Part 2

Suppose a market shopping data warehouse consists of four dimensions: customer, date, product, and store, and two measures: count, and avg sales, where avg sales stores the real sales in dollar at the lowest level but the corresponding average sales at other levels.

1. (20 points) Draw a snowake schema diagram (sketch it, do not have to mark every possible level, and make your implicit assumptions on the levels of a dimension when you draw it).

2. (20 points) Starting with the base cuboid [customer, date, product, store], what specic OLAPoperations (e.g., roll-up student to department (level)) that one should perform in order to list the average sales of each cosmetic product since January 2005 ?

3. (10 points) If each dimension has 5 levels (excluding all), such as store-city-state-region-country, how many cuboids does this cube contain (including base and apex cuboids)?

FACT

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Count

AvgSales

Customer Dimension

Date Dimension

Product

Dimension

Store Dimension

**2. List the average sales of cosmetic product since January 2005**

* Roll up Avg Sales to year (roll up to day, month and year)
* Slice for (year = 2015)
* Roll up to get Avg Sales to each product category
* Slice for (product category = ‘cosmetic’)

Translate to SQL

SELECT year, product\_name, avg(sales) FROM Sales

GROUP BY

WHERE product\_category = ‘cosmetic’ AND year = 2015

**3. 4 dimension, 5 levels at each dimension**

Text

Description automatically generated

N = 4; L = 5

T = (L1 + 1)\*(L2 + 1)\*(L3+ 1) \* (L4+ 1) = 6\*\*4 = 1296