SQL Internship Task 1: Demonstrating Joins in Relational Databases

Step 1: Create the Database
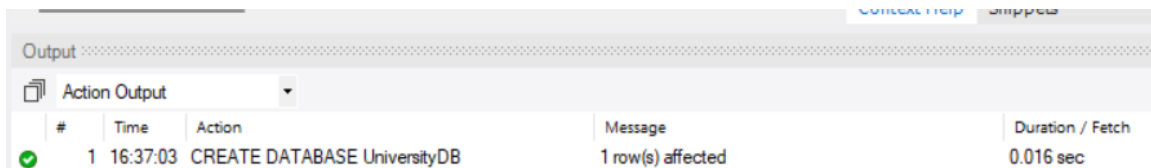
Query:

CREATE DATABASE UniversityDB;

Explanation:

This query creates a new database named 'UniversityDB'.

Output:

Step 2: Use the Created Database
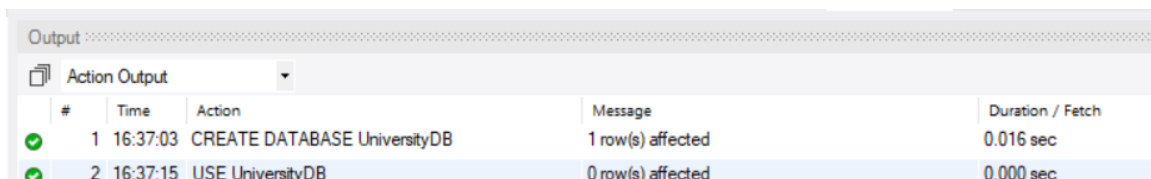
Query:

USE UniversityDB;

Explanation:

Switches the active database context to 'UniversityDB'.

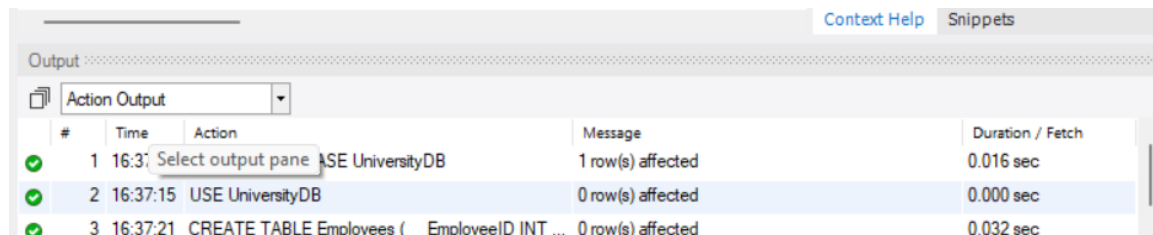Output:

Step 3: Create the Employees Table

Query:

```
CREATE TABLE Employees (
    EmployeeID INT PRIMARY KEY,
    Name VARCHAR(100),
    DepartmentID INT
);
```

Explanation:

Creates a table named 'Employees' with columns for Employee ID, Name, and Department ID.

Output:

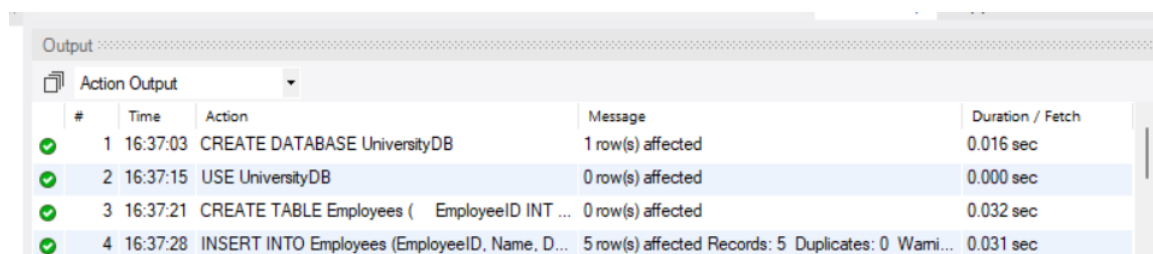| #	Time	Action	Message	Duration / Fetch
✓	1 16:37 Select output pane	ASE UniversityDB	1 row(s) affected	0.016 sec
✓	2 16:37:15	USE UniversityDB	0 row(s) affected	0.000 sec
✓	3 16:37:21	CREATE TABLE Employees (EmployeeID INT ...	0 row(s) affected	0.032 sec

Step 4: Insert Data into Employees Table

Query:

```
INSERT INTO Employees (EmployeeID, Name, DepartmentID) VALUES
(1, 'Riya', 201),(2, 'Pratik', 202),
(3, 'Shravani', 203),(4, 'Kartik', 204),
(5, 'Pratiksha', NULL);
```

Explanation:

Populates the 'Employees' table with sample data.

Output:

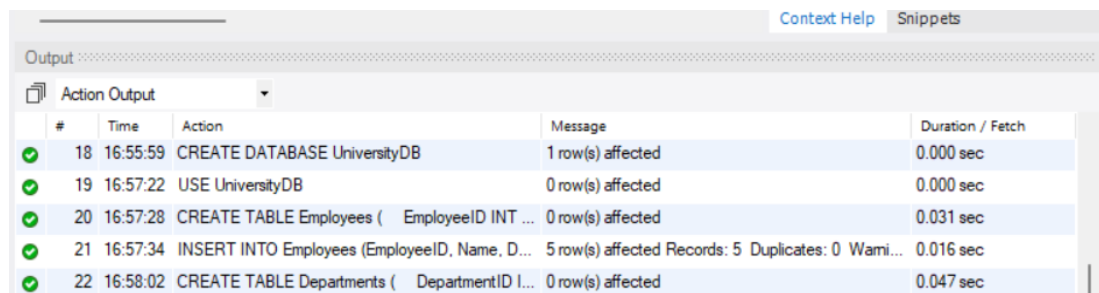| #	Time	Action	Message	Duration / Fetch
✓	1 16:37:03	CREATE DATABASE UniversityDB	1 row(s) affected	0.016 sec
✓	2 16:37:15	USE UniversityDB	0 row(s) affected	0.000 sec
✓	3 16:37:21	CREATE TABLE Employees (EmployeeID INT ...	0 row(s) affected	0.032 sec
✓	4 16:37:28	INSERT INTO Employees (EmployeeID, Name, D...	5 row(s) affected Records: 5 Duplicates: 0 Warni...	0.031 sec

Step 5: Create the Departments Table

Query:

CREATE TABLE Departments (
    DepartmentID INT PRIMARY KEY,
    DepartmentName VARCHAR(100)
);

Explanation:

Creates a table named 'Departments' with columns for Department ID and Department Name.

Output:

#	Time	Action	Message	Duration / Fetch
✓	18 16:55:59	CREATE DATABASE UniversityDB	1 row(s) affected	0.000 sec
✓	19 16:57:22	USE UniversityDB	0 row(s) affected	0.000 sec
✓	20 16:57:28	CREATE TABLE Employees (EmployeeID INT ...	0 row(s) affected	0.031 sec
✓	21 16:57:34	INSERT INTO Employees (EmployeeID, Name, D...	5 row(s) affected Records: 5 Duplicates: 0 Warni...	0.016 sec
✓	22 16:58:02	CREATE TABLE Departments (DepartmentID I...	0 row(s) affected	0.047 sec

Step 6: Insert Data into Departments Table

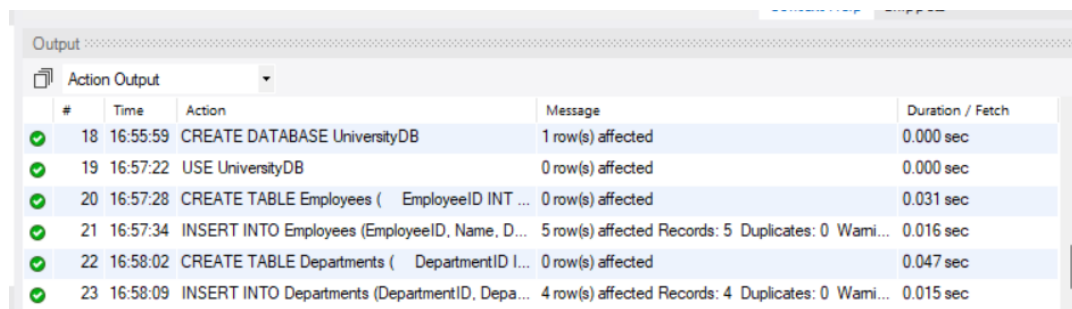Query:

INSERT INTO Departments (DepartmentID, DepartmentName) VALUES
(201, 'Computer'),(202, 'Information Technology'),
(203, 'Electrical'),(205, 'Mechanical');

Explanation:

Populates the 'Departments' table with sample data.

Output:

#	Time	Action	Message	Duration / Fetch
✓	18 16:55:59	CREATE DATABASE UniversityDB	1 row(s) affected	0.000 sec
✓	19 16:57:22	USE UniversityDB	0 row(s) affected	0.000 sec
✓	20 16:57:28	CREATE TABLE Employees (EmployeeID INT ...	0 row(s) affected	0.031 sec
✓	21 16:57:34	INSERT INTO Employees (EmployeeID, Name, D...	5 row(s) affected Records: 5 Duplicates: 0 Warni...	0.016 sec
✓	22 16:58:02	CREATE TABLE Departments (DepartmentID I...	0 row(s) affected	0.047 sec
✓	23 16:58:09	INSERT INTO Departments (DepartmentID, Depa...	4 row(s) affected Records: 4 Duplicates: 0 Warni...	0.015 sec

Step 7: INNER JOIN Query

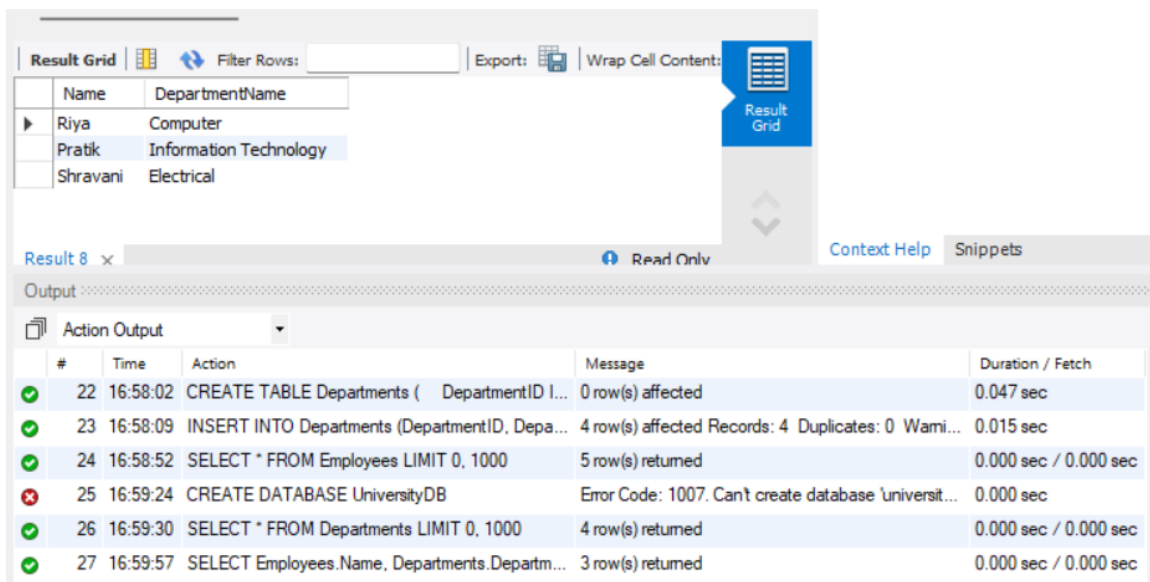Query:

SELECT Employees.Name, Departments.DepartmentName
FROM Employees
INNER JOIN Departments
ON Employees.DepartmentID = Departments.DepartmentID;

Explanation:

Performs an INNER JOIN to retrieve employees and their matching department names.

Output:

Step 8: LEFT JOIN Query

Query:

SELECT Employees.Name, Departments.DepartmentName
FROM Employees
LEFT JOIN Departments
ON Employees.DepartmentID = Departments.DepartmentID;

Explanation:

Performs a LEFT JOIN to retrieve all employees and their department names (if available).

Output:

Step 9: RIGHT JOIN Query

Query:

SELECT Employees.Name, Departments.DepartmentName
FROM Employees
RIGHT JOIN Departments
ON Employees.DepartmentID = Departments.DepartmentID;

Explanation:

Performs a RIGHT JOIN to retrieve all departments and their matching employee names (if available).

Output:

Step 10: FULL JOIN Query

Query:

SELECT Employees.Name, Departments.DepartmentName

FROM Employees

FULL JOIN Departments

ON Employees.DepartmentID = Departments.DepartmentID;

Explanation:

Not Supported By MySQL

Simulates a FULL JOIN using a UNION of LEFT JOIN and RIGHT JOIN queries.

Output:

	#	Time	Action	Message	Duration / Fetch
❌	25	16:59:24	CREATE DATABASE UniversityDB	Error Code: 1007. Can't create database 'universit...	0.000 sec
✅	26	16:59:30	SELECT * FROM Departments LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
✅	27	16:59:57	SELECT Employees.Name, Departments.Departm...	3 row(s) returned	0.000 sec / 0.000 sec
✅	28	17:00:29	SELECT Employees.Name, Departments.Departm...	5 row(s) returned	0.000 sec / 0.000 sec
✅	29	17:01:16	SELECT Employees.Name, Departments.Departm...	4 row(s) returned	0.000 sec / 0.000 sec
❌	30	17:01:35	SELECT Employees.Name, Departments.Departm...	Error Code: 1054. Unknown column 'Employees.N...	0.000 sec