**6G4Z0016 Databases**

**Introduction to MariaDB Databases and SQL**

**Part 7: Outer Joins & Subqueries**

**Aim**

The aim of this week’s labs is to:

* Use outer table joins to write queries where data is required from 2 or more tables
* Use subqueries

**Activities**

**Part 1 Outer Joins**

INNER JOINS return rows that match between tables, but sometimes you need to get hold of rows that do not match. To do this you need to use OUTER JOINS.

1. Write a query to return the number of jobs (count of job\_ids) and the department\_name for all employees, including those who are not assigned to a department, where the commission\_pct is not NULL. Record your answer in the box below.
2. a) Write a query to return the first\_name, last\_name, and department\_name for all employees, including those who are not assigned to a department. Make sure that departments without employees are excluded from the list. Record your answer in the box below. *Hint: The lecture on Joins might help you to decide what join you need.*
3. b) If you wanted to also list the departments without employees, what statement would you use?

**Part 2 Subqueries**

1. Subqueries are queries that sit inside other queries. These can be used wherever appropriate in a query, including WHERE clauses and SELECT clauses.

So, for example, if we wanted to find out who was hired after Peter Vargas was hired. This involves finding out two things, in order. First, we have to find out when Peter Vargas was hired. Secondly, then we can find out who was hired after him. The part we need to know first becomes the subquery and we build the second query around the answer we produce to the first. This produces the query below.

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

FROM employees

WHERE hire\_date > (SELECT hire\_date FROM employees WHERE last\_name = 'Vargas');

a) Write a query to return all those employees who have a salary greater than that of Lorenz and are in the same department as Abel.

b) Write a query to return the first and last names of all employees whose salaries are the same as the minimum salary of all employees.