Business Intelligence - Tutorial 5 - OLAP

In this tutorial we are going to see the OLAP queries allowed in Postgresql (version 9.6). We will use SQL Workbench/J (www.sql-workbench.net) and the type-4 driver for postgresql.

Tutorial assignment.

You have to execute the folllowing queries on the database schema and cube built in the previous sessions. *For each query*, create a text file where you include the query and the result. The name of the file will be set to Q#.sql, where # means the number of exercise.

A SQL join with the dw_ingresos complete cube is:

```
SELECT S.servicio_procedencia, G.tipo, P.sexo, T.fecha, F.duracion
from dw_ingresos.dw_fact_ingreso F,
      dw_ingresos.dw_dim_proc S,
      dw_ingresos.dw_dim_tipoingreso G,
      dw_ingresos.dw_dim_paciente P,
      dw_ingresos.dw_dim_time T
where F.fk_procedencia=S.pk_procedencia        -- REUNIENDO FACT CON PROCEDENCIA
      and F.fk_paciente=P.pk_paciente          -- REUNIENDO FACT CON PACIENTE
      and F.fk_tipo_ingreso=G.pk_tipo_ingreso  -- REUNIENDO FACT CON TIPO INGRES
      and F.fk_tiempo=T.pk_tiempo              -- REUNIENDO FACT CON TIEMPO
;
```

Queries

1 – Basic SQL: (just warming up)

- 1.1 Average duration of all admissions.
- 1.2 Average duration of all admissions on February.
- 1.3 Average duration of admissions of male patients on February 2004.
- 1.4 For each procedence, show the number of admissions.
- 1.5 The length of the longest admission.
- 1.6 All data about the longest admission.

2 – For each admission, show the type, date, procedence service, duration, and the average duration of the admissions of its same procedence.

3 – Now, sort the partition by time, What happend?

4 – Sort the type of admissions according to the average length, showing that average.

5 – Show the same than in the previous query but according to the amount of admissions and their total number of days. Do they follow the same order?

6 – Rank the admissions according to their duration. For every admission, show its ranking, and sort them by lenght and date. What is the last number of the ranking?

7 – Now use a dense ranking. What is the last number of the ranking?

8 – Assign a rownumber to the rows in the previous query.

9 – Show the same ranking as in query 7, but considering the ranking of the admissions only within their own type of admission.

10 – For each admission sorted by date, show the total number of days until that moment. That is, we get something like:
- Day 1: 4 4
- Day 2: 1 7
- Day 2: 2 7
- Day 3: 1 8

11- Do the same as in query 10, but now consider the different admissions on the same day. That is, we get something like:
- Day 1: 4 4
- Day 2: 1 5
- Day 2: 2 7
- Day 3: 1 8

12 – Rank the month according to the total amount of admissions (from higher to lower).