# Labsheet Topic 6 – Subqueries

# Answers

# Completion Problems

### Q1. List the employees who earn more than the average salary in every department.

SELECT first\_name, last\_name, salary   
FROM employees   
WHERE salary > ALL (SELECT AVG(salary) FROM employees GROUP BY department\_id)

### Q2. List the employees who have worked at the company for longer than the average.

SELECT first\_name, last\_name   
FROM employees   
WHERE MONTHS\_BETWEEN(SYSDATE, hire\_date) >   
 (SELECT AVG(MONTHS\_BETWEEN(SYSDATE, hire\_date)) FROM employees);

### Q3. List the employees where the length of their department name is below average.

SELECT first\_name, last\_name, department\_name   
FROM employees   
INNER JOIN departments USING (department\_ID)   
WHERE length(department\_name) < (SELECT AVG(length(department\_name)) FROM departments);

### Q4. List the departments where the department’s manager’s first name is longer than the average first name in that department.

SELECT department\_name, first\_name AS "Manager Name", length(first\_name) AS "Name Length"  
FROM departments d1   
INNER JOIN employees ON d1.manager\_id = employees.employee\_id   
WHERE length(first\_name) > (SELECT AVG(length(first\_name))   
 FROM employees e2  
 INNER JOIN departments d2 ON e2.department\_ID = d2.department\_ID  
 WHERE d1.department\_name = d2.department\_name)   
GROUP BY department\_name, first\_name;

### Q5. List the departments where the average salary in that department is greater than 5000.

SELECT department\_name, ROUND(AVG(salary),2) AS "Average Salary"   
FROM employees   
INNER JOIN departments USING(department\_id)   
GROUP BY department\_name   
HAVING AVG(salary) > 5000;

### Q6. List the departments whose average salary is above the average of all employees.

SELECT department\_name, ROUND(AVG(salary),2) AS “Average Salary”   
FROM employees   
INNER JOIN departments USING(department\_id)   
GROUP BY department\_name   
HAVING AVG(salary) > (SELECT AVG(salary) FROM employees);

### Q7.List the employees whose salary is greater than the average salary among employees whose surnames end in the letter ‘s’.

SELECT first\_name, last\_name, salary   
FROM employees   
WHERE salary > (SELECT AVG(salary) FROM employees WHERE last\_name LIKE ‘%s’)

### Q8. List all the employees and their bonuses. For those without a bonus, show the average bonus instead.

SELECT First\_name, last\_name,   
 NVL(bonus, (SELECT ROUND(AVG(BONUS)) FROM Employees)) AS Bonus  
FROM Employees;

# Deliberate Practice: Write the SQL

### Q1. List the employees earning more than the mid-range for their job

SELECT first\_name, last\_name, salary, max\_salary, min\_salary

FROM employees

INNER JOIN jobs USING (job\_id)

WHERE salary > ((max\_salary - min\_salary)/2.0+min\_salary);

### Q2. List the employees earning the most in each department.

SELECT first\_name, last\_name, department\_name, salary

FROM employees e1

INNER JOIN departments

ON e1.department\_id = departments.department\_id

WHERE salary = (SELECT MAX(salary)

FROM employees e2

WHERE e1.department\_id = e2.department\_id);

### Q3. For each telephone group (i.e. they share the same first six digits), give the average salary of the group.

SELECT SUBSTR(phone\_number,0,7) AS "Phone Prefix",

ROUND(AVG(salary),2) AS "Average Salary"

FROM employees

GROUP BY SUBSTR(phone\_number,0,7);

### Q4. List the average salary of departments whose average is above the company-wide average

SELECT department\_name, ROUND(AVG(salary),2) AS "Average Salary"

FROM employees

INNER JOIN departments USING (department\_id)

GROUP BY department\_name

HAVING AVG(salary) > (SELECT AVG(salary) FROM employees);

### Q5. List the employees earning more than a third of their manager’s salary.

SELECT e.first\_name AS "first name", e.last\_name AS "last name",

e.salary AS "salart", m.salary AS "manager's salary"

FROM employees e

LEFT JOIN employees m ON e.manager\_id = m.employee\_id

WHERE e.salary > 0.5\*m.salary;

### Q6. CHALLENGE! List, for each employee, what their annual salary would be if they received an end of year bonus equal to the average of the bonuses paid out to those who receive them.

SELECT first\_name, last\_name,

ROUND((salary\*12)+

(SELECT AVG(bonus) FROM employees),2) AS “new annual income”

FROM employees;

### Q7. CHALLENGE! List the employees earning the most of those hired in the same year as they were.

SELECT first\_name, last\_name, salary, hire\_date

FROM employees e1

WHERE salary = (SELECT MAX(salary)

FROM employees e2

WHERE EXTRACT(YEAR FROM e1.hire\_date) =

EXTRACT(YEAR FROM e2.hire\_date));

### Q8. CHALLENGE!! List the top three departments with the highest spread of actual wages

SELECT department\_name

FROM departments

INNER JOIN employees e1 USING (department\_id)

GROUP BY department\_name

ORDER BY (SELECT MAX(salary) - MIN(salary) FROM employees e2 WHERE department\_id = e2.department\_id) DESC

FETCH FIRST 3 ROWS ONLY;