

Java HTTP Login API with JDBC (MySQL - restdb)

Problem Statement

Develop a RESTful login API using Java's built-in `HttpServer` and `JDBC` connectivity to a MySQL database named ``restdb``.

Requirements

1. Use `HttpServer` to listen on port 8000.
2. Handle `POST` requests at the ``/login`` endpoint.
3. Accept form-encoded credentials: ``username=...&password=...``.
4. Validate the credentials using a MySQL table ``users`` in the ``restdb`` database:

```
CREATE TABLE users (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    username VARCHAR(50),  
    password VARCHAR(50)  
);
```

5. Respond with:
 - 200 OK and 'Login successful' if credentials match.
 - 401 Unauthorized and 'Invalid credentials' if they do not.
 - 405 Method Not Allowed if method is not POST.

Sample Request

```
curl -X POST -d "username=admin&password=admin" http://localhost:8000/login
```

Sample Data

```
INSERT INTO users (username, password) VALUES ('admin', 'admin');
```

Steps to Run the Application

Step 1: Install and start MySQL. Create the ``restdb`` database:

```
CREATE DATABASE restdb;
```

Step 2: Create the ``users`` table and insert a sample user:

```
USE restdb;  
CREATE TABLE users (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    username VARCHAR(50),  
    password VARCHAR(50)  
);  
INSERT INTO users (username, password) VALUES ('admin', 'admin');
```

Step 3: Download the MySQL Connector JAR

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Visit: <https://mvnrepository.com/artifact/mysql/mysql-connector-java>

Step 4: Compile the Java code:

Linux/macOS:

```
javac -cp .:mysql-connector-java-8.0.33.jar SimpleHttpLogin.java
```

Windows:

```
javac -cp .;mysql-connector-java-8.0.33.jar SimpleHttpLogin.java
```

Step 5: Run the server:

Linux/macOS:

```
java --add-modules jdk.httpserver -cp .:mysql-connector-java-8.0.33.jar SimpleHttpLogin
```

Windows:

```
java --add-modules jdk.httpserver -cp .;mysql-connector-java-8.0.33.jar SimpleHttpLogin
```

Step 6: Test the login API:

```
curl -X POST -d "username=admin&password=admin" http://localhost:8000/login
```

Expected Output:

Login successful