

Data Warehousing

CS-452

Spring 2023

Activity 6

Question 1:

Perform the following OLAP operations on the following data cube and show the final result (data cube).

Hint: you can use dummy data if the cell in the resultant data cube is empty.

- i. Roll-up on Location dimension.
- ii. Drill-down on 'Time' dimension.
- iii. Slice on City = 'Vancouver'.
- iv. Dice on City = 'Toronto' and 'Vancouver' and Quarter = 'Q1' and 'Q2'.
- v. Dice on City = 'New York' and 'Chicago' and Quarter = 'Q1'.

The diagram shows a 3D data cube with the following dimensions and data:

- location (cities):** Chicago, New York, Toronto, Vancouver
- time (quarters):** Q1, Q2, Q3, Q4
- item (types):** computer, security, home entertainment, phone

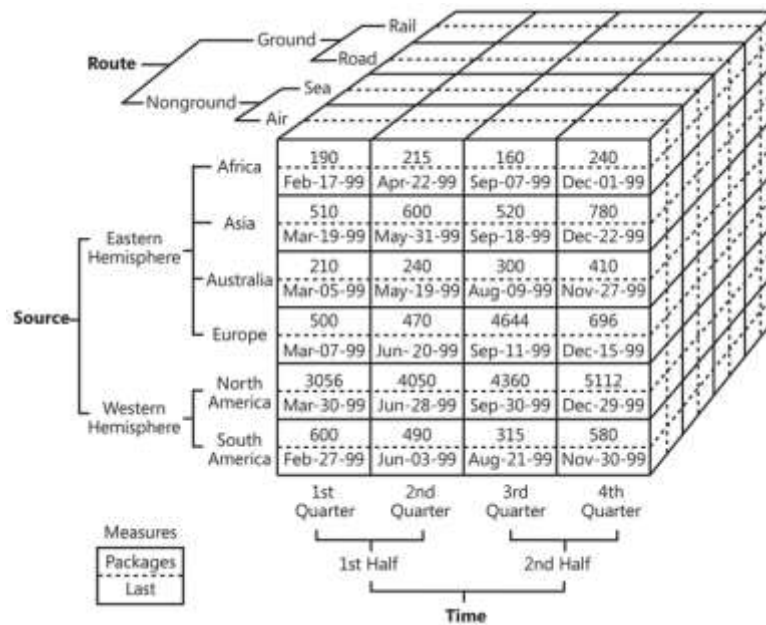
location (cities)	computer	security	home entertainment	phone
Chicago	854	882	89	623
New York	1087	968	38	872
Toronto	818	746	43	591
Vancouver				
Q1	605	825	14	400
Q2	680	952	31	512
Q3	812	1023	30	501
Q4	927	1038	38	580

Question 2:

Perform the following OLAP operations on the following data cube and show the final result (data cube).

Hint: you can use dummy data if the cell in the resultant data cube is empty.

- i. Roll-up on Source dimension.
- ii. Slice on Route = 'Air'.
- iii. Dice on Route = 'Sea' and 'Air' and Source = 'Africa' and 'Asia'.
- iv. Dice on Route = 'Air' and Source = 'Africa'.
- v. Dice on Route = 'Air' and Source = 'Western Hemisphere' and Time = '2nd Half'.



Question 3:

Perform the following OLAP operations on the following data cube and show the final result (data cube).

Hint: you can use dummy data if the cell in the resultant data cube is empty.

- i. Roll-up to the Country level.
- ii. Drill-down to the Month level
- iii. Sort product by name
- iv. Slice on City='Paris'
- v. Dice on City='Paris' or 'Lyon' and Quarter='Q1' or 'Q2'
- vi. Maximum sales by quarter and city
- vii. Top two sales by quarter and city
- viii. Top 70% by city and category ordered by ascending quarter
- ix. Rank quarter by category and city ordered by descending quantity

Customer (City)	Product (Category)				Time (Quarter)			
	Produce		Seafood		Beverages		Condiments	
	Köln		Berlin		Lyon		Paris	
	Q1		Q2		Q3		Q4	
	21		27		26		14	
	10	18	35	35	14	23	18	17
	30	12	32	31	10	33	18	18
	32	31	10	33	18	17	18	18
	31	10	33	18	17	18	18	18
	31	10	33	18	17	18	18	18



Question 4:

Download [Pentaho](#) (PDI) and perform any five OLAP operations use your Assignment 2 database and show the final result (data cube screen shot).

Note:

Prepare a word document to upload using snapshot and written explanation.
MS Word file name should be as follows (Don't change the format).

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If you use any website, book, or research paper provide the link(s).

Make sure to upload prepared activity Word Document, script, package and dataset files or any other supporting files.