International Islamic University Chittagong

Department of Computer Science and Engineering

LAB REPORT

Course title	:	Software Engineering Sessional & Software Development 2
Course Code	:	**CSE-3638 & 3640**
Report No	:	**06**
Report Title	:	**Database, SQL/NoSQL, and ORM (Object-Relational Mapping)**

Submitted By

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Semester	:	6th

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Submission Date : 22/06/2025

Overview

This lab we focused on setting up MySql, performing basic CRUD operations. It also covered API testing using tools like Postman.

2. Objectives:

- Understand how to set up and configure a Database.
- Learn to perform basic MySql operations (Create, Read, Update, Delete).
- Integrate a backend project with the database.

3. Tools and Setup

- JavaScript (Node.js)
- Express.js
- MySql
- NoSQL DB
- Postman

What Is a Database?

It's a structured system that stores data in a way that makes it easy to access, manage, and update. For example, an online bookstore might use a database to keep track of books, customers, and orders.

Types of database:

1. Relational Databases (SQL)
2. NoSQL Databases

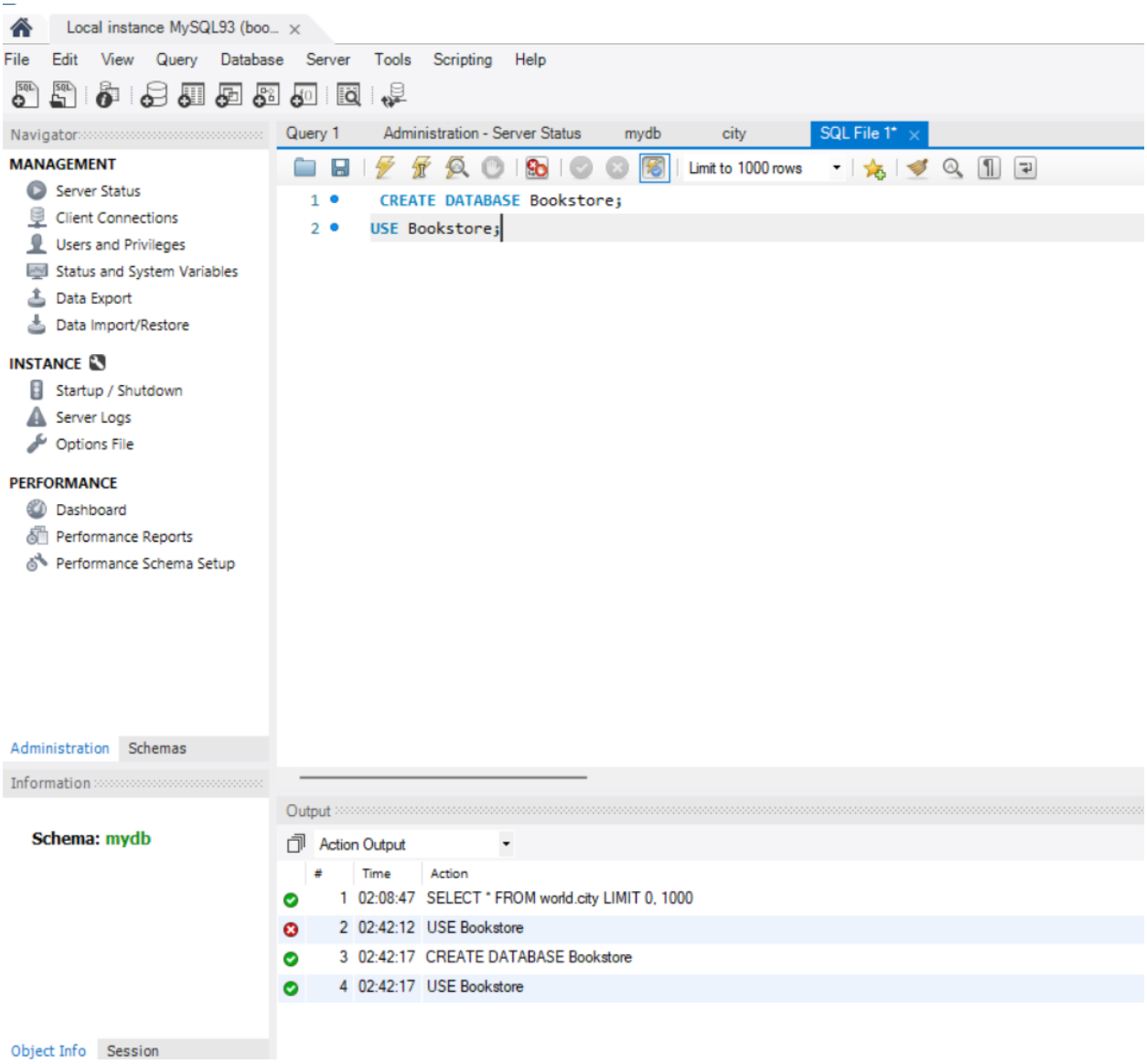
1. **Database Setup**

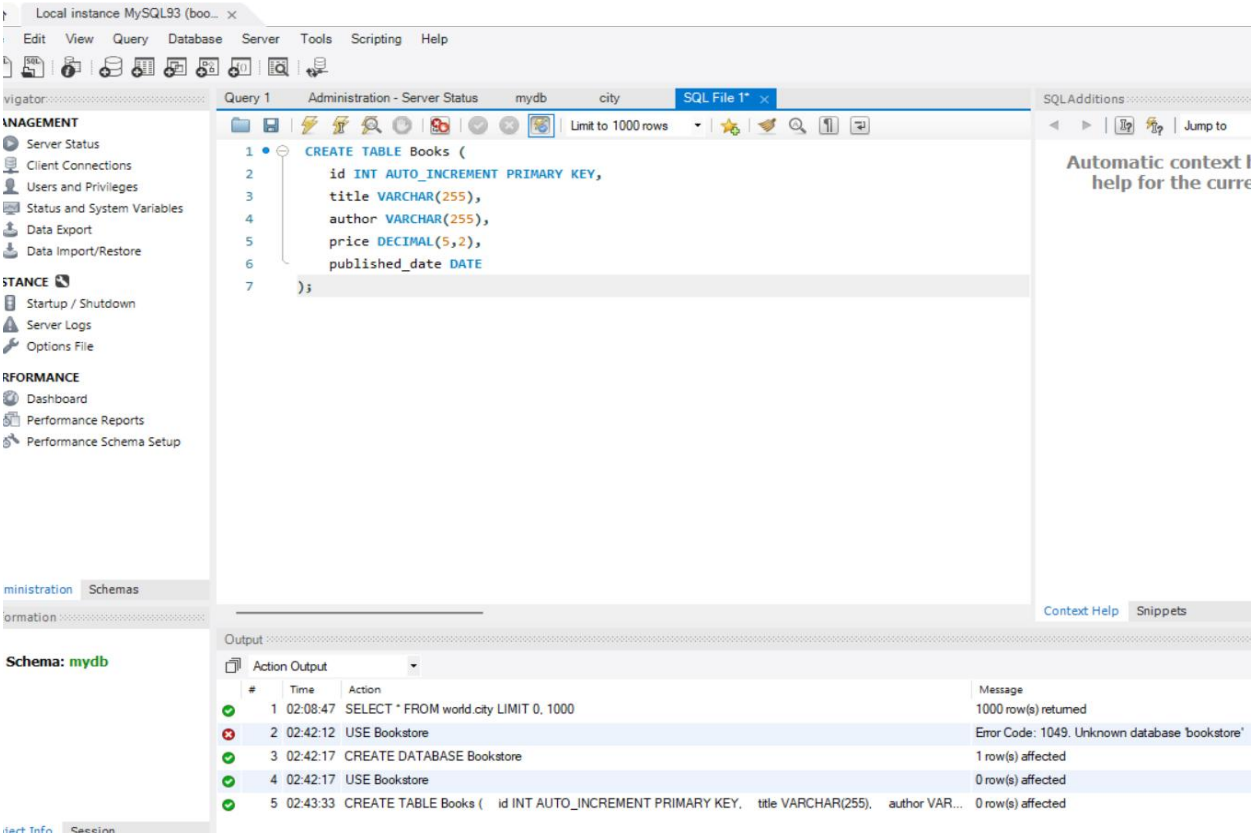
2. Write Basic SQL Queries

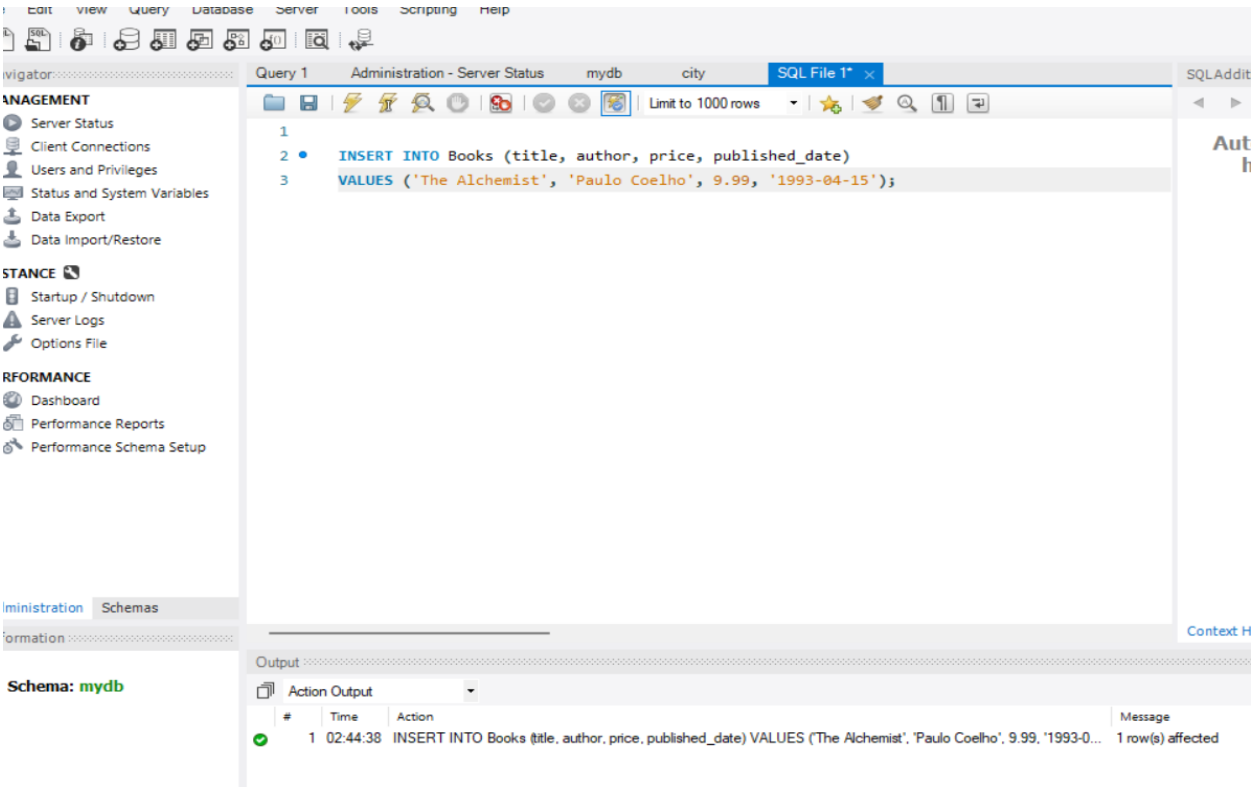
- **Write and execute the following queries for your relational database:**

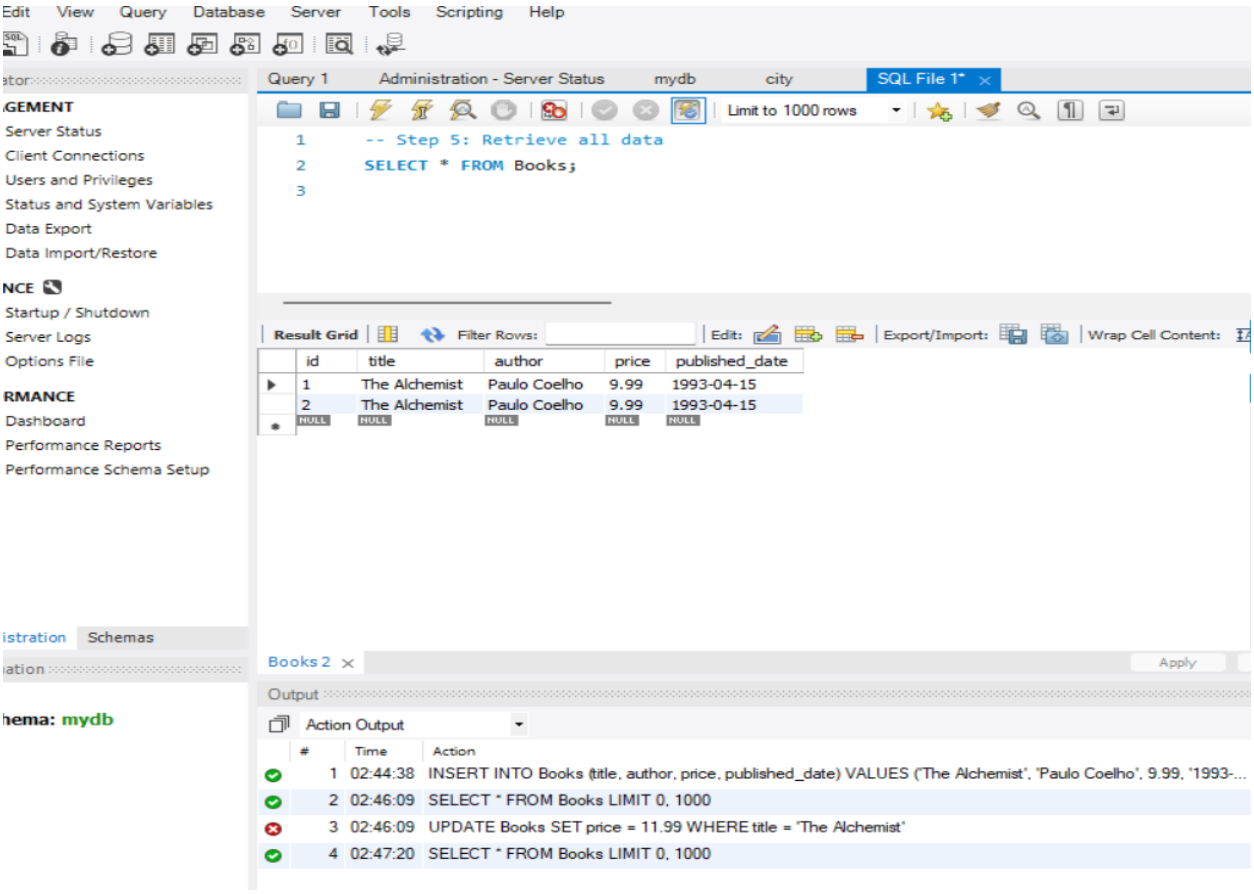
  - **CREATE TABLE**
  - **INSERT INTO**
  - **SELECT * FROM**
  - **UPDATE**
  - **DELETE**

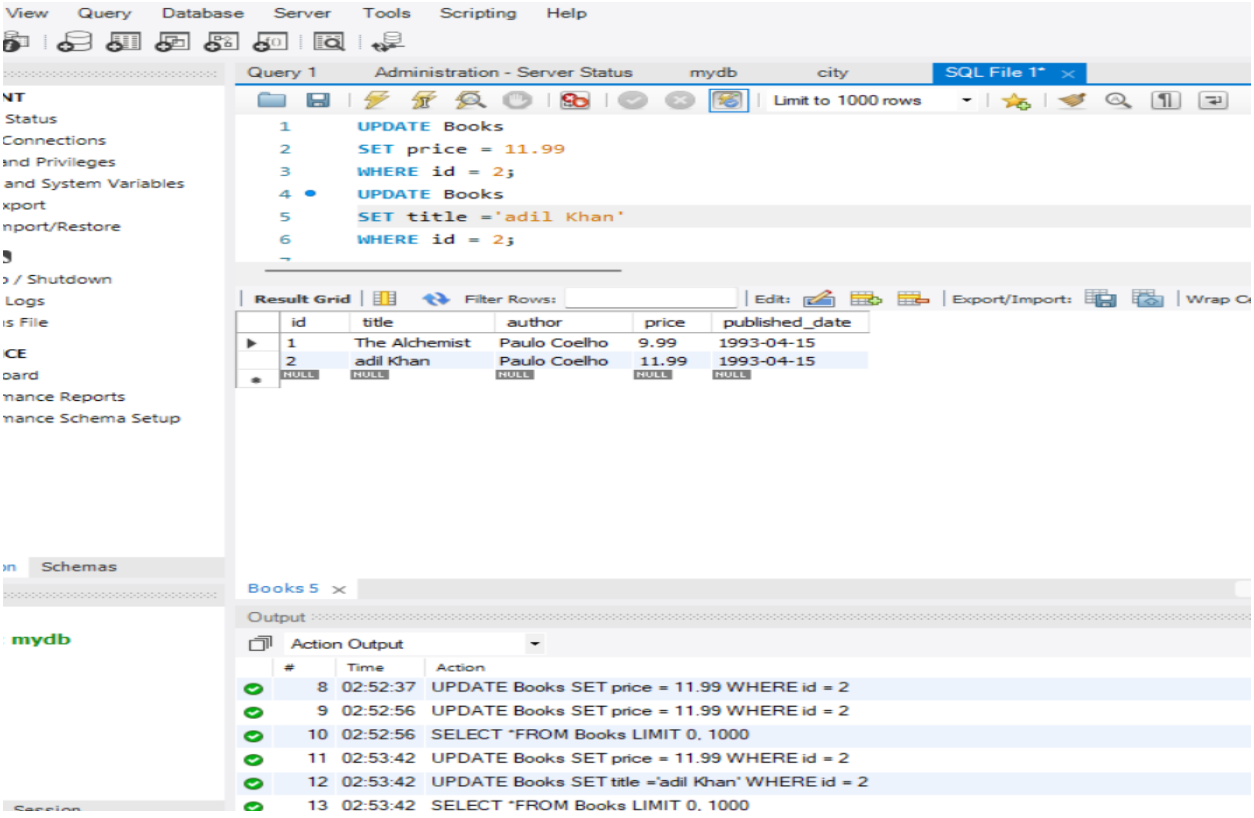
  CREATE TABLE

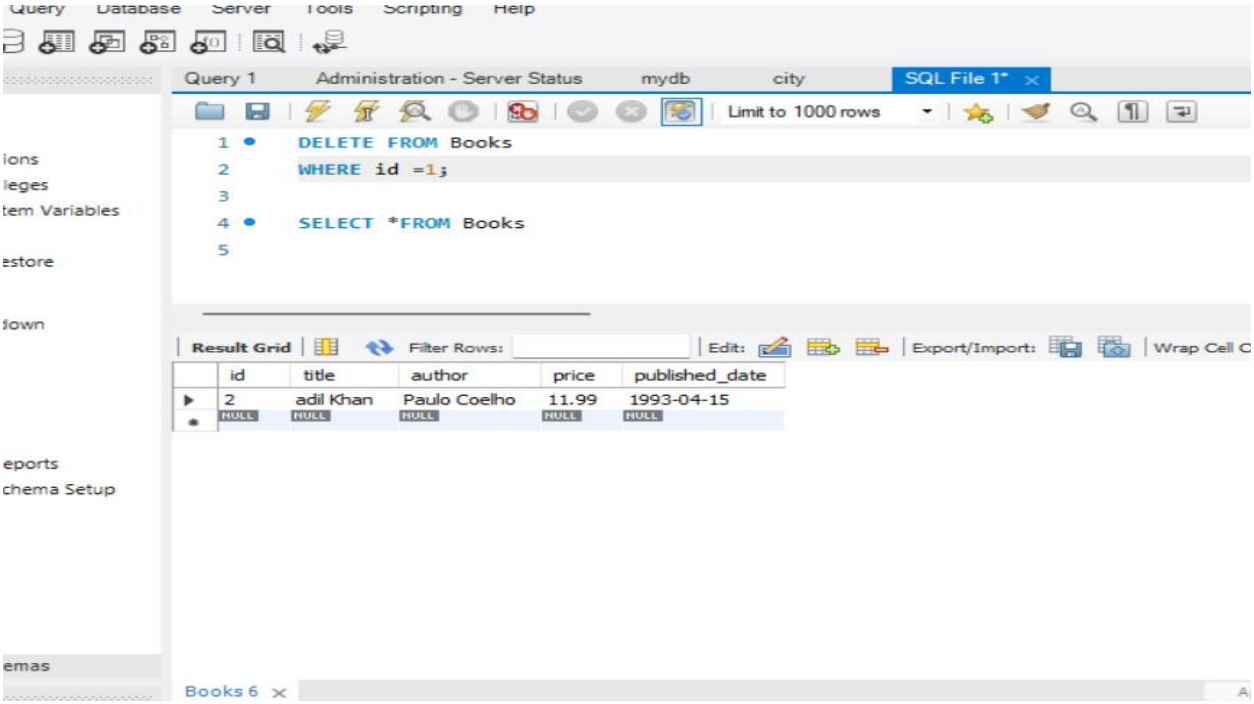



Local instance MySQL93 (boo...
Edit View Query Database Server Tools Scripting Help
Query 1 Administration - Server Status mydb city SQL File 1*
Limit to 1000 rows
1 CREATE TABLE Books (
2 id INT AUTO_INCREMENT PRIMARY KEY,
3 title VARCHAR(255),
4 author VARCHAR(255),
5 price DECIMAL(5,2),
6 published_date DATE
7);
SQLAdditions
Jump to
Automatic context
help for the curre
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
Startup / Shutdown
Server Logs
Options File
Dashboard
Performance Reports
Performance Schema Setup
Schemas
Context Help
Snippets
Schema: mydb
Output
Action Output
Time Action Message
1 02:08:47 SELECT * FROM world.city LIMIT 0, 1000 1000 row(s) returned
2 02:42:12 USE Bookstore Error Code: 1049. Unknown database 'bookstore'
3 02:42:17 CREATE DATABASE Bookstore 1 row(s) affected
4 02:42:17 USE Bookstore 0 row(s) affected
5 02:43:33 CREATE TABLE Books (id INT AUTO_INCREMENT PRIMARY KEY, title VARCHAR(255), author VAR... 0 row(s) affected

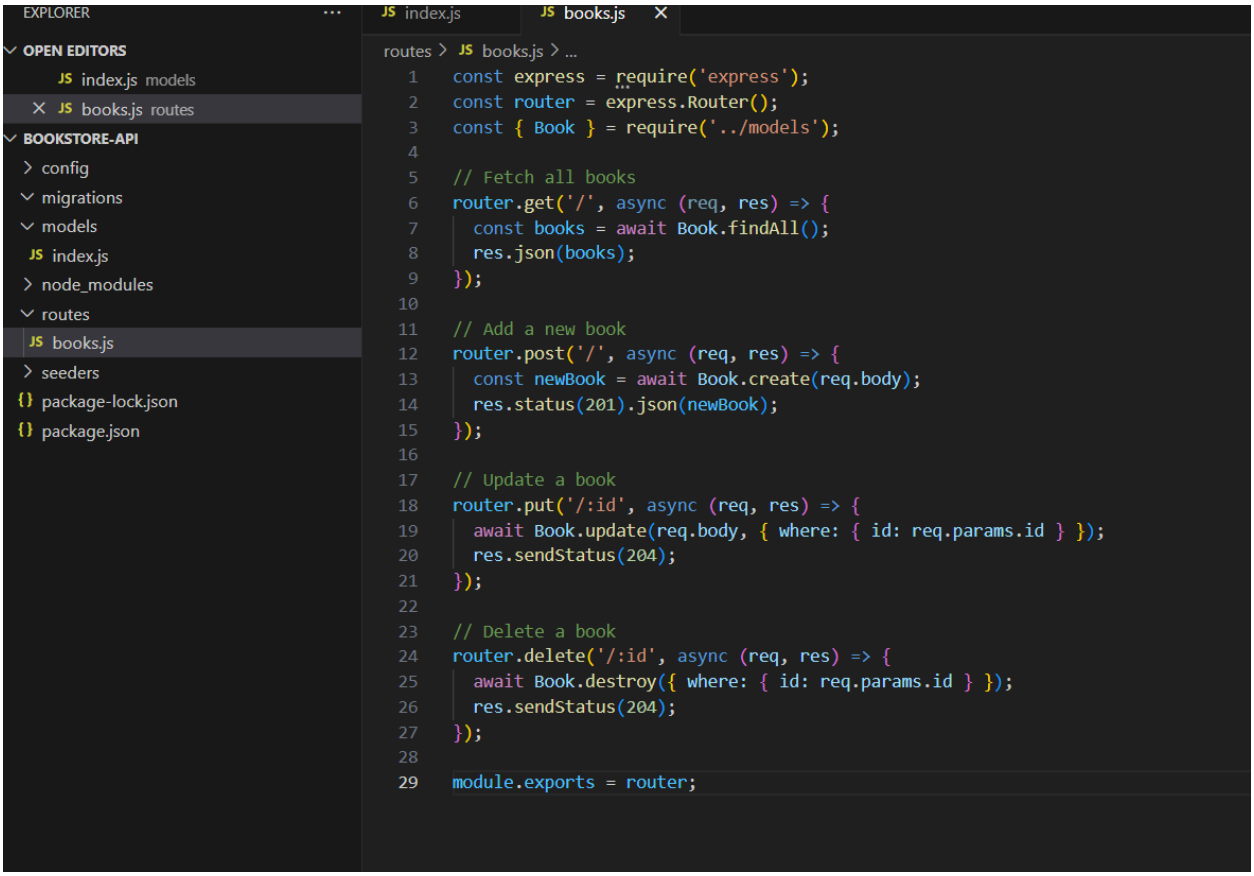

Edit View Query Database Server Tools Scripting Help
Query 1 Administration - Server Status mydb city SQL File 1*
Limit to 1000 rows
1
2 INSERT INTO Books (title, author, price, published_date)
3 VALUES ('The Alchemist', 'Paulo Coelho', 9.99, '1993-04-15');
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
Startup / Shutdown
Server Logs
Options File
Dashboard
Performance Reports
Performance Schema Setup
Schemas
Schema: mydb
Output
Action Output
Time Action Message
1 02:44:38 INSERT INTO Books (title, author, price, published_date) VALUES ('The Alchemist', 'Paulo Coelho', 9.99, '1993-0... 1 row(s) affected


Edit View Query Database Server Tools Scripting Help
Query 1 Administration - Server Status mydb city SQL File 1*
Limit to 1000 rows
1 -- Step 5: Retrieve all data
2 SELECT * FROM Books;
3
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
Startup / Shutdown
Server Logs
Options File
Dashboard
Performance Reports
Performance Schema Setup
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id title author price published_date
1 The Alchemist Paulo Coelho 9.99 1993-04-15
2 The Alchemist Paulo Coelho 9.99 1993-04-15
Books 2
Apply
Output
Action Output
Time Action
1 02:44:38 INSERT INTO Books (title, author, price, published_date) VALUES ('The Alchemist', 'Paulo Coelho', 9.99, '1993-...
2 02:46:09 SELECT * FROM Books LIMIT 0, 1000
3 02:46:09 UPDATE Books SET price = 11.99 WHERE title = 'The Alchemist'
4 02:47:20 SELECT * FROM Books LIMIT 0, 1000

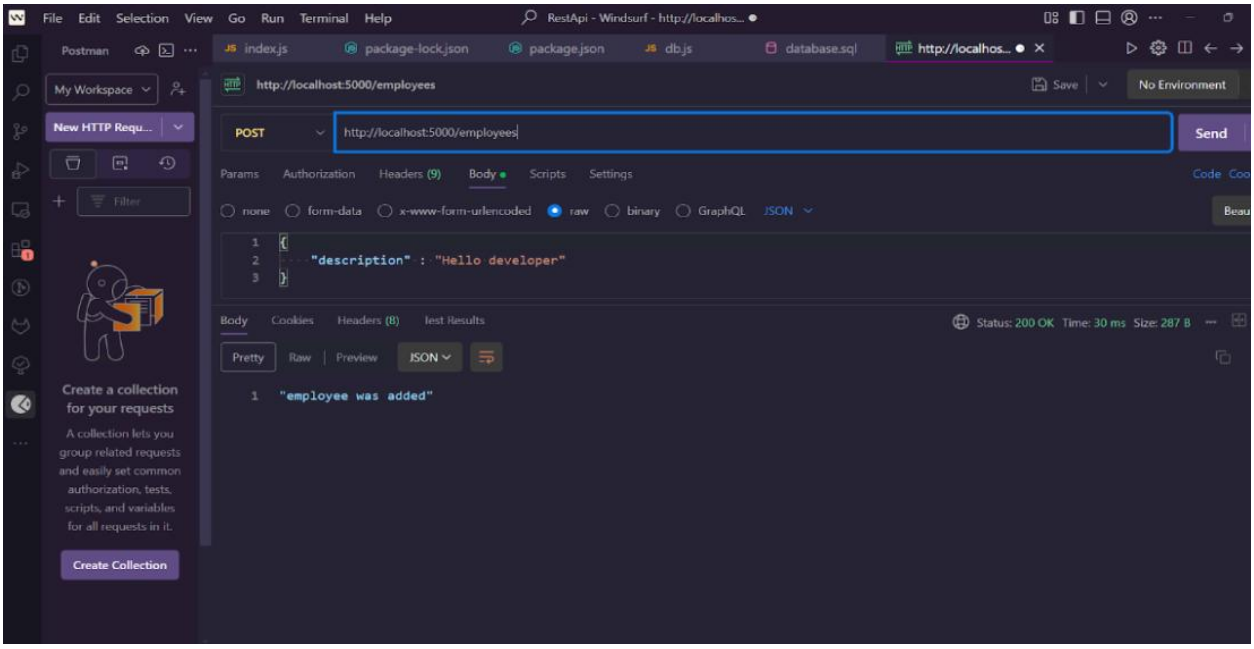

View Query Database Server Tools Scripting Help
Query 1 Administration - Server Status mydb city SQL File 1*
Limit to 1000 rows
1 UPDATE Books
2 SET price = 11.99
3 WHERE id = 2;
4 UPDATE Books
5 SET title ='adil Khan'
6 WHERE id = 2;
Result Grid Filter Rows: Edit: Export/Import:
id title author price published_date
1 The Alchemist Paulo Coelho 9.99 1993-04-15
2 adil Khan Paulo Coelho 11.99 1993-04-15
Books 5
Output
Action Output
Time Action
8 02:52:37 UPDATE Books SET price = 11.99 WHERE id = 2
9 02:52:56 UPDATE Books SET price = 11.99 WHERE id = 2
10 02:52:56 SELECT *FROM Books LIMIT 0, 1000
11 02:53:42 UPDATE Books SET price = 11.99 WHERE id = 2
12 02:53:42 UPDATE Books SET title ='adil Khan' WHERE id = 2
13 02:53:42 SELECT *FROM Books LIMIT 0, 1000



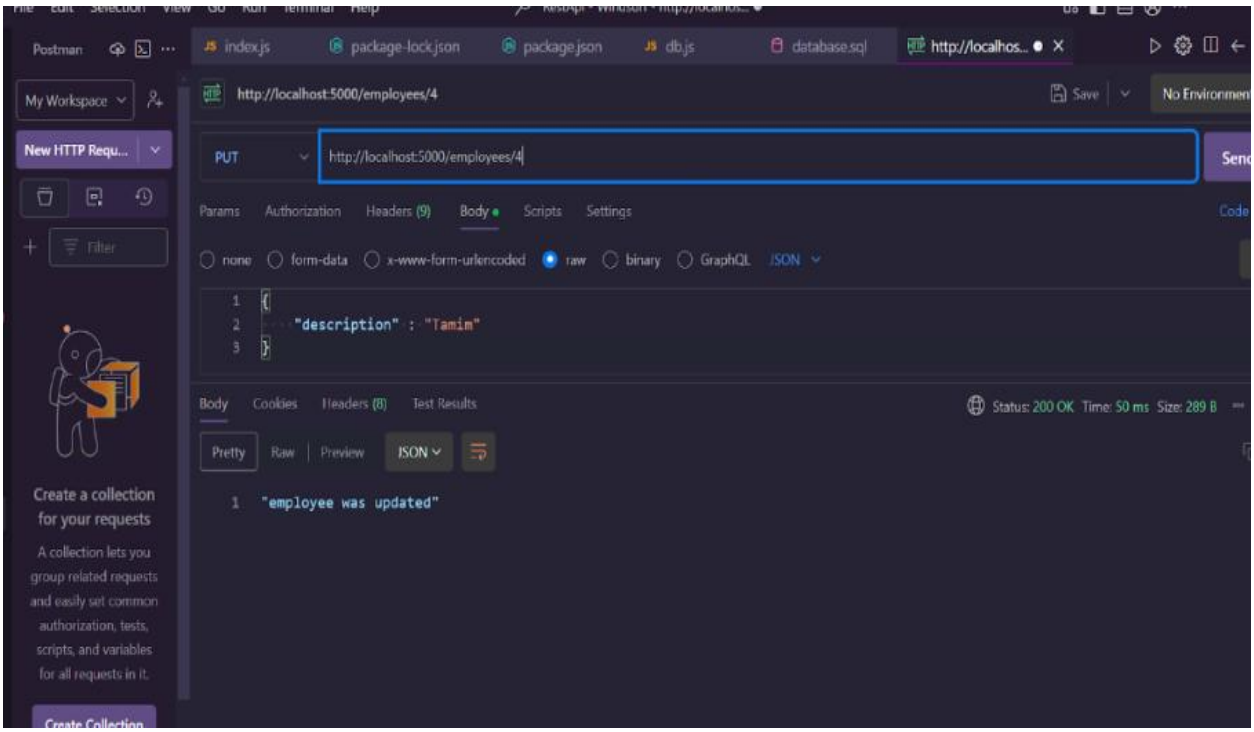
Fetching data from the database :



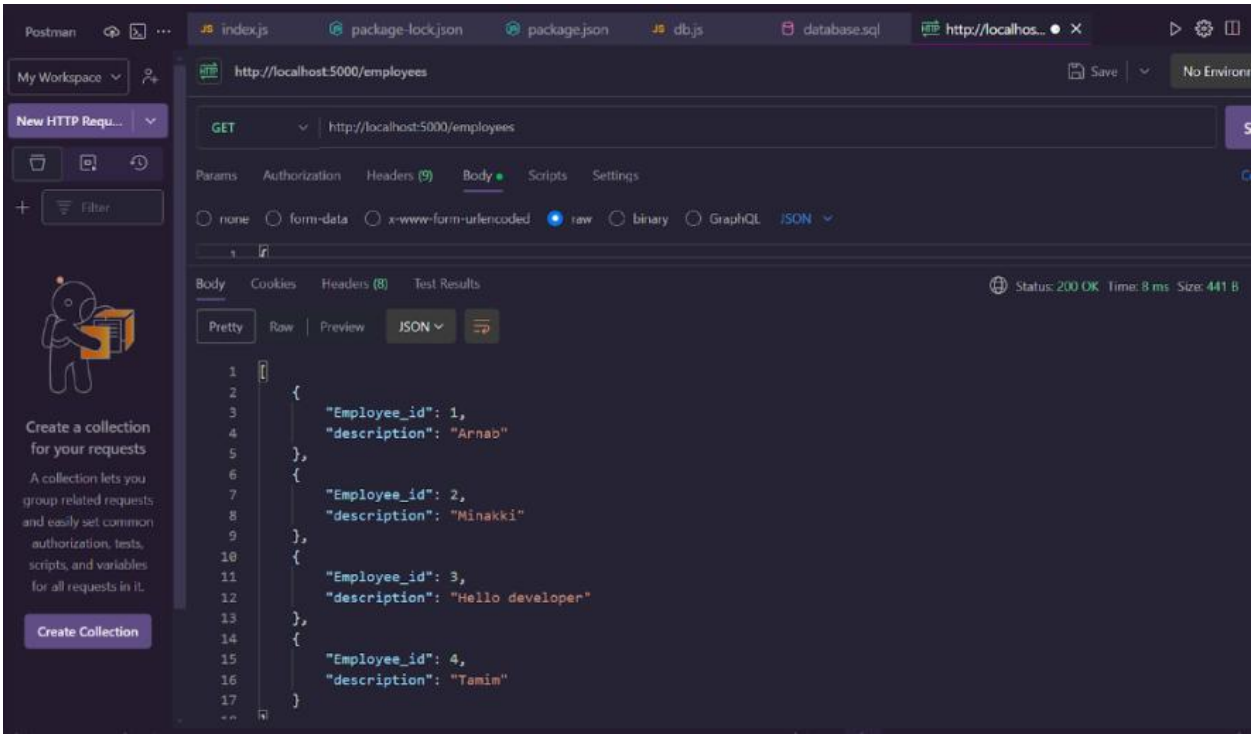
API Integration Test (Postman) :



Inserting new data :



Update existing data :



Deleting records :