

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

**Theory:**

OLAP is an acronym for On Line Analytical Processing. Online Analytical Processing:  
An

OLAP system manages large amounts 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 multidimensional 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.

DMW  
Experiment 7

Exercise 1 :-

A)

Doctors	$D_1$	$D_4$	250	150	400	100
		$D_3$	200	500	350	240
		$D_2$	200	280	180	170
		$D_1$				
$Q_1$			100	180	125	200
$Q_2$			200	0	300	150
$Q_3$			150	530	280	376
$Q_4$			50	270	100	0
			$P_1$	$P_2$	$P_3$	$P_4$

SLICE :

	$D_1$	$P_4$	250	150	400	100
		$P_3$	300	500	350	240
		$D_2$	200	280	180	170
		$D_1$				
$Q_1$			100	180	125	200
			$P_1$	$P_2$	$P_3$	$P_4$

DICE :

	$D_1$	$D_2$	200	280
		$D_1$		
$Q_1$			100	180
$Q_2$			200	0

ROLLUP: specialization  $\rightarrow$  audio, Neuro

	P			
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>
Q <sub>1</sub>	300	4200	305	370
Q <sub>2</sub>	200	0	300	150
Q <sub>3</sub>	150	530	280	390
Q <sub>4</sub>	50	270	100	0

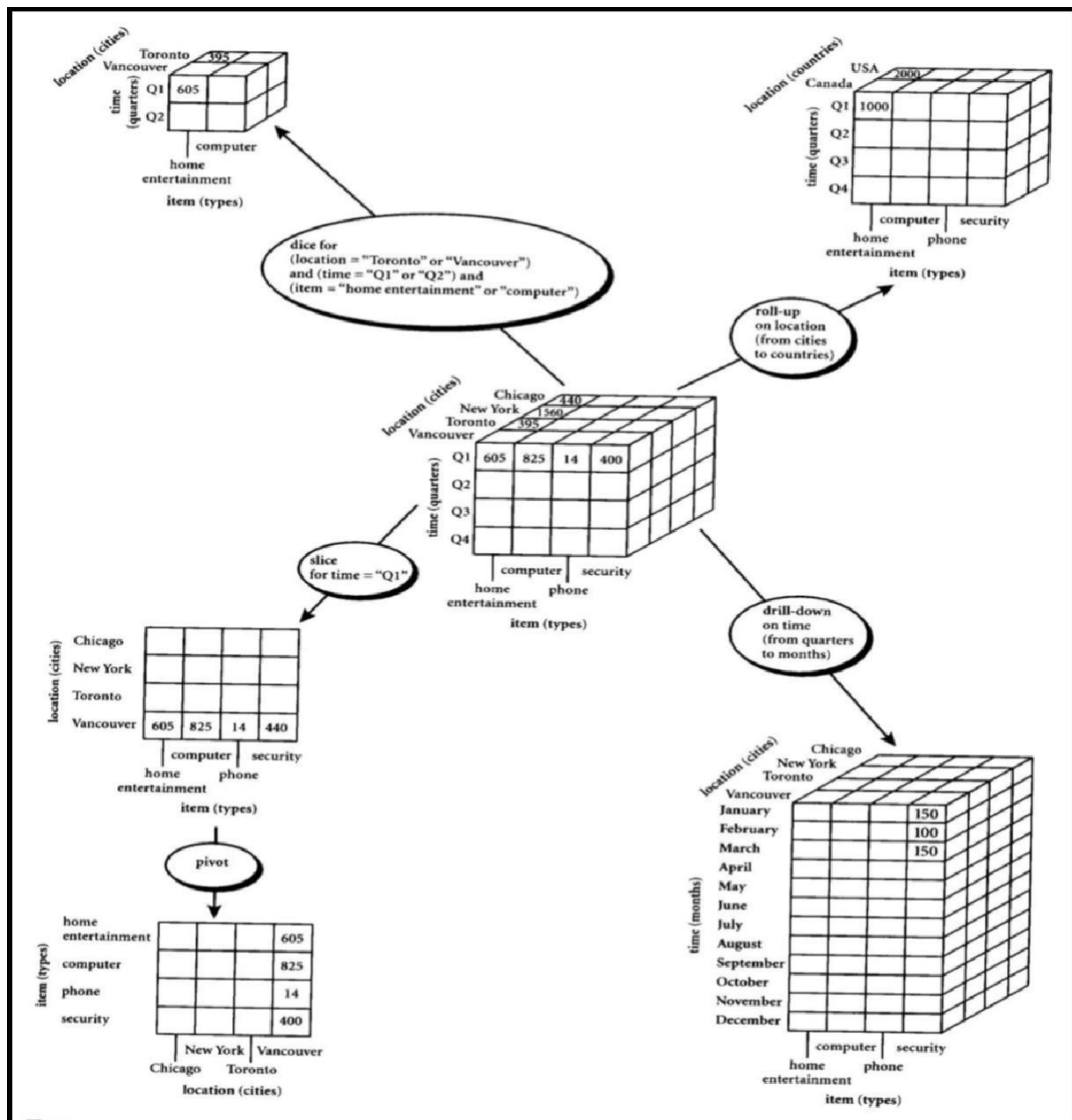
DRILL DOWN:

	P			
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>
Jan	70	90	75	100
Feb	15	45	25	50
March	15	45	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	140	200
September	50	230	70	70
November	10	90	50	0
December	20	100	30	0

PIVOT:

	P			
	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>
D <sub>1</sub>	160	200	300	250
D <sub>2</sub>	180	280	500	150
D <sub>3</sub>	125	180	350	900
D <sub>4</sub>	200	170	240	100





## 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  $\Sigma$  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
1	Product	Origin	Day of Sale	Unit Sold
2	WHITE HANGING HEART T-LIGHT HOLDER	United Kingdom	01-12-2010 8.26	6
3	WHITE METAL LANTERN	United Kingdom	01-12-2010 8.26	6
4	CREAM CUPID HEARTS COAT HANGER	United Kingdom	01-12-2010 8.26	8
5	KNITTED UNION FLAG HOT WATER BOTTLE	United Kingdom	01-12-2010 8.26	6
6	RED WOOLLY HOTTIE WHITE HEART.	United Kingdom	01-12-2010 8.26	6
7	SET 7 BABUSHKA NESTING BOXES	United Kingdom	01-12-2010 8.26	2
8	GLASS STAR FROSTED T-LIGHT HOLDER	United Kingdom	01-12-2010 8.26	6
9	HAND WARMER UNION JACK	United Kingdom	01-12-2010 8.28	6
10	HAND WARMER RED POLKA DOT	United Kingdom	01-12-2010 8.28	6
11	ASSORTED COLOUR BIRD ORNAMENT	United Kingdom	01-12-2010 8.34	32
12	POPPY'S PLAYHOUSE BEDROOM	United Kingdom	01-12-2010 8.34	6
13	POPPY'S PLAYHOUSE KITCHEN	United Kingdom	01-12-2010 8.34	6
14	FELTCRAFT PRINCESS CHARLOTTE DOLL	United Kingdom	01-12-2010 8.34	8
15	IVORY KNITTED MUG COSY	United Kingdom	01-12-2010 8.34	6
16	BOX OF 6 ASSORTED COLOUR TEASPOONS	United Kingdom	01-12-2010 8.34	6
17	BOX OF VINTAGE JIGSAW BLOCKS	United Kingdom	01-12-2010 8.34	3
18	BOX OF VINTAGE ALPHABET BLOCKS	United Kingdom	01-12-2010 8.34	2
19	HOME BUILDING BLOCK WORD	United Kingdom	01-12-2010 8.34	3
20	LOVE BUILDING BLOCK WORD	United Kingdom	01-12-2010 8.34	3
21	RECIPE BOX WITH METAL HEART	United Kingdom	01-12-2010 8.34	4
22	DOORMAT NEW ENGLAND	United Kingdom	01-12-2010 8.34	4
23	JAM MAKING SET WITH JARS	United Kingdom	01-12-2010 8.34	6
24	RED COAT RACK PARIS FASHION	United Kingdom	01-12-2010 8.34	3
25	YELLOW COAT RACK PARIS FASHION	United Kingdom	01-12-2010 8.34	3
26	BLUE COAT RACK PARIS FASHION	United Kingdom	01-12-2010 8.34	3
27	BATH BUILDING BLOCK WORD	United Kingdom	01-12-2010 8.35	3
28	ALARM CLOCK BAKELIKE PINK	France	01-12-2010 8.45	24
29	ALARM CLOCK BAKELIKE RED	France	01-12-2010 8.45	24

CASE 1:

PivotTable Fields

Choose fields to add to report:

Search

☒ Product

☒ Origin

☒ Day of Sale

☒ Unit Sold

☒ Quarters

☒ Years

More Tables...

Drag fields between areas below:

Filters

Origin

Columns

Years

Quarters

Day of Sale

Rows

Product

Values

Sum of Unit Sold

☐ Defer Layout Update

Update

Origin	(All)																
Sum of Unit Sold	Column Labels																
	Jan	Feb	Feb Total	Mar Total	Apr Total	May Total	Jun Total	Jul Total	Aug Total	Sep Total	Oct Total	Nov Total	Dec Total	Grand Total			
	2011	2011	2011														
20 DOLLY PEGS RETROSPOT	77	77	256	256	179	735		-2	77	203	125	210	127	457		2444	
200 BENDY SKULL STRAWS	14	14	2	2	16	194	218	23	14	102	2	2	28	45		660	
200 RED + WHITE BENDY STRAW	78	78	46	46	30	115	35	48	130	121	136	31	70	78		918	
20713 wrongly marked												-200				-200	
3 BIRDS CANVAS SCREEN						1			1							2	
3 BLACK CATS W HEARTS BLANK CARD										6			18			24	
3 DRAWER ANTIQUE WHITE WOOD CABINET										25	163	160	264	89		701	
3 GARDENIA MORRIS BOXED C	21	21	3	3	6		9	2	1	4	12	330	96	13		497	
3 HEARTS HANGING DECORAT	10	10	-5	-5	-1	10	19	20	23	416	301	703	1318	624		3438	
3 HOOK HANGER MAGIC GARC	264	264	175	175	152	221	195	45	58	342	139	-2		100		1689	
3 HOOK PHOTO SHELF ANTIQL	80	80	98	98	150	67	173	391	388	106	27	9	103	107		1699	
3 PIECE SPACEBOY COOKIE CU	323	323	427	427	406	77	73	50	193	131	251	154	276	253		2614	
3 PINK HEN+CHICKS IN BASKE	5	5	3	3	3	1										12	
3 RAFFIA RIBBONS 50'S CHRISTMAS											478	576	887	154		2095	
3 RAFFIA RIBBONS VINTAGE CHRISTMAS											361	212	189	65		827	
3 ROSE MORRIS BOXED CANDL	100	100	20	20		4		5	1		1	271	573	138		1113	
3 STRIPEY MICE FELTCRAFT	49	49	223	223	225	86	184	321	140	310	272	302	421	486		3019	
3 TIER CAKE TIN GREEN AND C	24	24	39	39	58	15	52	29	27	21	71	20	40	37		433	
3 TIER CAKE TIN RED AND CRE	125	125	-47	-47	128		88	23	7	15	70	27	95	30		561	
3 TIER SWEETHEART GARDEN :	3	3	4	4	11	6	8	7	2	5	5	0	1	2		54	
3 TRADITIONAL BISCUIT CUTTE	95	95	79	79	86	78	70	78	152	47	125	95	178	90		1173	
3 TRADITIONAL COOKIE CUTTE	144	144												18		162	
3 WHITE CHOC MORRIS BOXED	113	113	4	4			8	5	1		15	198	485	141		950	
3 WICK CHRISTMAS BRIAR CAN	-2	-2												1		-1	

**CASE 2:**

Count of Product		Column Labels				
		Qtr1	Qtr2	Qtr3	Qtr4	Grand Total
Row Labels						
Australia		328	309	428	194	1259
Austria		39	79	143	140	401
Bahrain		1	17		1	19
Belgium		346	503	511	709	2069
Brazil			32			32
Canada		10	58	83		151
Channel Islands		224	127	207	200	758
Cyprus		221	49	1	351	622
Czech Republic		15	2		13	30
Denmark		39	125	82	143	389
EIRE		1194	1593	2644	2765	8196
European Community			32	29		61
Finland		239	56	178	222	695
France		1651	1571	2079	3256	8557
Germany		1780	1926	2414	3375	9495
Greece		54	31	25	36	146
Hong Kong		59	141	51	37	288
Iceland		29	42	22	89	182
Israel		30	6	225	36	297
Italy		213	58	122	410	803
Japan		113	73	51	121	358
Lebanon		45				45
Lithuania					35	35

**Conclusion:**

Hence, we learnt about OLAP operations. We also understand how OLAP systems manage a large amount of historical data, provide facilities summarization and aggregation, and stores and manages information at different levels of granularity. We also learn about the PivotTable function in MS Excel and how it helps us in making meaningful conclusions.