Mini Project – MySQL Demonstration

By
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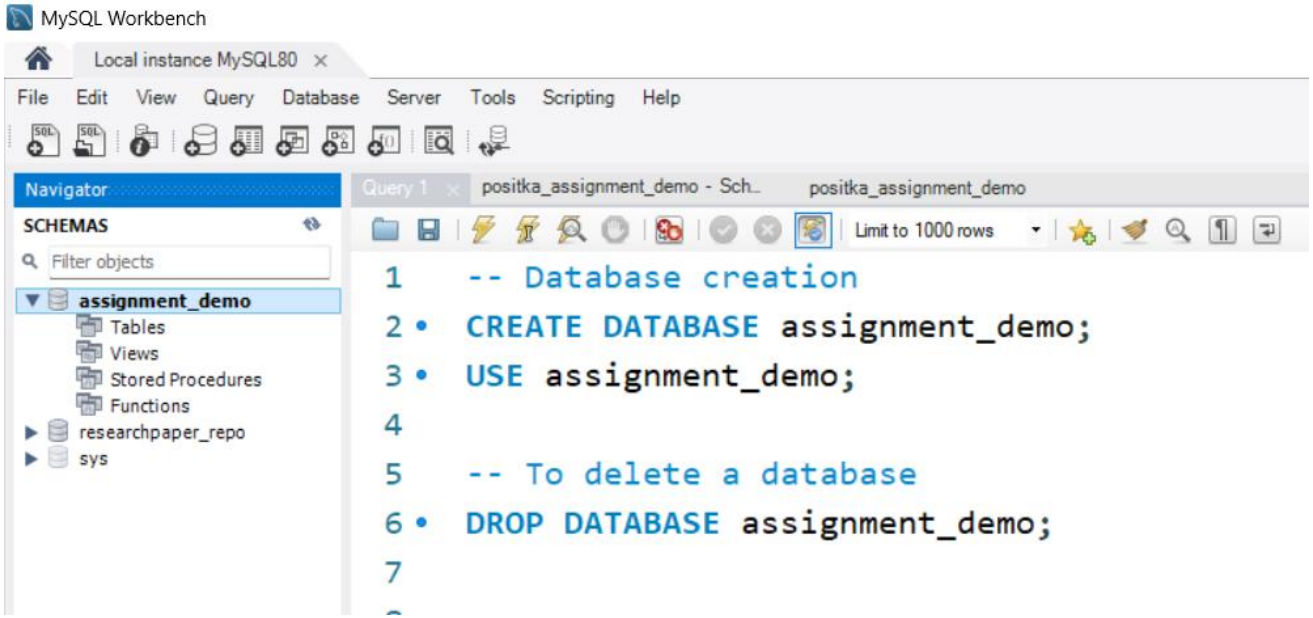
What is MySQL?

- MySQL is an open-source relational database management system (RDBMS).
- Uses SQL (Structured Query Language) for managing and querying data.
- Popular for web applications, data storage, and analytics.

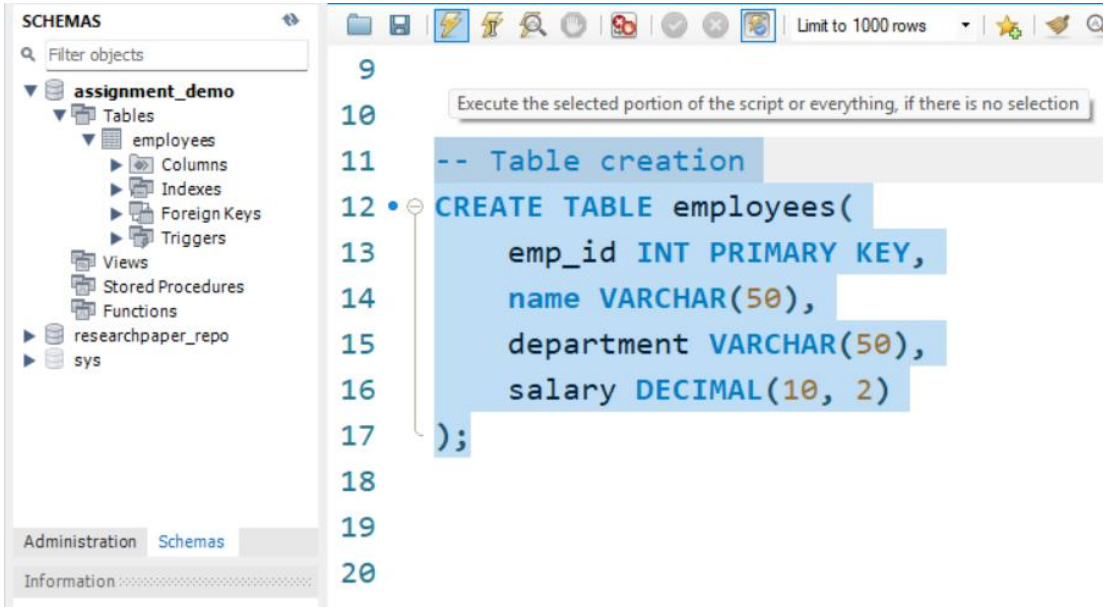
Creating a Database

- Command: CREATE DATABASE database_name;
- Creates a new database named assignment_demo.



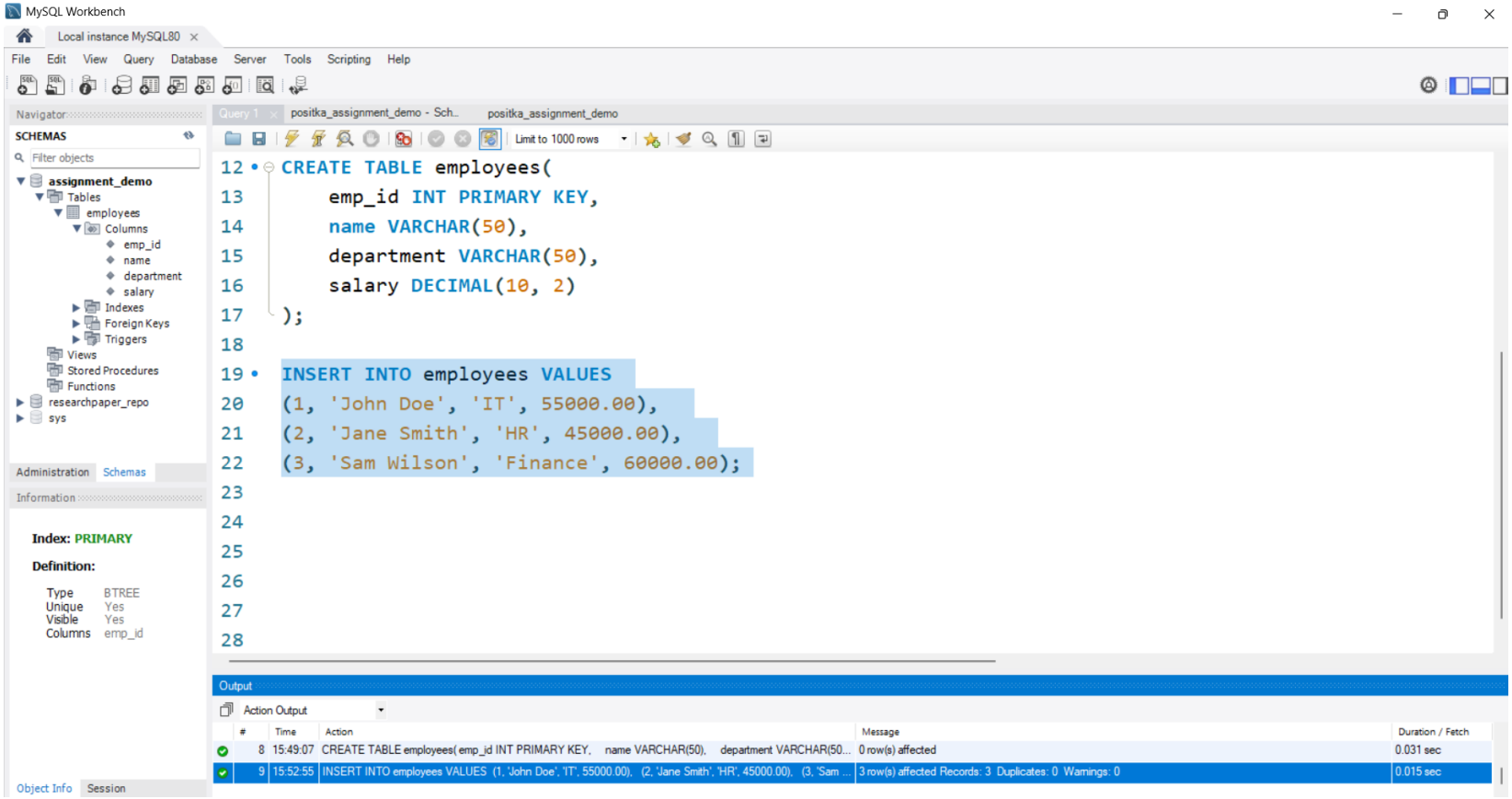
Creating Tables

- Example Table: Employees
- CREATE TABLE Employees (columns);



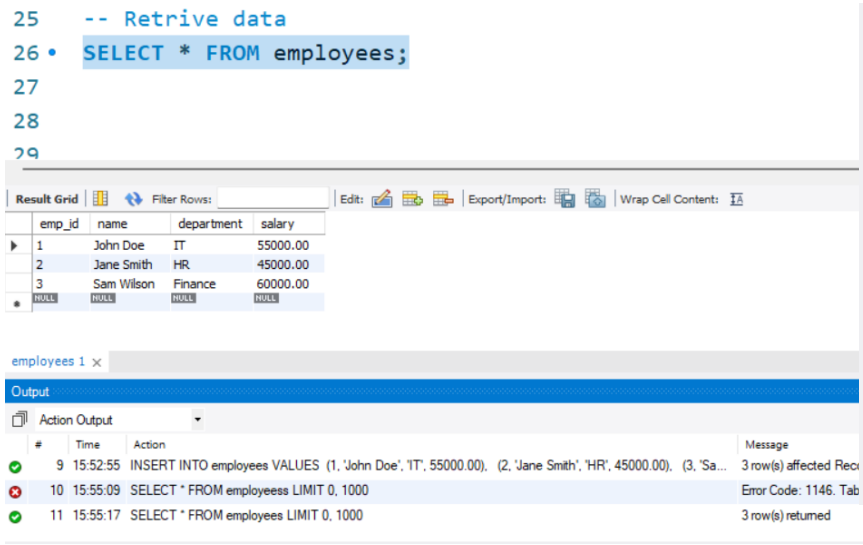
Inserting Sample Data

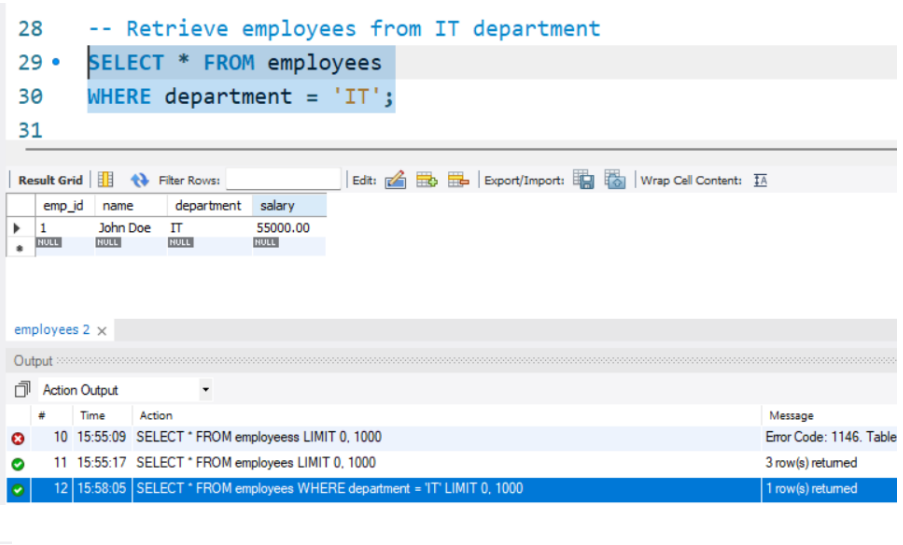
- INSERT INTO Employees VALUES (rows)



Querying Data

- Retrieve all employees: SELECT * FROM Employees;
- Retrieve employees from IT department:
  SELECT * FROM Employees WHERE Department = 'IT';





Insert More Employees

- Query: INSERT INTO employees (...) VALUES (...)

```
33    -- Adding/inserting employees
34 •  INSERT INTO employees (emp_id, name, department, salary) VALUES
35    (4, 'Ravi Kumar', 'IT', 55000.00),
36    (5, 'Priya Sharma', 'HR', 45000.00),
37    (6, 'Arjun Verma', 'IT', 58000.00),
38    (7, 'Vikram Das', 'Finance', 58000.00);
39
40 •  SELECT * FROM employees;
41
42
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

emp_id	name	department	salary
1	John Doe	IT	55000.00
2	Jane Smith	HR	45000.00
3	Sam Wilson	Finance	60000.00
4	Ravi Kumar	IT	55000.00
5	Priya Sharma	HR	45000.00
6	Arjun Verma	IT	58000.00
7	Vikram Das	Finance	58000.00
NULL	NULL	NULL	NULL

employees 3

Output

Action Output

#	Time	Action	Message
13	16:22:53	INSERT INTO employees (emp_id, name, department, salary) VALUES (4, 'Ravi Kumar', 'IT', 55000.00), (5, 'Pri...	4 row(s) affected Records: 4 Duplicates: 0 Warnings
14	16:23:14	SELECT * FROM employees LIMIT 0, 1000	7 row(s) returned

Update Query

- Query: UPDATE employees SET salary = ... WHERE emp_id = ...;

```
40    -- Updating/modifying an existing row
41 •  UPDATE employees
42    SET salary = 60000.00
43    WHERE emp_id = 4; -- Updates Ravi Kumar's salary
44 •  SELECT * FROM employees;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

emp_id	name	department	salary
1	John Doe	IT	55000.00
3	Sam Wilson	Finance	60000.00
4	Ravi Kumar	IT	60000.00
5	Priya Sharma	HR	45000.00
6	Arjun Verma	IT	58000.00

Group By

- Query: SELECT department, COUNT(*) FROM employees GROUP BY department;

```
43    -- Group by department employees
44 •  SELECT department, COUNT(*) AS total_employees
45    FROM employees
46    GROUP BY department;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	total_employees
IT	3
HR	2
Finance	2

Result 6

Output

Action Output

#	Time	Action	Message
16	16:31:12	SELECT * FROM employees ORDER BY salary DESC LIMIT 0, 1000	7 row(s) returned
17	16:41:51	SELECT department, COUNT(*) AS total_employees FROM employees GROUP BY department LIMIT 0, 1000	3 row(s) returned

Order By

- Query: SELECT * FROM employees ORDER BY salary DESC;

```
55
56    -- Order by Salary
57 •  SELECT * FROM employees
58    ORDER BY salary DESC;
59
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

emp_id	name	department	salary
3	Sam Wilson	Finance	60000.00
6	Arjun Verma	IT	58000.00
7	Vikram Das	Finance	58000.00
1	John Doe	IT	55000.00
4	Ravi Kumar	IT	55000.00
2	Jane Smith	HR	45000.00
5	Priya Sharma	HR	45000.00
NULL	NULL	NULL	NULL

employees 5

Output

Action Output

#	Time	Action	Message
15	16:29:40	SELECT department, COUNT(*) AS Total_IT_Emp FROM employees GROUP BY department LIMIT 0, 1000	3 row(s) returned
16	16:31:12	SELECT * FROM employees ORDER BY salary DESC LIMIT 0, 1000	7 row(s) returned

Delete Employee

- Query: DELETE FROM employees WHERE emp_id = ...;

```
59    -- Delete an employee
60 •  DELETE FROM employees WHERE emp_id = 2;
61 •  SELECT * FROM employees;
62
```

Result Grid | Filter Rows: | Edit: | Export/Import:

emp_id	name	department	salary
1	John Doe	IT	55000.00
3	Sam Wilson	Finance	60000.00
4	Ravi Kumar	IT	55000.00
5	Priya Sharma	HR	45000.00
6	Arjun Verma	IT	58000.00
7	Vikram Das	Finance	58000.00
NULL	NULL	NULL	NULL

employees 8 ×

Output

Action Output

#	Time	Action
19	16:51:17	DELETE FROM employees WHERE emp_id = 2
20	16:51:21	SELECT * FROM employees LIMIT 0, 1000

Backup/Save file

- Command: mysqldump -u root -p CompanyDB > companydb_backup.sql

  This creates a backup file of the database
- Or Save manually by file -> save

Real-life Applications of MySQL

- Used in web applications like WordPress, Facebook, Twitter.
- Helps manage user data, posts, and interactions.
- Common in enterprise applications for HR, Sales, and Finance data.

Conclusion

- MySQL is widely used for managing relational databases.
- Easy to use, efficient, and reliable.
- Supports data backup, retrieval, and secure storage.
- Created and managed a MySQL database (assignment_demo).
- Demonstrated SQL operations: Create, Insert, Update, Delete, Group By, and Order By.
- Showed how to back up the database using mysqldump.
- Highlighted practical knowledge of relational databases.
- This project demonstrates my foundational database skills and problem-solving approach.

Thank You

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