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Exp7

Aim: Perform OLAP operations such as Roll up, Drill down, Slice and Dice, Pivot on Datawarehouse.

Theory:

OLAP is an acronym for On Line Analytical Processing. Online Analytical Processing: An OLAP system manages large amount of historical data, provides Facilities for summarization and aggregation, and stores and manages information at different levels of granularity.

OLAP operations:

Slice: A slice is a subset of a multi-dimensional array corresponding to a single value for one or more members of the dimensions not in the subset.

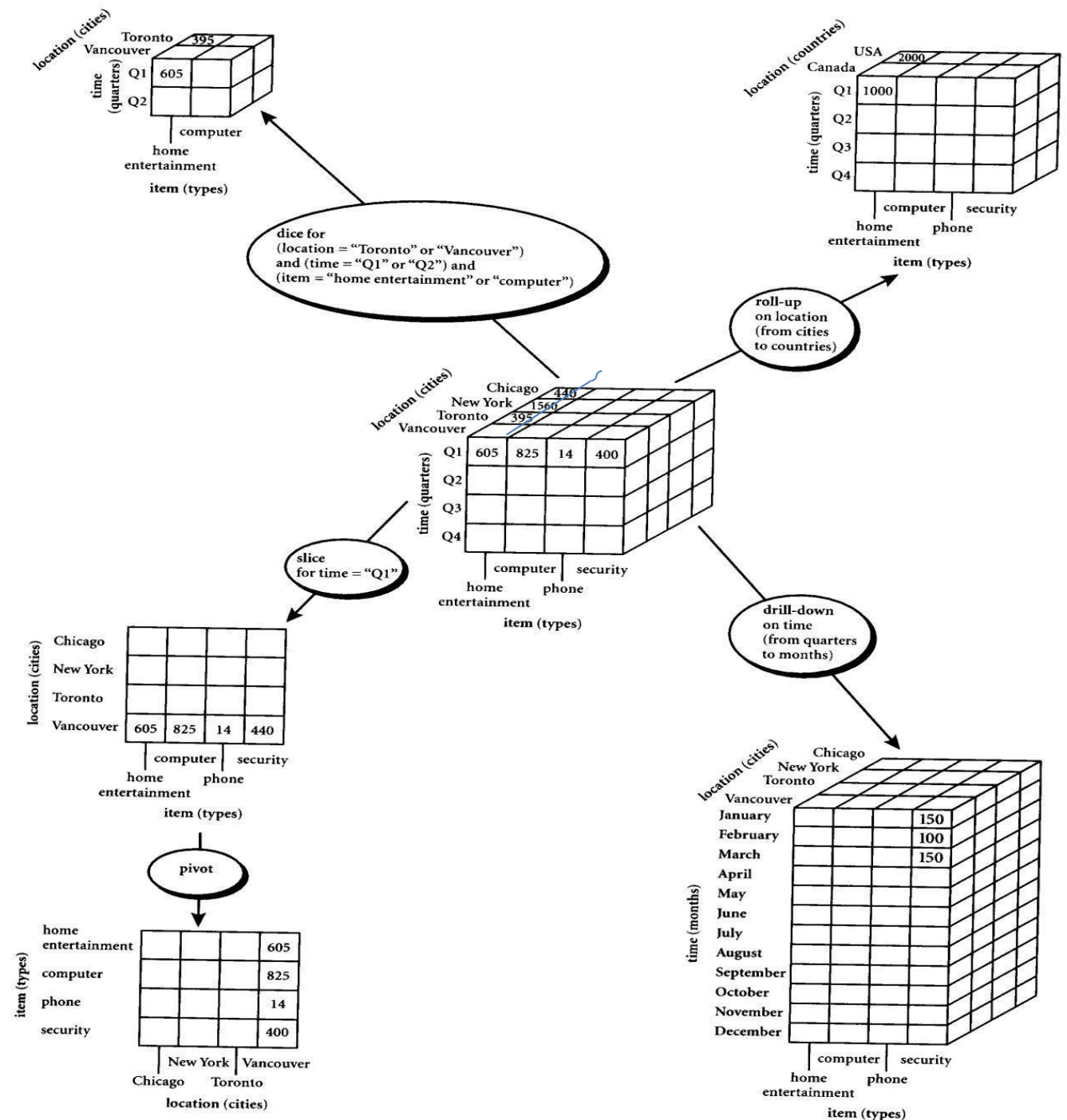
Dice: The dice operation is a slice on more than two dimensions of a data cube (or more than two consecutive slices).

Drill Down/Up: Drilling down or up is a specific analytical technique whereby the user navigates among levels of data ranging from the most summarized (up) to the most detailed (down).

Roll-up: A roll-up involves computing all of the data relationships for one or more dimensions.

To do this, a computational relationship or formula might be defined.

Pivot: To change the dimensional orientation of a report or page display.



EXERCISE 1

Consider a data Warehouse for a hospital, where there are three dimensions:

- (i) Doctor
- (ii) Patient
- (iii) Time

With two measures

- (a) Count
- (b) Charge

Where Charge is the fee that the Doctor charges a patient for a visit.

Using the above example describe the following operations:

- (i) Slice
- (ii) Dice
- (iii) Roll Up
- (iv) Drill Down
- (v) Pivot

NOTE: Assume data according to the dimensions and measures and explore individual tasks diagrammatically.

DMW
Exp - 7

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Exercise 1:

(Dose)	D ₄	350	150	400	100
	D ₃	200	500	350	240
	D ₂	200	280	180	170
	D ₁				
(Time)	Q ₁	100	180	125	200
	Q ₂	200	0	300	100
	Q ₃	150	530	280	370
	Q ₄	50	270	100	0
		P ₁	P ₂	P ₃	P ₄
		(Patient)			

Slice :-

D ₄	350	150	400	100
D ₃	200	500	350	240
D ₂	200	280	180	170
D ₁	100	180	125	200
	P ₁	P ₂	P ₃	P ₄

Dice :-

D ₂	200	280
D ₁	100	180
Q ₁	200	0
Q ₂		
	P ₁	P ₂

Roll Up:-

	550	650	700	840
Q ₁	300	480	305	370
Q ₂	200	0	300	150
Q ₃	150	530	220	330
Q ₄	50	270	100	0
	P ₁	P ₂	P ₃	P ₄

Drill Down:-

	250	150	400	100
D ₄	300	500	350	240
D ₃	200	280	100	170
D ₂				
D ₁				
January	70	90	75	100
February	15	45	25	50
March	15	25	25	50
April	50	0	100	75
May	100	0	150	25
June	50	0	50	50
July	50	200	70	100
August	50	100	120	200
September	50	250	70	70
October	10	90	50	0
November	20	100	30	0
December	20	80	20	0
	P ₁	P ₂	P ₃	P ₄

Pivot:-

P ₁	100	200	300	250
P ₂	180	280	500	150
P ₃	125	180	350	400
P ₄	200	170	240	100
	D ₁	D ₂	D ₃	D ₄

EXERCISE 2

To create Pivot of Table using MS Excel

Follow these steps ...

1. Start with M.S Excel.
2. In excel sheet create 4 columns PRODUCT, ORIGIN, DAY OF SALE, SOLD UNITS (FACT COLUMN).
3. Insert around fifty rows of data.
4. Save the table data.
5. Go to Insert Tab-> click on Pivot Table-> New work sheet-> Ok.
6. Right side you will find pivot table fields.

It contains all columns of our table that we created.

Select product in rows,

Days in column,

Unit sold in Σ values.

Later apply filter using Origin.

Also, we can flip the rows & columns or combine together as rows only to see different views of same data.

Dataset:

A	B	C	D
PRODUCT	ORIGIN	DAY OF SALE	SOLID UNITS
A	East	01-01-2023	8
B	Central	02-01-2023	4
C	Central	03-01-2023	2
D	Central	04-01-2023	5
E	West	05-01-2023	6
F	East	06-01-2023	9
G	Central	07-01-2023	9
H	Central	08-01-2023	1
I	West	09-01-2023	1
J	East	01-01-2023	8
K	Central	02-01-2023	4
L	East	03-01-2023	6
M	East	04-01-2023	7
N	East	05-01-2023	9
O	Central	06-01-2023	5
P	East	07-01-2023	2
Q	Central	08-01-2023	1
R	East	09-01-2023	3
S	East	01-01-2023	6
T	Central	02-01-2023	5
U	Central	03-01-2023	8
V	East	04-01-2023	4
X	Central	05-01-2023	8
Y	Central	06-01-2023	9
Z	East	07-01-2023	2

PivotTable Fields

Choose fields to add to report: ⚙️

Search 🔍

- ☒ PRODUCT
- ☒ ORIGIN
- ☒ DAY OF SALE
- ☒ SOLID UNITS

More Tables...

Drag fields between areas below:

Filters	Columns
ORIGIN	DAY OF SALE
Rows	Values
PRODUCT	Sum of SOLID UNITS

ORIGIN	East								
Sum of SOLID UNITS	Column Labels								
Row Labels		01-01-2023	03-01-2023	04-01-2023	05-01-2023	06-01-2023	07-01-2023	09-01-2023	Grand Total
A		8							8
F						9			9
J		8							8
L			6						6
M				7					7
N					9				9
P							2		2
R								3	3
S		6							6
V				4					4
Z							2		2
Grand Total		22	6	11	9	9	4	3	64

Conclusion: Thus, we performed various OLAP instructions.