

# Advanced SQL - Exercise 1

## Exercise 1

Move into the MySQL environment by typing `mysql` in the terminal.

Use the **Bus\_Depots** Database to carry out the following exercises:

(Note that the commands are not case-sensitive in ++MySQL++)

1. **(Project, RESTRICT)** List all drivers (number and name) who have a salary of less than 1800.
2. **(Conditional operator LIKE)** List all bus drivers (number and name) whose name begins with J.
3. **(Conditional operator BETWEEN)** List all bus drivers details for those drivers who have a salary between 2000 and 4000
4. **(AND)** List all buses (registration number and model) of type 2 which are not based at depot 101.
5. **(OR)** List buses (all details )which are either Volvo model s or Mercedes models. What is the output when you change OR to AND?
6. **(Controlling duplicates using DISTINCT)** List all depot numbers in the bus table. Now eliminate all duplicates.
7. **(Two table Join – INNER JOIN)** List all cleaners (number and name) with the name and address of their depot, but only for those cleaners located at a depot.
8. **(Three table JOIN)** List bus drivers (number and name) and the bus types (description) for which each bus driver has had training
9. **(Four table JOIN)** List all cleaners (number and name), the name of their depot and the bus registration numbers with the type of bus that they are responsible for.
10. **(OUTER JOIN)** Rewrite question 7 as an OUTER JOIN. Describe the query in English. Now list all cleaners (number and name), the name of their depot and the bus registration numbers with the type of bus that they are responsible for, including those cleaners who are not assigned to a bus or a depot.

# Advanced SQL - Exercise 2

## Exercise 2

Now write the following queries using SQL:

1. **(Built-in functions)** Find the maximum, minimum and average driver's salary.
2. **(Built-in functions)** Count the number of drivers who are working for Middlesex Transport at the moment. Change the column heading in the result to make it 'friendly'.
3. **(Use a subquery to answer this question)** Find route information (route number and description) for all routes which connect to the Holloway Depot.
4. Now try question 3 with a **JOIN**.
5. **(NULL)** List bus details for any bus which has not been assigned to a depot.
6. **(NOT IN)** List all drivers (name and number) who are on the system but are not yet responsible for a route.
7. **(GROUP BY)** List each depot name and the average salary for drivers working at the depot.
8. **(GROUP BY HAVING)** List each depot by name and count the number of bus drivers who are assigned to each, for depots with more than one driver.
9. **(GROUP BY plus JOIN)** For each cleaner responsible for buses of bus type doubledecker or minibus, list his/her name and number and find the total number for which each cleaner is responsible.
10. **(ORDER BY)**
  - a. List all drivers (name and number) and their routes (number and description, order by driver number.
  - b. Now order by route description within driver number.