AUT UNIVERSITY COMPUTER + MATHEMATICAL SCIENCES

COMP810 – Data Warehousing and Big Data

Lab 2: SQL functions and Aggregating data using Group Functions

After completing this lesson, you should be able to do the following:

- Limit the rows that are retrieved by a query
- Use of single row function e.g. character and date functions
- Use of group functions and group by clause
- Applying of conditions on group functions using having clause

Task: Use the HR database to create the following queries. Save your queries in a file (week2.sql) in a folder on your home drive.

1- Use SQL character functions to generate a report for staff names and full email address (email_ID@megacorp.com). The output should be formatted as following:

```
Full Name            Email
-------------------- -------------------------
ABEL, Ellen          eabel@megacorp.com
ANDE, Sundar         sande@megacorp.com
ATKINSON, Mozhe      matkinso@megacorp.com
```

Last Name — First Name

2- Use formatting functions to generate a report that display employees last names, basic salary with local currency as a prefix (e.g. NZD), commission percentage, and commission value (Salary * Commission %). If there is no commission value, the report should display "No Commission" message. The output should be alphabetically sorted with respect to the last names as shown below:

```
LAST_NAME    Salary     Commission % Commission
------------ ---------- ------------ --------------------
Abel         NZD 11,000           .3                 3300
Ande         NZD  6,400           .1                  640
Atkinson     NZD  2,800            0       No Commission
Austin       NZD  4,800            0       No Commission
```

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3- Generate a report to display full name, length (number of characters) of full name, hire day and hire date for all staff members who earn a commission and do not hold the job title "SA_MAN". Rename the columns accordingly and format the report as following:

Full Name	Name Length	Hire Day	Hire Date
Peter Tucker	11 Char.	Thursday	January 30th 1997
David Bernstein	14 Char.	Monday	March 24th 1997
Peter Hall	9 Char.	Wednesday	August 20th 1997
Christopher Olsen	16 Char.	Monday	March 30th 1998

4- Generate a dynamic report to search for specific first name value and display the employee full name, job title, and full email address (email_ID@megacorp.com). The report should accept the end user input for first name value in any format (Uppercase, Lowercase, Mix-case). Rename the columns accordingly and format the report as following:

Full Name	Job Title	Email
Pat Fay	MK_REP	pfay@megacorp.com

5- Generate a report to display the minimum, maximum, mean, and standard deviation for the salary attribute. Rename the column names accordingly. Also round both average and standard deviation columns to two decimal places.

6- Generate a report to display a unique list of job titles from the employees table with number of employees for each job title. Sort the output by the number of employees in each job from highest to lowest. Format the report as following:

Job Title	Number of Staff
SA_REP	30
ST_CLERK	20
SH_CLERK	20
FI_ACCOUNT	5

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7- Modify the report in question 5 to display the minimum, maximum, average, and standard deviation of salary for all employees in department 80. Round both average and standard deviation columns to two decimal places.

8- Generate a report to calculate the average salary in each department (i.e. department name). The average salary must be rounded to 2 digits numbers according to the following format. Sort the output by the average salary values in descending order.

Department No	Department Name	Average Salary
90	Executive	19333.33
110	Accounting	10150
70	Public Relations	10000
20	Marketing	9500

9- Modify the previous report to display the average salary in each department but only for departments who have average salary more than 6000.

10- Generate a report to display staff full name, job title, department name, start date, end date and the number of months spent in that position. Rename the columns accordingly and format the report as following.

Note: some employees may used to work in a different department from their current one. The query MUST display the department name and job title for that employee during the time period in the job history table.

Full Name	Job Title	Department Name	Start Date	End Date	# Months in Position
Neena Kochhar	Public Accountant	Accounting	21/09/89	27/10/93	49
Neena Kochhar	Accounting Manager	Accounting	28/10/93	15/03/97	41
Lex De Haan	Programmer	IT	13/01/93	24/07/98	66
Den Raphaely	Stock Clerk	Shipping	24/03/98	31/12/99	21
Payam Kaufling	Stock Clerk	Shipping	01/01/99	31/12/99	12
Jonathon Taylor	Sales Representative	Sales	24/03/98	31/12/98	9
Jonathon Taylor	Sales Manager	Sales	01/01/99	31/12/99	12
Jennifer Whalen	Administration Assistant	Executive	17/09/87	17/06/93	69
Jennifer Whalen	Public Accountant	Executive	01/07/94	31/12/98	54
Michael Hartstein	Marketing Representative	Marketing	17/02/96	19/12/99	46

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