refers to processed and organized data that has been given meaning and can be used for decision-making.

Exemple : The mean temperature will reach a high of 45° today.

database (often abbreviated as DB) : is a collection of a organized, structured and related data.

Database Management System (DBMS) : collection of programs that enables the users to create and maintain the database.

DBMS functions

- a. **Creation**: During this phase, users define the structure of the database, including its tables, fields, and relationships.
- b. **Data Manipulation**: Users, including technical users, need a way to retrieve specific data from the database. This is where SQL (Structured Query Language) comes in. SQL is used to write queries that request data based on various criteria, and for normal user, users often use application interfaces.
- c. **Integrity**: Enforcing data integrity rules and constraints to ensure data accuracy.
- d. **Security** : DBMS supports recovery mechanisms to safe data against loss and corruption.
- e. **User Authentication**: Before granting access to the database, a DBMS verifies the identity of users. This process, known as user authentication, typically involves usernames and passwords, and in more secure systems
- f. **Concurrency control** : It refers to the methods and mechanisms used to ensure that multiple users or processes can access and manipulate the data in a database concurrently (simultaneously) without causing data inconsistency, corruption, or conflicts.

Exemples of DBMS : SQL Server, oracle, my SQL, postgre, Access...

The components of DBMS : tables, forms, queries, reports.

Practical work 1

1. Open a new Access file (save it as PW1).
2. Create the "Employer" table with the following fields (IdEmployer (primary key), Name, Age, Title, Married, Address, Phone Number, Date_of_Birth).
3. Change the field types as follows:
 - *IdEmployer* : NuméroAuto
 - *Name* : Texte
 - *Age* : Numérique
 - *Title*: Texte, then use the Assistant List de Choix to enter the three choices (Mr. or Mrs. or Miss).
 - *Adresse* : Texte
 - *Married* : Oui/Non
 - *Phone Number*: Texte
 - *Date_of_Birth*: Date/heure
4. Change the field properties as follows:
 - a. The size (Taille) of the Address field (champ) is set to 100, and display all its letters in uppercase.
 - b. Display the first letter in uppercase and the others in lowercase for the Name field.
 - c. Add an input mask for the Phone Number field and the Date_of_Birth.
 - d. Add a validation test for the Age field such that: $25 \leq \text{Age} \leq 50$, then add the following error message: "**The employee's age must be between 25 and 50.**"
 - e. Do not accept empty text for text-type fields.
5. Enter the following records (enregistrement) :

<i>IdEmployer</i>	<i>Name</i>	<i>Age</i>	<i>Title</i>	<i>Married</i>	<i>Adresse</i>	<i>Phone Number</i>	<i>Date_of_Birth</i>
1	Ahmed	48	Mr.	Oui	BISKRA	033745825	12/02/1976
2	Amina	27	Mrs.	Non	EL ZRIBA	033745689	24/12/1997
3	Omar	50	Mr.	Non	BISKRA	033735698	31/10/1974
4	Farida	41	Mss.	Oui	TOLGA	0773571471	15/03/1983
5	Amel	42	Mrs	Oui	BISKRA	0663740058	30/10/1982
6	Toufik	22	Mr.	Non	SIDI OKBA	033736699	05/08/2002

6. Export the data from the table Employer to Excel, keep the name suggested by Access, and do not save the export steps.
7. Rename the table "Employer."
8. Delete the field Address and the fifth record.