Experiment 10: Execution of CRUD operations from front end using Database connectivity

Step 1: Install MySQL on Windows

1. **Download MySQL Installer:**
   o Go to: https://dev.mysql.com/downloads/installer/
   o Choose **"mysql-installer-community"** (around 400 MB).
2. **Run the Installer:**
   o Select **Developer Default** setup type.
   o Follow the prompts to install MySQL Server, MySQL Workbench, and other tools.
   o When prompted, create a **root password** (remember this!).
3. **Finish Installation (For windows)**
   o Complete the installation.
   o Launch **MySQL Workbench** (installed alongside) to manage databases easily.

Once installed, open MySQL Workbench (installed with MySQL) to manage your databases easily.

   For Linux:

   sudo apt update
   sudo apt install mysql-server
   sudo service mysql start
   // Set root password if needed.

Step 2: Create Database and Table in MySQL Workbench

1. Open **MySQL Workbench**.

2. Connect to **Local instance MySQL** (use root and your password).

3. Open a new SQL tab and run:

   ```
   CREATE DATABASE testdb;
   USE testdb;
   CREATE TABLE users (
     id INT AUTO_INCREMENT PRIMARY KEY,
     name VARCHAR(50),
     email VARCHAR(50)
   );
   ```

4. Click Execute (lightning bolt icon) to create DB and table.

Step 3: Install Node.js and npm on Windows (It connects to the MySQL database and processes data.)

Go to https://nodejs.org/en/download/

Download the Windows Installer (LTS recommended).

Run the installer and follow the setup (accept defaults).

After installation, open Command Prompt and run:

```
node -v
npm -v
```

You should see version numbers confirming the install.

Step 4: Set up Backend Project

Create a folder for your backend project, e.g., C:\crud-app.

Open Command Prompt and navigate there:

cd C:\crud-app

Initialize npm project:

npm init -y

Install required packages:

npm install express mysql2 body-parser cors

Open Notepad and copy code and save file as **server.js** inside C:\crud-app and paste the backend code

Step 5: Run Backend Server

In Command Prompt inside C:\crud-app folder, run:

node server.js

You should see:

MySQL connected...

Server running on port 3000

Step 6: Setup Frontend

1. **Create an index.html file anywhere you like (e.g., C:\crud-app\index.html).**
2. **Paste the frontend HTML+JS code I shared.**
3. Open index.html by double-clicking it in Windows Explorer — it will open in your browser.

Step 7: Test the App

- Use the page to add, update, delete users.
- The frontend talks to your backend at http://localhost:3000.
- Backend connects to MySQL and updates data accordingly.