

Lab Work1

Duration: 2 sessions

Objective of the Practical Work:

The aim of this practical session is to build familiarity with relational database management systems (RDBMS), specifically using MySQL, for effective database manipulation. By the end of the session, students should be able to:

- Understand the structure and functionality of relational DBMS tools such as **PhpMyAdmin** and **XAMPP**
- Access and operate **MySQL** through both its graphical user interface and command-line interface
- Create and manage databases efficiently
- Master essential **Data Definition Language (DDL)** commands including CREATE, ALTER, and DROP
- Insert data into tables and modify database schemas as needed

Exercise 1: Creating a Database

1. Access MySQL via the command-line mode (CMD)
2. Create a database named departement
3. Create a database named departement_name_Group
4. Display existing databases
5. Delete the database departement

Creating the Schema

1. Select the database departement_name_Group
Example: departement_Sellami_G2
2. Create the following three tables: Etudiant, Module, and Evaluation, specifying all elements:
 - Table name
 - Field names and data types
 - Primary key
 - Foreign key
 - Null values allowed or not

Table Definitions:

- Etudiant (NumIns, NomEtud, PrenomEtud, DateNais)
 - Module (Code_Mod, Intitule_Mod, Coeff)
 - Evaluation (NumIns, Code_Mod, DateEvaluation, Note)
3. Display the list of created tables
 4. Show the structure of each table

Table Etudiant

```
NumIns  INTEGER(4)
nomEtud  VARCHAR(20)
PrenomEtud  VARCHAR(20)
Datenais  DATE
```

Table Module

```
Code_Mod  VARCHAR(5)
Intitule_Mod  VARCHAR(30)
Coeff  DECIMAL(4,2)
```

Table Evaluation

```
NumIns  INTEGER(4)
Code_Mod  VARCHAR(5)
DateEvaluation  DATE
Note  DECIMAL(4,2)
```

Exercise 2: Inserting Data

1. Insert the following records into each table using SQL queries:

Etudiant Table:

```
Etudiant(1, 'Nom1', 'Prenom1', '2001-02-10')
Etudiant(2, 'Nom2', 'Prenom2', '2002-02-15')
Etudiant(3, 'Nom3', 'Prenom3', '2004-02-23')
Etudiant(4, 'Nom4', 'Prenom4', '2002-07-22')
Etudiant(5, 'Nom5', 'Prenom5', '2002-11-14')
```

Module Table:

```
Module ('SL2IBD', 'Database', 4)
Module ('SL2IPI', 'Imperative Programming', 3)
Module ('SL2IAL', 'Algorithms', 4)
Module ('SL2IPW', 'Web Programming', 3)
```

Evaluation Table:

```
Evaluation (1, 'SL2IBD', '2023-01-17', 11.5)
Evaluation (1, 'SL2IPI', '2023-01-18', 13)
Evaluation (1, 'SL2IAL', '2023-01-19', 7.5)
Evaluation (1, 'SL2IPW', '2023-01-20', 19.75)

Evaluation (2, 'SL2IBD', '2023-01-17', 10.5)
Evaluation (2, 'SL2IPI', '2023-01-18', 11)
Evaluation (2, 'SL2IAL', '2023-01-19', 14.5)
Evaluation (2, 'SL2IPW', '2023-01-20', 8.75)

Evaluation (3, 'SL2IBD', '2023-01-17', 16)
Evaluation (3, 'SL2IPI', '2023-01-18', 6)
Evaluation (3, 'SL2IAL', '2023-01-19', 11.25)
Evaluation (3, 'SL2IPW', '2023-01-20', 13.5)

Evaluation (4, 'SL2IBD', '2023-01-17', 9)
Evaluation (4, 'SL2IPI', '2023-01-18', 8.75)
Evaluation (4, 'SL2IAL', '2023-01-19', 11.25)
Evaluation (4, 'SL2IPW', '2023-01-20', 14.5)

Evaluation (5, 'SL2IBD', '2023-01-17', 10.25)
Evaluation (5, 'SL2IPI', '2023-01-18', 15)
Evaluation (5, 'SL2IAL', '2023-01-19', 8.25)
Evaluation (5, 'SL2IPW', '2023-01-20', 11.5)
```

2. Display all tuples from each table using:

```
SELECT * FROM table_name;
```

Exercise 3: Modifying the Schema

Use SQL queries to modify the structure of the tables according to the instructions below:

1. Change the data type of the PrenomEtud attribute in the Etudiant table to increase its size by 5 characters.
2. Add a new attribute age to the Etudiant table with a default value of 20.
3. Add a new attribute lieunais (place of birth) to the Etudiant table:
4. Remove the age attribute from the Etudiant table:

Exercise 4:

Create the following table:

```
CopierModifier  
CREATE TABLE article (  
    N°article INT,  
    Titre VARCHAR(255),  
    Contenu VARCHAR(255)  
);
```

1. Identify the errors?
2. Correct these errors