Databases 6G4Z0016 Labsheet

# Topic 5 – Subqueries

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# Part One – Recap of Groups

### Q1: Calculate the average salary of the managers (i.e. those whose job title includes the word "Manager")

SELECT **[BLANK]**  
FROM Employees  
INNER JOIN Jobs USING(job\_id)  
WHERE job\_title **[BLANK]**;

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### Q2: Calculate the total paid on bonuses

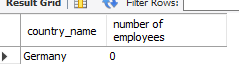
SELECT **[BLANK]** 'total bonuses'  
FROM Employees;

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### Q3: Calculate how many employees work in Germany

SELECT country\_name, **[BLANK]**  
**[BLANK]**Countries  
**[BLANK]**Locations USING(country\_id)  
**[BLANK]**Departments USING(location\_id)  
**[BLANK]**Employees USING(department\_id)  
WHERE country\_name = 'Germany';



### Q4: List the regions with no more than 3 employees in them

SELECT region\_name, **[BLANK]**  
**[BLANK]** Regions  
**[BLANK]** Countries USING(region\_id)  
**[BLANK]** Locations USING(country\_id)  
**[BLANK]** Departments USING(location\_id)  
**[BLANK]** Employees USING(department\_id)  
GROUP BY region\_name  
**[BLANK]**;

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### Q5: List the departments whose lowest salary is between 2000 and 3400

SELECT department\_name, MIN(salary) **[BLANK]**  
FROM Departments  
INNER JOIN Employees USING(department\_id)  
**[BLANK]**;

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### Q6: Calculate the range of salaries (highest minus lowest) in each location

SELECT street\_address, postal\_code, **[BLANK]**  
FROM Locations  
INNER JOIN Departments USING(location\_id)  
INNER JOIN Employees USING(department\_id)  
**[BLANK]**;

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### Q7: Calculate the total salaries of departments whose names end in “ing”

SELECT department\_name, **[BLANK]**  
FROM Departments  
INNER JOIN Employees USING(department\_id)  
**[BLANK]**;

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### Q8: Find the department whose name ends in “ing” and pays the most in total salaries

SELECT department\_name, **[BLANK]**FROM Departments  
INNER JOIN Employees USING(department\_id)  
**[BLANK]**;

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# Part Two – Simple Subqueries

### Q1: List the jobs whose maximum salary is above average

SELECT job\_title, min\_salary, max\_salary  
FROM Jobs  
WHERE **[BLANK]**;

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### Q2: List the employees who earn more than Bruce Ernst

SELECT first\_name, last\_name, salary  
FROM Employees  
WHERE **[BLANK]**;

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### Q3: List the employees and the difference between their salary and the average salary

SELECT first\_name, last\_name, salary, **[BLANK]** AS 'salary diff'  
FROM Employees;

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### Q4: List the departments who pay more in salaries than average

SELECT department\_name, **[BLANK]** AS 'total salaries'  
FROM Departments  
INNER JOIN Employees USING(department\_id)  
GROUP BY department\_name  
**[BLANK]**;

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### Q5: List the department(s) who pay out the most in total salaries (if more than one pay the joint-top, list them all)

SELECT department\_name, **[BLANK]** AS 'total salaries'  
FROM Departments  
INNER JOIN Employees USING(department\_id)  
GROUP BY department\_name  
**[BLANK]**;

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### Q6: List the employees and their salary as a percentage of the highest-paid employee, from highest to lowest

SELECT first\_name, last\_name, salary, **[BLANK]** AS 'percentage'  
FROM Employees  
ORDER BY **[BLANK]**;

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### Q7: List the employees who get paid more than the average of the IT department

SELECT first\_name, last\_name, salary  
FROM Employees  
**[BLANK]**;

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### Q8: Find the employee who has worked at the company for closest to the average amount of time

SELECT first\_name, last\_name, hire\_date  
FROM Employees  
**[BLANK]**  
LIMIT 1;

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# Part Three – Correlated Subqueries

### Q1: List the employees who manage at least 3 employees

SELECT first\_name, last\_name  
FROM Employees AS m  
WHERE (SELECT COUNT(\*) FROM Employees AS e **[BLANK]**) >= 3;

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### Q2: List the employees who earn the least in their department

SELECT first\_name, last\_name, department\_name, salary  
FROM Employees AS e1  
INNER JOIN Departments USING(department\_id)  
WHERE salary = (SELECT MIN(salary) FROM Employees AS e2 **[BLANK]**);

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### Q3: List the employees who earn the most in their jobs

SELECT first\_name, last\_name, job\_title, salary  
FROM Employees AS e1  
INNER JOIN Jobs USING(job\_id)  
WHERE salary = **[BLANK]**;

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### Q4: List the employees who earn more than the average among the employees with their manager

SELECT first\_name, last\_name, manager\_id, salary  
FROM Employees AS e1**[BLANK]**;

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### Q5: List the employees and the difference between their pay and the average for their job

SELECT first\_name, last\_name, salary, **[BLANK]** AS 'salary diff'  
FROM Employees AS e1  
ORDER BY **[BLANK]**;

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### Q6: List the employees who earn more than the average for the year they were hired in

SELECT first\_name, last\_name, salary, YEAR(hire\_date) AS 'hire year'  
FROM Employees AS e1  
WHERE **[BLANK]**  
ORDER BY **[BLANK]**;

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### Q7: List the employees who have worked the longest in their department

SELECT first\_name, last\_name, hire\_date, department\_name  
FROM Employees AS e1  
**[BLANK]** Departments USING(department\_id)  
**[BLANK]**;

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### Q8: List the most recent employees in each country

SELECT first\_name, last\_name, hire\_date, country\_name  
FROM Employees   
INNER JOIN Departments USING(department\_id)  
INNER JOIN Locations USING(location\_id)  
INNER JOIN Countries AS c1 USING(country\_id)  
WHERE hire\_date = **[BLANK]**;

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# Part Four – Deliberate Practice

### Q1: List the employees and the difference between how long they’ve been working for the company and the average time employees have been working for the company

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### Q2: For each department, list the number of employees they have in each job

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### Q3: Calculate the number of employees who earn below the average salary

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### Q4: List the departments, their total salaries and the percentage of the company’s total salary bill that the department pays

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### Q5: List the employees who have above average length surnames

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### Q6: List the jobs with the smallest range of possible salaries (if more than one job has the same smallest range, list all of them)

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### Q7: List the employees in order of how close they are to earning the maximum possible for their job

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### Q8: List the employees who earn more than the maximum available for at least one job role

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