Exercise 2: SQL KPI Queries

Duration: ~30 minutes (7 exercises)

Objective

Practice SQL JOINs, aggregations, and filtering using the HR database from Exercise 1.

Run these queries in VSCode Database Client connected to your SQLite database.

Exercise 2.1: List Employees with Department Name

Concept: INNER JOIN

Write a query that returns all employees with their department name.

Expected columns: `first_name`, `last_name`, `email`, `department_name`

▶ Hint
▶ Solution

Exercise 2.2: Count Employees per Department

Concept: GROUP BY + JOIN

Write a query that returns the number of employees in each department.

Expected columns: `department_name`, `employee_count`

▶ Hint
▶ Solution

Exercise 2.3: Find Departments with No Employees

Concept: LEFT JOIN + IS NULL

Write a query that finds departments that have no employees assigned.

Expected columns: `department_name`, `location`

▶ Hint
▶ Solution

Exercise 2.4: Average Salary by Department

Concept: JOIN + AVG + GROUP BY

Write a query that calculates the average salary for each department.

Expected columns: `department_name`, `avg_salary`, `employee_count`

▶ Hint
▶ Solution

Exercise 2.5: Employees Working on More Than 2 Projects

Concept: JOIN + GROUP BY + HAVING

Write a query that finds employees assigned to more than 2 projects.

Expected columns: `first_name`, `last_name`, `project_count`

▶ Hint
▶ Solution

Exercise 2.6: Top 3 Highest Paid Employees with Department

Concept: JOIN + ORDER BY + LIMIT

Write a query that returns the 3 highest paid employees with their department info.

Expected columns: `first_name`, `last_name`, `salary`, `department_name`

▶ Hint
▶ Solution

Exercise 2.7: Salary Evolution for a Specific Employee

Concept: JOIN + ORDER BY date

Write a query that shows the complete salary history for employee "Anna Garcia".

Expected columns: `first_name`, `last_name`, `change_date`, `old_salary`, `new_salary`, `reason`

▶ Hint
▶ Solution

Deliverable

- Screenshot or text file with your queries and their results for all 7 exercises