**Homework 1.3:**

**SQL Advanced window functions & OLAP queries**

**PART I: advanced window functions**

Using the dataset provided (employee) below, write the SQL queries, and screenshot the output for each of the window features given in the query (**Assume: Order by Salary ASC**).

A screenshot of a computer

Description automatically generated

1. Write a query to compute for the **FIRST\_VALUE()** given the above dataset and return the value along with the entire row.
2. Write a query to compute for the **LAST\_VALUE()** and return the value along with the entire row.
3. Write a query to compute for **LEAD(2)** for Guy and return the value along with the Guy’s row.
4. Write a query to compute for **LAG(4)** for Pat and return value along with Pat’s row.
5. Write a query to compute the **RANK()** and **DENSE\_RANK()** and return the entire dataset, including the rank and dense rank for each employee.
6. Write a query to compute the **RANK()** and **DENSE\_RANK()** but only return Valli’s and Bruce’s rank and dense rank.
7. Write a query to compute the **ROW\_NUMBER()** for Irene and Sarah and only return the rows corresponding to them.
8. Write a query to compute the **PERCENT\_RANK()** and return the entire dataset, including the percent rank for each employee. Format your PERCENT\_RANK() values to 100%.
9. Write a query to compute the **CUME\_DIST()** and return the entire dataset, including the percentage rank for each employee. Format your CUME\_DIST() values to 2 decimal places.
10. Write a query to compute the **NTILE(4)** and return the entire dataset showing approximately equal groups/buckets.

**Windowing activity**

* Find a running total of covid admissions over three days (i.e., previous day, current day and next day)
* Find a 7-day moving average of covid patients in ICU.
* Find a running total of covid deaths in each state.

Material required: covid data set attached.

**PART II: OLAP queries**

* What are the total sales of each product in each region and country?
* What are the total sales of each product in each region and country, including subtotals and the grand total?
* What are the total sales generated by each product in each region and country, including all subtotals and grand totals?

Material required: regional sales dataset attached.

**Submission requirements:**

* + the query statements.
  + the SQL commands.
  + query result/output (screenshots).
  + Submit as a single PDF file via the submission link on the Blackboard.

Deadline: 22nd September 2023 Time: 23h59 (Chicago Time).