Lab 5: OLAP Exercises (with Answers)

# 1. Overview

It’s time for you to complete the OLAP queries on your own.

We will continue to use the data mart file from the last lab. If you have lost this file, please refer to Lab 3 to retrieve the file.

# 2. Exercises

Query 5.1a: Show the sales receipts and quantity by product category in Dec 2010.

SELECT p.category, SUM(s.receipts) AS total\_receipts, SUM(s.quantity) AS total\_qty

FROM sales s JOIN date d ON s.keyD = d.keyD

JOIN product p ON s.keyP = p.keyP

WHERE d.month = '2010 Dec'

GROUP BY category;

Query 5.1b: Show the sales quantity by product category and by store country.

SELECT pr.category, st.country, SUM(sa.quantity) AS qty

FROM sales sa JOIN product pr ON sa.keyP = pr.keyP

JOIN store st ON sa.keyS = st.KeyS

GROUP BY category, country;

Query 5.1c: Show the sales receipts and gross margin ratio of the brand 'Better' in the USA states ‘CA’ and ‘WA’. Break down the number by states and product category.

SELECT SUM(sa.receipts) AS total\_receipts,

(SUM(sa.receipts) - SUM(sa.cost)) / SUM(sa.receipts) AS gross\_margin\_ratio

FROM sales sa JOIN product pr ON sa.keyP = pr.keyP

JOIN store st ON sa.keyS = st.KeyS

WHERE st.state IN ('CA', 'WA') AND pr.brand = 'Better';

Query 5.1d: Show the monthly sales quantity of products of type 'Pancakes' and 'Coffee' to male customer in stores in cities 'Los Angeles' and 'Beverly Hills' in Jul-Dec of 2010. Break down the numbers by month and product type.

SELECT da.month, pr.type, SUM(sa.quantity) AS monthly\_sales

FROM sales sa JOIN product pr ON sa.keyP = pr.keyP

JOIN store st ON sa.keyS = st.KeyS

JOIN date da ON sa.keyD = da.keyD

JOIN customer cu ON sa.keyC = cu.keyC

WHERE (da.month = '2010 Jul' OR da.month = '2010 Aug' OR

da.month = '2010 Sep' OR da.month = '2010 Oct' OR

da.month = '2010 Nov' OR da.month = '2010 Dec')

AND (pr.type = 'Pancakes' OR pr.type = 'Coffee')

AND (st.city = 'Los Angeles' OR st.city = 'Beverly Hills')

AND cu.gender = 'M'

GROUP BY month, pr.type;

Query 5.1e: What are the average prices of products of type ‘Soda’ sold in 2010? Show the average price by customer’s occupation.

SELECT cu.occupation, AVG(sa.receipts) AS average\_price

FROM sales sa JOIN product pr ON sa.keyP = pr.keyP

JOIN date da ON sa.keyD = da.keyD

JOIN customer cu ON sa.keyC = cu.KeyC

WHERE pr.type = 'Soda' AND da.year = '2010'

GROUP BY occupation;

Query 5.1f: What are the total sales receipt of the product category ‘Beer and Wine’ in 2010? Break down the numbers by customer gender and marital status.

SELECT cu.gender, cu.marital\_status, SUM(sa.receipts) AS beer\_and\_wine\_in\_2010

FROM sales sa JOIN date da ON sa.keyD = da.keyD

JOIN product pr ON sa.keyP = pr.keyP

JOIN customer cu ON sa.keyC = cu.keyC

WHERE da.year = '2010'

AND pr.category = 'Beer and Wine'

GROUP BY gender, marital\_status;

Query 5.1g: What are the total sales receipt in 2010, broken down by month, quarter, product family and product department?

SELECT da.month, da.quarter, pr.family, pr.department,

SUM(sa.receipts) AS total\_sales\_2010

FROM sales sa JOIN date da ON sa.keyD = da.keyD

JOIN product pr ON sa.keyP = pr.keyP

WHERE da.year = '2010'

GROUP BY month, quarter, family, department;

Query 5.1h: What are the average daily receipts on Sundays in 2010? What are the average daily receipts in 2010, broken down by day-of-week?

SELECT da.dow, AVG(sa.receipts) AS avg\_sunday\_daily\_receipts\_2010

FROM sales sa JOIN date da ON sa.keyD = da.keyD

WHERE da.year = '2010' AND da.dow = 'Sunday'

GROUP BY dow;

Query 5.1i: For each product category, find the total quantity sold for each product brand. Sort the brands in the best-selling order.

SELECT pr.category, pr.brand, SUM(sa.quantity) AS total\_quantity

FROM sales sa JOIN product pr ON sa.keyP = pr.keyP

GROUP BY category, brand

ORDER BY category, total\_quantity DESC;