**WINAIM - Backend Database Programming Assignments Solutions**

**SQL Assessment**

**### Exercise 1: Employee Management System**

**1. \*\*Database Schema Design\*\*:**

- Create tables for `employees`, `departments`, and `salaries`.

- `employees` table should include: `employee\_id`, `first\_name`, `last\_name`, `department\_id`, `hire\_date`.

- `departments` table should include: `department\_id`, `department\_name`.

- `salaries` table should include: `employee\_id`, `salary`, `from\_date`, `to\_date`.

**-- Create employees table**

CREATE TABLE employees (

employee\_id INT PRIMARY KEY AUTO\_INCREMENT,

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50) NOT NULL,

department\_id INT,

hire\_date DATE NOT NULL,

FOREIGN KEY (department\_id) REFERENCES departments(department\_id)

);

**-- Create departments table**

CREATE TABLE departments (

department\_id INT PRIMARY KEY AUTO\_INCREMENT,

department\_name VARCHAR(100) NOT NULL

);

**-- Create salaries table**

CREATE TABLE salaries (

employee\_id INT,

salary DECIMAL(10, 2) NOT NULL,

from\_date DATE NOT NULL,

to\_date DATE,

PRIMARY KEY (employee\_id, from\_date),

FOREIGN KEY (employee\_id) REFERENCES employees(employee\_id)

);

**2. \*\*SQL Queries\*\*:**

**- Write a query to find all employees who have been hired in the last year.**

SELECT employee\_id, first\_name, last\_name, department\_id, hire\_date

FROM employees

WHERE hire\_date >= DATE\_SUB(CURDATE(), INTERVAL 1 YEAR);

**- Write a query to calculate the total salary expenditure for each department.**

SELECT e.department\_id, d.department\_name, SUM(s.salary) AS total\_salary\_expenditure

FROM employees e

JOIN salaries s ON e.employee\_id = s.employee\_id

JOIN departments d ON e.department\_id = d.department\_id

GROUP BY e.department\_id, d.department\_name;

**- Write a query to find the top 5 highest-paid employees along with their department names.**

SELECT e.employee\_id, e.first\_name, e.last\_name, d.department\_name, s.salary

FROM employees e

JOIN salaries s ON e.employee\_id = s.employee\_id

JOIN departments d ON e.department\_id = d.department\_id

ORDER BY s.salary DESC

LIMIT 5;