A payroll system typically involves multiple tables to manage various aspects of employee compensation, taxation, and related information. Here are five common tables you might find in a payroll system:

1. **Employee Information Table:** This table stores basic details about each employee, such as their name, employee ID, contact information, job title, department, and hire date. It serves as a central repository of employee data.
2. **Salary and Compensation Table:** This table tracks the compensation details for each employee. It includes information about their salary or hourly wage, pay grade, overtime rates, bonuses, and other forms of compensation.
3. **Time and Attendance Table:** This table records the hours worked by employees. It includes details about regular hours, overtime hours, time off taken (such as vacation or sick leave), and any other attendance-related data. This information is crucial for accurate salary calculation.
4. **Tax and Deductions Table:** Here, tax-related information for each employee is stored. This includes tax withholding details, such as federal, state, and local tax rates, as well as other deductions like health insurance premiums, retirement contributions, and other voluntary deductions.
5. **Payroll Processing Log Table:** This table maintains a log of payroll processing activities. It includes records of each payroll run, including the date, pay period covered, total wages, taxes withheld, deductions, and net pay for each employee. Keeping a history of payroll runs is vital for auditing and reporting purposes.

These are just a few examples of tables that might exist in a payroll system. Depending on the complexity of the organization and its payroll needs, there could be additional tables for more specialized information, such as employee benefits, pension plans, or even integration with external systems for financial reporting.

**create database payroll\_functions\_db;**

**use payroll\_functions\_db;**

**-- Employee Information Table**

**CREATE TABLE Employee (**

**employee\_id INT PRIMARY KEY,**

**first\_name VARCHAR(50),**

**last\_name VARCHAR(50),**

**contact\_number VARCHAR(15),**

**job\_title VARCHAR(100),**

**department VARCHAR(100),**

**hire\_date DATE**

**);**

**-- Salary and Compensation Table**

**CREATE TABLE Compensation (**

**compensation\_id INT PRIMARY KEY,**

**employee\_id INT,**

**base\_salary DECIMAL(10, 2),**

**overtime\_rate DECIMAL(5, 2),**

**bonus DECIMAL(10, 2),**

**FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)**

**);**

**-- Time and Attendance Table**

**CREATE TABLE Attendance (**

**attendance\_id INT PRIMARY KEY,**

**employee\_id INT,**

**work\_date DATE,**

**regular\_hours DECIMAL(5, 2),**

**overtime\_hours DECIMAL(5, 2),**

**time\_off\_hours DECIMAL(5, 2),**

**FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)**

**);**

**-- Tax and Deductions Table**

**CREATE TABLE Deductions (**

**deduction\_id INT PRIMARY KEY,**

**employee\_id INT,**

**federal\_tax\_rate DECIMAL(5, 2),**

**state\_tax\_rate DECIMAL(5, 2),**

**health\_insurance DECIMAL(10, 2),**

**retirement\_contribution DECIMAL(10, 2),**

**FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)**

**);**

**-- Payroll Processing Log Table**

**CREATE TABLE PayrollLog (**

**payroll\_id INT PRIMARY KEY,**

**payroll\_date DATE,**

**pay\_period\_start DATE,**

**pay\_period\_end DATE,**

**employee\_id INT,**

**total\_wages DECIMAL(10, 2),**

**taxes\_withheld DECIMAL(10, 2),**

**deductions DECIMAL(10, 2),**

**net\_pay DECIMAL(10, 2),**

**FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)**

**);**

**INSERT INTO Employee (employee\_id, first\_name, last\_name, contact\_number, job\_title, department, hire\_date)**

**VALUES**

**(1, 'John', 'Doe', '123-456-7890', 'Sales Manager', 'Sales', '2022-01-15'),**

**(2, 'Jane', 'Smith', '987-654-3210', 'Marketing Specialist', 'Marketing', '2021-08-20'),**

**(3, 'Michael', 'Johnson', '555-123-4567', 'Software Engineer', 'Engineering', '2022-03-10'),**

**(4, 'Sarah', 'Williams', '333-555-8888', 'HR Specialist', 'HR', '2021-11-05'),**

**(5, 'David', 'Miller', '444-222-1111', 'Financial Analyst', 'Finance', '2021-12-02'),**

**(6, 'Emily', 'Brown', '222-333-4444', 'Senior Designer', 'Design', '2021-10-18'),**

**(7, 'Daniel', 'Wilson', '666-777-8888', 'Marketing Manager', 'Marketing', '2022-04-25'),**

**(8, 'Olivia', 'Martinez', '111-222-3333', 'Sales Representative', 'Sales', '2022-05-12'),**

**(9, 'Aiden', 'Lee', '888-777-5555', 'Software Developer', 'Engineering', '2021-09-08'),**

**(10, 'Sophia', 'Garcia', '555-666-9999', 'Finance Manager', 'Finance', '2022-06-30'),**

**(11, 'Liam', 'Nguyen', '666-555-4444', 'HR Coordinator', 'HR', '2022-02-15'),**

**(12, 'Isabella', 'Rodriguez', '222-444-6666', 'Designer', 'Design', '2021-07-11'),**

**(13, 'Mason', 'Gonzalez', '333-222-5555', 'Software Engineer', 'Engineering', '2021-03-28'),**

**(14, 'Ava', 'Lopez', '444-555-6666', 'Sales Associate', 'Sales', '2022-07-05'),**

**(15, 'Noah', 'Perez', '555-444-3333', 'Marketing Coordinator', 'Marketing', '2021-04-22'),**

**(16, 'Emma', 'Hernandez', '111-333-5555', 'Designer', 'Design', '2022-03-10'),**

**(17, 'Sophia', 'Gonzalez', '777-888-4444', 'HR Manager', 'HR', '2021-01-02'),**

**(18, 'Jackson', 'Johnson', '666-555-2222', 'Software Developer', 'Engineering', '2022-02-18'),**

**(19, 'Oliver', 'Smith', '333-222-7777', 'Financial Analyst', 'Finance', '2022-06-15'),**

**(20, 'Lucas', 'Lee', '555-777-9999', 'Designer', 'Design', '2021-09-30');**

**INSERT INTO Compensation (compensation\_id, employee\_id, base\_salary, overtime\_rate, bonus)**

**VALUES**

**(1, 1, 75000.00, 1.5, 5000.00),**

**(2, 2, 60000.00, 1.25, 3000.00),**

**(3, 3, 80000.00, 2.0, 7000.00),**

**(4, 4, 55000.00, 1.2, 2000.00),**

**(5, 5, 65000.00, 1.3, 4000.00),**

**(6, 6, 70000.00, 1.4, 3500.00),**

**(7, 7, 72000.00, 1.5, 4200.00),**

**(8, 8, 58000.00, 1.2, 2500.00),**

**(9, 9, 85000.00, 1.6, 6000.00),**

**(10, 10, 68000.00, 1.3, 3800.00),**

**(11, 11, 52000.00, 1.1, 1800.00),**

**(12, 12, 70000.00, 1.4, 3200.00),**

**(13, 13, 75000.00, 1.5, 4500.00),**

**(14, 14, 62000.00, 1.25, 2700.00),**

**(15, 15, 60000.00, 1.3, 3300.00),**

**(16, 16, 68000.00, 1.35, 3900.00),**

**(17, 17, 50000.00, 1.1, 1600.00),**

**(18, 18, 80000.00, 1.6, 5200.00),**

**(19, 19, 72000.00, 1.4, 3700.00),**

**(20, 20, 67000.00, 1.3, 3400.00);**

**INSERT INTO Attendance (attendance\_id, employee\_id, work\_date, regular\_hours, overtime\_hours, time\_off\_hours)**

**VALUES**

**(1, 1, '2023-08-01', 8.0, 2.0, 0.0),**

**(2, 2, '2023-08-01', 8.0, 1.5, 0.0),**

**(3, 3, '2023-08-01', 8.0, 3.0, 0.0),**

**(4, 4, '2023-08-01', 8.0, 1.0, 0.0),**

**(5, 5, '2023-08-01', 8.0, 1.0, 0.0),**

**(6, 6, '2023-08-01', 8.0, 0.0, 0.0),**

**(7, 7, '2023-08-01', 8.0, 1.5, 0.0),**

**(8, 8, '2023-08-01', 8.0, 1.0, 0.0),**

**(9, 9, '2023-08-01', 8.0, 2.5, 0.0),**

**(10, 10, '2023-08-01', 8.0, 1.5, 0.0),**

**(11, 11, '2023-08-01', 8.0, 0.5, 0.0),**

**(12, 12, '2023-08-01', 8.0, 1.0, 0.0),**

**(13, 13, '2023-08-01', 8.0, 2.0, 0.0),**

**(14, 14, '2023-08-01', 8.0, 1.0, 0.0),**

**(15, 15, '2023-08-01', 8.0, 1.5, 0.0),**

**(16, 16, '2023-08-01', 8.0, 1.0, 0.0),**

**(17, 17, '2023-08-01', 8.0, 0.5, 0.0),**

**(18, 18, '2023-08-01', 8.0, 2.5, 0.0),**

**(19, 19, '2023-08-01', 8.0, 1.0, 0.0),**

**(20, 20, '2023-08-01', 8.0, 1.5, 0.0);**

**INSERT INTO Deductions (deduction\_id, employee\_id, federal\_tax\_rate, state\_tax\_rate, health\_insurance, retirement\_contribution)**

**VALUES**

**(1, 1, 0.15, 0.05, 100.00, 200.00),**

**(2, 2, 0.12, 0.04, 80.00, 150.00),**

**(3, 3, 0.18, 0.06, 120.00, 250.00),**

**(4, 4, 0.10, 0.03, 70.00, 130.00),**

**(5, 5, 0.14, 0.04, 90.00, 180.00),**

**(6, 6, 0.15, 0.05, 95.00, 200.00),**

**(7, 7, 0.16, 0.05, 100.00, 210.00),**

**(8, 8, 0.11, 0.03, 75.00, 140.00),**

**(9, 9, 0.20, 0.07, 130.00, 270.00),**

**(10, 10, 0.13, 0.04, 85.00, 170.00),**

**(11, 11, 0.09, 0.03, 60.00, 120.00),**

**(12, 12, 0.15, 0.05, 100.00, 190.00),**

**(13, 13, 0.17, 0.05, 110.00, 220.00),**

**(14, 14, 0.12, 0.04, 80.00, 160.00),**

**(15, 15, 0.14, 0.04, 90.00, 180.00),**

**(16, 16, 0.13, 0.04, 85.00, 170.00),**

**(17, 17, 0.08, 0.02, 50.00, 100.00),**

**(18, 18, 0.19, 0.06, 125.00, 260.00),**

**(19, 19, 0.16, 0.05, 100.00, 200.00),**

**(20, 20, 0.14, 0.04, 90.00, 180.00);**

**INSERT INTO PayrollLog (payroll\_id, payroll\_date, pay\_period\_start, pay\_period\_end, employee\_id, total\_wages, taxes\_withheld, deductions, net\_pay)**

**VALUES**

**(1, '2023-08-31', '2023-08-16', '2023-08-31', 1, 5000.00, 800.00, 400.00, 3800.00),**

**(2, '2023-08-31', '2023-08-16', '2023-08-31', 2, 4000.00, 600.00, 300.00, 3100.00),**

**(3, '2023-08-31', '2023-08-16', '2023-08-31', 3, 5500.00, 900.00, 450.00, 4150.00),**

**(4, '2023-08-31', '2023-08-16', '2023-08-31', 4, 3800.00, 560.00, 280.00, 2960.00),**

**(5, '2023-08-31', '2023-08-16', '2023-08-31', 5, 4500.00, 720.00, 360.00, 3420.00),**

**(6, '2023-08-31', '2023-08-16', '2023-08-31', 6, 4800.00, 800.00, 400.00, 3600.00),**

**(7, '2023-08-31', '2023-08-16', '2023-08-31', 7, 5200.00, 850.00, 425.00, 3925.00),**

**(8, '2023-08-31', '2023-08-16', '2023-08-31', 8, 4100.00, 610.00, 305.00, 3185.00),**

**(9, '2023-08-31', '2023-08-16', '2023-08-31', 9, 6000.00, 1000.00, 500.00, 4500.00),**

**(10, '2023-08-31', '2023-08-16', '2023-08-31', 10, 4700.00, 730.00, 365.00, 3605.00),**

**(11, '2023-08-31', '2023-08-16', '2023-08-31', 11, 3500.00, 520.00, 260.00, 2720.00),**

**(12, '2023-08-31', '2023-08-16', '2023-08-31', 12, 4800.00, 800.00, 400.00, 3600.00),**

**(13, '2023-08-31', '2023-08-16', '2023-08-31', 13, 5200.00, 850.00, 425.00, 3925.00),**

**(14, '2023-08-31', '2023-08-16', '2023-08-31', 14, 3900.00, 570.00, 285.00, 3045.00),**

**(15, '2023-08-31', '2023-08-16', '2023-08-31', 15, 4000.00, 600.00, 300.00, 3100.00),**

**(16, '2023-08-31', '2023-08-16', '2023-08-31', 16, 4600.00, 740.00, 370.00, 3490.00),**

**(17, '2023-08-31', '2023-08-16', '2023-08-31', 17, 3300.00, 480.00, 240.00, 2580.00),**

**(18, '2023-08-31', '2023-08-16', '2023-08-31', 18, 5800.00, 920.00, 460.00, 4420.00),**

**(19, '2023-08-31', '2023-08-16', '2023-08-31', 19, 5100.00, 810.00, 405.00, 3885.00),**

**(20, '2023-08-31', '2023-08-16', '2023-08-31', 20, 4800.00, 800.00, 400.00, 3600.00);**

**Exercise 1: Question: Calculate the total number of employees in the "Employee" table.**

**SELECT COUNT(\*) AS total\_employees FROM Employee;**

**Answer: The total number of employees will be displayed under the column name "total\_employees".**

**Exercise 2: Question: Find the highest base salary in the "Compensation" table.**

**SELECT MAX(base\_salary) AS highest\_base\_salary FROM Compensation;**

**Answer: The highest base salary will be displayed under the column name "highest\_base\_salary".**

**Exercise 3: Question: Determine the average regular hours worked by employees in the "Attendance" table.**

**SELECT AVG(regular\_hours) AS avg\_regular\_hours FROM Attendance;**

**Answer: The average regular hours worked will be displayed under the column name "avg\_regular\_hours".**

**Exercise 4: Question: Calculate the total time off hours taken by all employees from the "Attendance" table.**

**SELECT SUM(time\_off\_hours) AS total\_time\_off\_hours FROM Attendance;**

**Answer: The total time off hours will be displayed under the column name "total\_time\_off\_hours".**

**Exercise 5: Question: Find the lowest federal tax rate in the "Deductions" table.**

**SELECT MIN(federal\_tax\_rate) AS lowest\_federal\_tax\_rate FROM Deductions;**

**Answer: The lowest federal tax rate will be displayed under the column name "lowest\_federal\_tax\_rate".**

**Exercise 6: Question: Determine the average total wages from the "PayrollLog" table.**

**SELECT AVG(total\_wages) AS avg\_total\_wages FROM PayrollLog;**

**Answer: The average total wages will be displayed under the column name "avg\_total\_wages".**

**Exercise 7: Question: Calculate the total overtime hours worked by all employees from the "Attendance" table.**

**SELECT SUM(overtime\_hours) AS total\_overtime\_hours FROM Attendance;**

**Answer: The total overtime hours will be displayed under the column name "total\_overtime\_hours".**

**Exercise 8: Question: Find the highest total net pay in the "PayrollLog" table.**

**SELECT MAX(net\_pay) AS highest\_total\_net\_pay FROM PayrollLog;**

**Answer: The highest total net pay will be displayed under the column name "highest\_total\_net\_pay".**

**Exercise 9: Question: Determine the average health insurance deductions from the "Deductions" table.**

**SELECT AVG(health\_insurance) AS avg\_health\_insurance FROM Deductions;**

**Answer: The average health insurance deductions will be displayed under the column name "avg\_health\_insurance".**

**Exercise 10: Question: Calculate the total bonus amount for all employees from the "Compensation" table.**

**SELECT SUM(bonus) AS total\_bonus FROM Compensation;**

**Answer: The total bonus amount will be displayed under the column name "total\_bonus".**

**Exercise 11: Question: Calculate the total number of employees in each department from the "Employee" table.**

**SELECT department, COUNT(\*) AS total\_employees FROM Employee GROUP BY department;**

**Answer: This query will provide the total number of employees in each department.**

**Exercise 12: Question: Determine the average base salary for each job title from the "Compensation" table.**

**SELECT job\_title, AVG(base\_salary) AS avg\_base\_salary FROM Compensation GROUP BY job\_title;**

**Answer: This query will display the average base salary for each job title.**

**Exercise 13: Question: Find the highest overtime hours worked for each employee from the "Attendance" table.**

**SELECT employee\_id, MAX(overtime\_hours) AS highest\_overtime\_hours FROM Attendance GROUP BY employee\_id;**

**Answer: This query will show the highest overtime hours worked for each employee.**

**Exercise 14: Question: Calculate the total time off hours taken for each employee from the "Attendance" table.**

**SELECT employee\_id, SUM(time\_off\_hours) AS total\_time\_off\_hours FROM Attendance GROUP BY employee\_id;**

**Answer: This query will provide the total time off hours taken for each employee.**

**Exercise 15: Question: Determine the average federal tax rate for each employee from the "Deductions" table.**

**SELECT employee\_id, AVG(federal\_tax\_rate) AS avg\_federal\_tax\_rate FROM Deductions GROUP BY employee\_id;**

**Answer: This query will display the average federal tax rate for each employee.**

**Exercise 16: Question: Find the highest retirement contribution for each employee from the "Deductions" table.**

**SELECT employee\_id, MAX(retirement\_contribution) AS highest\_retirement\_contribution FROM Deductions GROUP BY employee\_id;**

**Answer: This query will show the highest retirement contribution for each employee.**

**Exercise 17: Question: Calculate the total net pay for each payroll entry from the "PayrollLog" table.**

**SELECT payroll\_id, SUM(net\_pay) AS total\_net\_pay FROM PayrollLog GROUP BY payroll\_id;**

**Answer: This query will provide the total net pay for each payroll entry.**

**Exercise 18: Question: Determine the average regular hours worked for each employee from the "Attendance" table.**

**SELECT employee\_id, AVG(regular\_hours) AS avg\_regular\_hours FROM Attendance GROUP BY employee\_id;**

**Answer: This query will display the average regular hours worked for each employee.**

**Exercise 19: Question: Find the lowest state tax rate for each employee from the "Deductions" table.**

**SELECT employee\_id, MIN(state\_tax\_rate) AS lowest\_state\_tax\_rate FROM Deductions GROUP BY employee\_id;**

**Answer: This query will show the lowest state tax rate for each employee.**

**Exercise 20: Question: Calculate the total deductions for each employee from the "Deductions" table.**

**SELECT employee\_id, SUM(federal\_tax\_rate + state\_tax\_rate + health\_insurance + retirement\_contribution) AS total\_deductions FROM Deductions GROUP BY employee\_id;**

**Answer: This query will provide the total deductions for each employee**

**Exercise 21: Question: Calculate the total number of employees in each department from the "Employee" table, only for the "Sales" department.**

**SELECT department, COUNT(\*) AS total\_employees FROM Employee WHERE department = 'Sales' GROUP BY department;**

**Answer: This query will provide the total number of employees in the "Sales" department.**

**Exercise 22: Question: Determine the average base salary for each job title from the "Compensation" table, only for employees with job title "Manager".**

**SELECT job\_title, AVG(base\_salary) AS avg\_base\_salary FROM Compensation WHERE job\_title = 'Manager' GROUP BY job\_title;**

**Answer: This query will display the average base salary for employees with the job title "Manager".**

**Exercise 23: Question: Find the highest overtime hours worked for each employee from the "Attendance" table, only for employees with employee IDs 101 and 102.**

**SELECT employee\_id, MAX(overtime\_hours) AS highest\_overtime\_hours FROM Attendance WHERE employee\_id IN (101, 102) GROUP BY employee\_id;**

**Answer: This query will show the highest overtime hours worked for employees with employee IDs 101 and 102.**

**Exercise 24: Question: Calculate the total time off hours taken for each employee from the "Attendance" table, only for employees hired after January 1, 2022.**

**SELECT employee\_id, SUM(time\_off\_hours) AS total\_time\_off\_hours FROM Attendance WHERE work\_date > '2022-01-01' GROUP BY employee\_id;**

**Answer: This query will provide the total time off hours taken for employees hired after January 1, 2022.**

**Exercise 25: Question: Determine the average federal tax rate for each employee from the "Deductions" table, only for employees with employee IDs 201 and 202.**

**SELECT**

**employee\_id,**

**AVG(federal\_tax\_rate) AS avg\_federal\_tax\_rate**

**FROM Deductions WHERE employee\_id IN (201, 202) GROUP BY employee\_id;**

**Answer: This query will display the average federal tax rate for employees with employee IDs 201 and 202.**

**Exercise 26: Question: Find the highest retirement contribution for each employee from the "Deductions" table, only for employees with health insurance deductions greater than $100.**

**SELECT employee\_id, MAX(retirement\_contribution) AS highest\_retirement\_contribution FROM Deductions WHERE health\_insurance > 100 GROUP BY employee\_id;**

**Answer: This query will show the highest retirement contribution for employees with health insurance deductions greater than $100.**

**Exercise 27: Question: Calculate the total net pay for each payroll entry from the "PayrollLog" table, only for payroll entries after June 30, 2022.**

**SELECT payroll\_id, SUM(net\_pay) AS total\_net\_pay FROM PayrollLog WHERE payroll\_date > '2022-06-30' GROUP BY payroll\_id;**

**Answer: This query will provide the total net pay for payroll entries after June 30, 2022.**

**Exercise 28: Question: Determine the average regular hours worked for each employee from the "Attendance" table, only for employees in the "Engineering" department.**

**SELECT employee\_id, AVG(regular\_hours) AS avg\_regular\_hours FROM Attendance WHERE employee\_id IN (SELECT employee\_id FROM Employee WHERE department = 'Engineering') GROUP BY employee\_id;**

**Answer: This query will display the average regular hours worked for employees in the "Engineering" department.**

**Exercise 29: Question: Find the lowest state tax rate for each employee from the "Deductions" table, only for employees with federal tax rates greater than 10%.**

**SELECT employee\_id, MIN(state\_tax\_rate) AS lowest\_state\_tax\_rate FROM Deductions WHERE federal\_tax\_rate > 0.10 GROUP BY employee\_id;**

**Answer: This query will show the lowest state tax rate for employees with federal tax rates greater than 10%.**

**Exercise 30: Question: Calculate the total deductions for each employee from the "Deductions" table, only for employees with base salaries above $60,000.**

**SELECT employee\_id, SUM(federal\_tax\_rate + state\_tax\_rate + health\_insurance + retirement\_contribution) AS total\_deductions FROM Deductions WHERE employee\_id IN (SELECT employee\_id FROM Compensation WHERE base\_salary > 60000) GROUP BY employee\_id;**

**Answer: This query will provide the total deductions for employees with base salaries above $60,000.**

**Exercise 31: Question: Calculate the average base salary for each department from the "Employee" table.**

**SELECT department, AVG(base\_salary) AS avg\_base\_salary FROM Employee GROUP BY department;**

**Answer: This query calculates the average base salary for each department in the "Employee" table.**

**Exercise 32: Question: Determine the total time off hours taken for each employee from the "Attendance" table, only for time off hours greater than 8.**

**SELECT employee\_id, SUM(time\_off\_hours) AS total\_time\_off\_hours FROM Attendance WHERE time\_off\_hours > 8 GROUP BY employee\_id;**

**Answer: This query provides the total time off hours taken for each employee from the "Attendance" table, considering only time off hours greater than 8.**

**Exercise 33: Question: Calculate the average total wages for each month from the "PayrollLog" table.**

**SELECT DATE\_FORMAT(payroll\_date, '%Y-%m') AS month, AVG(total\_wages) AS avg\_total\_wages FROM PayrollLog GROUP BY month;**

**Answer: This query calculates the average total wages for each month in the "PayrollLog" table.**

**Exercise 34: Question: Find the employee with the highest average overtime hours from the "Attendance" table.**

**SELECT**

**employee\_id,**

**AVG(overtime\_hours) AS avg\_overtime\_hours**

**FROM Attendance**

**GROUP BY employee\_id**

**ORDER BY avg\_overtime\_hours DESC**

**LIMIT 1;**

**Answer: This query identifies the employee with the highest average overtime hours from the "Attendance" table.**

**Exercise 35: Question: Calculate the average net pay for employees who have worked more than 160 regular hours from the "PayrollLog" and "Attendance" tables.**

**SELECT pl.employee\_id, AVG(pl.net\_pay) AS avg\_net\_pay FROM PayrollLog pl WHERE EXISTS ( SELECT 1 FROM Attendance a WHERE a.employee\_id = pl.employee\_id AND a.regular\_hours > 160 ) GROUP BY pl.employee\_id;**

**Answer: This query calculates the average net pay for employees who have worked more than 160 regular hours, utilizing a correlated subquery.**

**Exercise 36: Question: Determine the employee with the highest average base salary from the "Employee" and "Compensation" tables.**

**SELECT**

**e.employee\_id,**

**e.first\_name,**

**e.last\_name,**

**AVG(c.base\_salary) AS avg\_base\_salary**

**FROM Employee e WHERE EXISTS ( SELECT 1 FROM Compensation c WHERE c.employee\_id = e.employee\_id ) GROUP BY e.employee\_id ORDER BY avg\_base\_salary DESC LIMIT 1;**

**Answer: This query identifies the employee with the highest average base salary, utilizing a correlated subquery.**

**Exercise 37: Question: Calculate the total bonus amount for each department from the "Employee" and "Compensation" tables.**

**SELECT**

**e.department,**

**SUM(c.bonus) AS total\_bonus**

**FROM Employee e**

**WHERE EXISTS ( SELECT 1 FROM Compensation c WHERE c.employee\_id = e.employee\_id ) GROUP BY e.department;**

**Answer: This query calculates the total bonus amount for each department, utilizing a correlated subquery.**

**Exercise 38: Question: Find the average federal tax rate for employees who have taken time off in the "Attendance" and "Deductions" tables.**

**SELECT**

**a.employee\_id,**

**AVG(d.federal\_tax\_rate) AS avg\_federal\_tax\_rate**

**FROM Attendance a**

**WHERE EXISTS ( SELECT 1 FROM Deductions d WHERE d.employee\_id = a.employee\_id ) AND a.time\_off\_hours > 0 GROUP BY a.employee\_id;**

**Answer: This query calculates the average federal tax rate for employees who have taken time off, utilizing correlated subqueries.**

**Exercise 39: Question: Calculate the total time off hours taken by employees in the "Sales" department from the "Attendance" table.**

**SELECT**

**e.employee\_id,**

**SUM(a.time\_off\_hours) AS total\_time\_off\_hours**

**FROM Employee e LEFT JOIN Attendance a ON e.employee\_id = a.employee\_id WHERE e.department = 'Sales' GROUP BY e.employee\_id;**

**Answer: This query calculates the total time off hours taken by employees in the "Sales" department, considering the "Employee" table.**

**Exercise 40: Question: Determine the average total deductions for employees with health insurance deductions above $50 from the "Deductions" table.**

**SELECT**

**employee\_id,**

**AVG(federal\_tax\_rate + state\_tax\_rate + health\_insurance + retirement\_contribution) AS avg\_total\_deductions**

**FROM Deductions**

**WHERE health\_insurance > 50**

**GROUP BY employee\_id;**

**Answer: This query calculates the average total deductions for employees with health insurance deductions above $50.**