

# Employment Data

Using MYSQL

# JOINS

## 1. Retrieve a list of all employees along with their respective department names.

```
-- Retrieve a list of all employees along with their respective department

SELECT
    FirstName, LastName, DepartmentName
FROM
    Employees
    JOIN
    Departments ON Employees.DepartmentID = Departments.DepartmentID;
```



	FirstName	LastName	DepartmentName
▶	John	Doe	Human Resources
	Michael	Brown	Human Resources
	Jane	Smith	Finance
	Sarah	Davis	Finance
	Emily	Jones	Engineering
	David	Wilson	Engineering

# JOINS

## 2. Find the total salary expenditure for each department.

```
-- 2.Find the total salary expenditure for each department.
```

```
SELECT
```

```
    DepartmentName, SUM(Salary)
```

```
FROM
```

```
    Departments
```

```
    JOIN
```

```
    Employees ON Employees.DepartmentID = Departments.DepartmentID
```

```
GROUP BY DepartmentName;
```

	DepartmentName	sum(Salary)
▶	Human Resources	125000.00
	Finance	155000.00
	Engineering	185000.00
	Marketing	70000.00

# JOINS

## 3. List the names of employees who work in the 'Engineering' department.

```
-- 3. List the names of employees who work in the 'Engineering' department.
```

```
SELECT
```

```
    FirstName, LastName, DepartmentName
```

```
FROM
```

```
    Employees
```

```
    JOIN
```

```
    Departments ON Employees.DepartmentID = Departments.DepartmentID
```

```
WHERE
```

```
    DepartmentName = 'Engineering';
```

	FirstName	LastName	DepartmentName
▶	Emily	Jones	Engineering
	David	Wilson	Engineering

# JOINS

4. Retrieve the department names and the number of employees in each department.

```
SELECT
    DepartmentName, COUNT(EmployeeID)
FROM
    Departments
    JOIN
    Employees ON Employees.DepartmentID = Departments.DepartmentID
GROUP BY DepartmentName;
```

	DepartmentName	COUNT(EmployeeID)
►	Human Resources	2
	Finance	2
	Engineering	2
	Marketing	1

# JOINS

5. Find the employees whose salary is greater than the average salary of their respective departments.

```
-- 5. Find the employees whose salary is greater than
-- the average salary of their respective departments.

SELECT
    FirstName, LastName, Salary, DepartmentName
FROM
    Employees
    JOIN
    Departments ON Employees.DepartmentID = Departments.DepartmentID
WHERE
    salary > (SELECT
        AVG(salary)
    FROM
        employees);
```

	FirstName	LastName	Salary	DepartmentName
▶	Emily	Jones	90000.00	Engineering
	Sarah	Davis	80000.00	Finance
	David	Wilson	95000.00	Engineering

# Nested Select Queries

1. Find the employees who earn more than the average salary in their department.

```
-- 1. Find the employees who earn more  
-- than the average salary in their department.
```

```
SELECT  
    *  
FROM  
    Employees  
WHERE  
    salary > (SELECT  
                AVG(salary)  
            FROM  
                Employees);
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary
▶	103	Emily	Jones	3	90000.00
	105	Sarah	Davis	2	80000.00
	106	David	Wilson	3	95000.00
⊞	NULL	NULL	NULL	NULL	NULL

# Nested Select Queries

2. Retrieve the departments that have more than one employee with a salary greater than \$70,000.

```
-- 2.Retrieve the departments that have more than one employee
-- with a salary greater than $70,000.

SELECT
    DepartmentName, salary, EmployeeID
FROM
    Departments
    JOIN
    Employees ON Departments.DepartmentID = Employees.DepartmentID
WHERE
    Salary > 70000;
```

	DepartmentName	salary	EmployeeID
▶	Finance	75000.00	102
	Engineering	90000.00	103
	Finance	80000.00	105
	Engineering	95000.00	106



# Nested Select Queries

3. Find the name of the department where the highest-paid employee work.

```
-- 3.Find the name of the department where the highest-paid employee work.
```

```
SELECT
```

```
    DepartmentName, Salary, EmployeeID
```

```
FROM
```

```
    Departments
```

```
    JOIN
```

```
    Employees ON Departments.DepartmentID = Employees.DepartmentID
```

```
WHERE
```

```
    Salary = (SELECT
```

```
        MAX(Salary)
```

```
        FROM
```

```
        Employees);
```

	DepartmentName	Salary	EmployeeID
▶	Engineering	95000.00	106

# GROUP BY:

1. Find the average salary of employees in each department where the department has more than two employees

```
-- GROUP BY:  
  
-- 1. Find the average salary of employees in each department  
-- where the department has more than two employees  
  
SELECT  
    DepartmentName, AVG(Salary) AS Average_Salary  
FROM  
    Departments  
    JOIN  
    Employees ON Departments.DepartmentID = Employees.DepartmentID  
GROUP BY DepartmentName  
HAVING COUNT(DepartmentName) > 1;
```

	DepartmentName	Average_Salary
▶	Human Resources	70000.000000
	Finance	82500.000000
	Engineering	97500.000000

# GROUP BY:

2. List the total salary expenditure for each department where the total salary is more than \$150,000

```
-- 2.    List the total salary expenditure for each department
-- where the total salary is more than $150,000

SELECT
    DepartmentName, SUM(Salary) AS total_Salary
FROM
    Departments
    JOIN
    Employees ON Departments.DepartmentID = Employees.DepartmentID
GROUP BY DepartmentName
HAVING SUM(Salary) > 150000;
```

	DepartmentName	total_Salary
▶	Finance	165000.00
	Engineering	195000.00

# GROUP BY:

3.Retrieve the number of employees in each department where the average salary is above \$70,000.

```
SELECT
    DepartmentName, AVG(Salary) AS Avg_Salary
FROM
    Departments
    JOIN
    Employees ON Employees.DepartmentID = Departments.DepartmentID
GROUP BY DepartmentName
HAVING AVG(Salary) > 70000;
```

	DepartmentName	Avg_Salary
▶	Finance	82500.000000
	Engineering	97500.000000
	Marketing	105000.000000

# GROUP BY:

4.Find the departments with an average salary greater than \$75,000.

```
SELECT
    DepartmentName, AVG(Salary) AS Avg_Salary
FROM
    Departments
    JOIN
    Employees ON Employees.DepartmentID = Departments.DepartmentID
GROUP BY DepartmentName
HAVING AVG(Salary) > 75000;
```

	DepartmentName	Avg_Salary
▶	Finance	82500.000000
	Engineering	97500.000000
	Marketing	105000.000000

# GROUP BY:

5.List the departments where the total number of employees is less than 3

```
SELECT
    DepartmentName, COUNT(EmployeeID) AS Num_of_Employees
FROM
    Departments
    JOIN
    Employees ON Employees.DepartmentID = Departments.DepartmentID
GROUP BY DepartmentName
HAVING COUNT(EmployeeID) < 3;
```

	DepartmentName	Num_of_Employees
▶	Human Resources	2
	Finance	2
	Engineering	2
	Marketing	1

# GROUP BY:

6.Find the names of departments and their total salary expenditure where the total salary expenditure is more than \$160,000

```
SELECT
    DepartmentName, SUM(Salary) AS Total_Salary
FROM
    Departments
    JOIN
    Employees ON Departments.DepartmentID = Employees.DepartmentID
GROUP BY DepartmentName
HAVING SUM(Salary) > 160000;
```

	DepartmentName	Total_Salary
▶	Finance	165000.00
	Engineering	195000.00

# SQL Procedures

## 1. Create a simple procedure to retrieve all employees

```
DELIMITER //

CREATE PROCEDURE Getallemployees
()
BEGIN
    SELECT * FROM Employees;

END //

DELIMITER ;

CALL Getallemployees();
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary
▶	101	John	Doe	1	70000.00
	102	Jane	Smith	2	80000.00
	103	Emily	Jones	3	95000.00
	104	Michael	Brown	1	70000.00
	105	Sarah	Davis	2	85000.00
	106	David	Wilson	3	100000.00
	107	Chris	Johnson	4	105000.00



# SQL Procedures

## 2.Create a procedure to add a new employee

```
DELIMITER //
```

```
CREATE PROCEDURE Getnewemployee1
```

```
(IN N_EmployeeID INT , IN N_FirstName VARCHAR(50) ,
```

```
IN N_LastName VARCHAR(50), IN N_DepartmentID INT ,
```

```
IN N_Salary DECIMAL (10,2))
```

```
BEGIN
```

```
    INSERT INTO Employees (EmployeeID, FirstName , LastName , DepartmentID,
```

```
Salary)
```

```
VALUES (N_EmployeeID ,N_FirstName , N_LastName ,N_DepartmentID,N_Salary) ;
```

```
END//
```

```
DELIMITER ;
```

```
CALL Getnewemployee1('108' , 'Arron' , 'Finch' , '3' , '89000.00');
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary
▶	101	John	Doe	1	60000.00
	102	Jane	Smith	2	75000.00
	103	Emily	Jones	3	90000.00
	104	Michael	Brown	1	65000.00
	105	Sarah	Davis	2	80000.00
	106	David	Wilson	3	95000.00
	107	Chris	Johnson	4	70000.00
	108	Arron	Finch	3	89000.00

# SQL Procedures

## 3. Create a procedure to update an employee's salary

```
DELIMITER //

CREATE PROCEDURE GetUpdateEmployeeSalary2
(IN N_Salary DECIMAL(10,2) , IN N_EmployeeID INT)
BEGIN
    UPDATE Employees
    SET Salary = N_Salary
    WHERE EmployeeID = N_EmployeeID;
END//

DELIMITER ;

CALL GetUpdateEmployeeSalary2 (95000 , '108');

SELECT * FROM Employees;
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary
▶	101	John	Doe	1	60000.00
	102	Jane	Smith	2	75000.00
	103	Emily	Jones	3	90000.00
	104	Michael	Brown	1	65000.00
	105	Sarah	Davis	2	80000.00
	106	David	Wilson	3	95000.00
	107	Chris	Johnson	4	70000.00
	108	Arron	Finch	3	95000.00

# SQL Procedures

## 4. Create a procedure to delete an employee

```
DELIMITER //
```

```
CREATE PROCEDURE DeleteEmployee(  
    IN N_employee_id INT  
)
```

```
BEGIN
```

```
    DELETE FROM Employees
```

```
    WHERE EmployeeID = N_employee_id;
```

```
END//
```

```
DELIMITER ;
```

```
CALL DeleteEmployee(108);
```

```
SELECT * FROM Employees;
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary
▶	101	John	Doe	1	60000.00
	102	Jane	Smith	2	75000.00
	103	Emily	Jones	3	90000.00
	104	Michael	Brown	1	65000.00
	105	Sarah	Davis	2	80000.00
	106	David	Wilson	3	95000.00
	107	Chris	Johnson	4	70000.00

# SQL Procedures

## 5. Create a procedure to get employees by department

```
DELIMITER //
```

```
CREATE PROCEDURE GetEmployeesByDepartmentName(  
    IN p_department_name VARCHAR(100)  
)  
,
```

```
BEGIN
```

```
    SELECT *
```

```
    FROM Employees as e
```

```
    JOIN Departments as d ON e.DepartmentID = d.DepartmentID
```

```
    WHERE DepartmentName = p_department_name;
```

```
END//
```

```
DELIMITER ;
```

	EmployeeID	FirstName	LastName	DepartmentID	Salary	DepartmentID	DepartmentName
▶	103	Emily	Jones	3	90000.00	3	Engineering
	106	David	Wilson	3	95000.00	3	Engineering

```
CALL GetEmployeesByDepartmentName('Engineering');
```

# SQL Procedures

## 6. Create a procedure to get the total salary expenditure of a department

```
DELIMITER //
```

CREATE PROCEDURE GetTotalSalaryExpenditure3(  
 IN p\_department\_Name VARCHAR(50)  
)  
BEGIN  
 SELECT DepartmentName , SUM(Salary) AS total\_salary\_expenditure  
 FROM Employees as e join Departments as d on e.DepartmentID = d.DepartmentID  
 WHERE DepartmentName= p\_department\_Name  
 GROUP BY DepartmentName ;  
END //

```
DELIMITER ;
```

```
CALL GetTotalSalaryExpenditure3('Marketing') ;
```

	total_salary_expenditure	DepartmentName
▶	70000.00	Marketing

# SQL Procedures

## 7. Create a procedure to list departments with more than a specified number of employees

```
DELIMITER //
```

```
CREATE PROCEDURE list_departments3
```

```
(IN count_input INT)
```

```
BEGIN
```

```
    SELECT Departmentname
```

```
    FROM Departments AS d
```

```
    JOIN Employees AS e
```

```
    ON d.DepartmentID=e.DepartmentID
```

```
    GROUP BY Departmentname
```

```
    HAVING COUNT(firstname) > count_input
```

```
    ;
```

```
END //
```

```
DELIMITER ;
```

```
CALL list_departments3(1)
```



	Departmentname
▶	Human Resources
	Finance
	Engineering

# SQL Procedures

## 8. Create a procedure to give a raise to employees in a department

```
DELIMITER //
```

```
CREATE PROCEDURE GiveRaiseToDepartment1(  
    IN department_name VARCHAR(50),  
    IN n_raise_percentage DECIMAL(5, 2)  
)  
  
BEGIN  
    UPDATE Employees as  
    e join Departments as d ON e.DepartmentID = d.DepartmentID  
    SET Salary = Salary * (1 + n_raise_percentage / 100)  
    WHERE DepartmentName = department_name;  
  
END //
```

```
DELIMITER ;
```

```
CALL GiveRaiseToDepartment1('Engineering', 5.0);
```

```
SELECT * From Employees as e JOIN  
Departments as d ON d.DepartmentID = e.DepartmentID  
Where DepartmentName = "Engineering" ;
```

# Code

# SQL Procedures





## 8. Create a procedure to give a raise to employees in a department

### Output Before Pay Raise

	EmployeeID	FirstName	LastName	DepartmentID	Salary	DepartmentID	DepartmentName
▶	103	Emily	Jones	3	90000.00	3	Engineering
	106	David	Wilson	3	95000.00	3	Engineering

### Output After 5% Pay Raise



Result Grid     Filter Rows: <input type="text"/>   Export:    Wrap Cell Content: 							
	EmployeeID	FirstName	LastName	DepartmentID	Salary	DepartmentID	DepartmentName
▶	103	Emily	Jones	3	94500.00	3	Engineering
	106	David	Wilson	3	99750.00	3	Engineering



# SQL Procedures

## 9. Create a procedure to get the highest paid employee in each department

```
DELIMITER //
```

```
CREATE PROCEDURE Highestpaidemployees2()
```

```
BEGIN
```

```
    SELECT DepartmentName , MAX(Salary) as highest_Paid FROM Employees as e
```

```
    JOIN Departments as d ON e.DepartmentID = d.DepartmentID
```

```
    GROUP BY DepartmentName
```

```
    ;
```

```
END //
```

```
DELIMITER ;
```

```
CALL Highestpaidemployees2();
```

	DepartmentName	highest_Paid
▶	Human Resources	65000.00
	Finance	80000.00
	Engineering	95000.00
	Marketing	70000.00

# SQL Procedures

## 10. Create a procedure to get employee count and average salary for each department:

```
DELIMITER //  
  
CREATE PROCEDURE GetEmployeeCountAndAvgSalaryForEachDepartment3  
()  
  
BEGIN  
    SELECT DepartmentName , COUNT(EmployeeID) , AVG(Salary) FROM Departments  
    as d JOIN Employees as e ON d.DepartmentID = e.DepartmentID  
    GROUP BY DepartmentName  
    ;  
END //
```

	DepartmentName	COUNT(EmployeeID)	AVG(Salary)
▶	Human Resources	2	62500.000000
	Finance	2	77500.000000
	Engineering	2	92500.000000
	Marketing	1	70000.000000

```
DELIMITER ;
```

```
CALL GetEmployeeCountAndAvgSalaryForEachDepartment3();
```

**Thank you!**