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DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL503 DATE: 14-09-24

COURSE NAME: Data Warehousing and Mining CLASS: T Y B. TECH

NAME: Anish Sharma SAP: 60003220045

LAB EXPERIMENT NO. 4

AIM: Perform OLAP operations on a given dataset using Pivot Table in Excel.

Describe OLAP and its operations in detail. (Refer following example)

OLAP (Online Analytical Processing) is a robust technology that empowers users to analyze data interactively across multiple dimensions, playing a crucial role in business intelligence by supporting decision-making processes. By enabling quick retrieval, aggregation, and visualization of large datasets stored in data warehouses, OLAP allows users to examine data from various perspectives, such as time, location, and product categories. Dimensions in OLAP refer to the entities or perspectives by which data can be analyzed, while measures are the numerical data points, like sales or profit, that can be aggregated and analyzed against these dimensions.

The core OLAP operations—Slice, Dice, Roll Up, Drill Down, and Pivot—offer powerful ways to explore and analyze data. The Slice operation selects a specific layer from the OLAP cube, such as focusing on data for a particular time period like Q1. Dice narrows down the data further by selecting specific values across multiple dimensions, creating a sub-cube. Roll Up aggregates data to a higher level, like summarizing city-level data to the country level, while Drill Down does the opposite by providing more granular details, such as breaking down quarterly data into

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monthly figures. Pivot, or rotation, changes the orientation of the data, allowing users to view it from different perspectives, enhancing analytical insights.

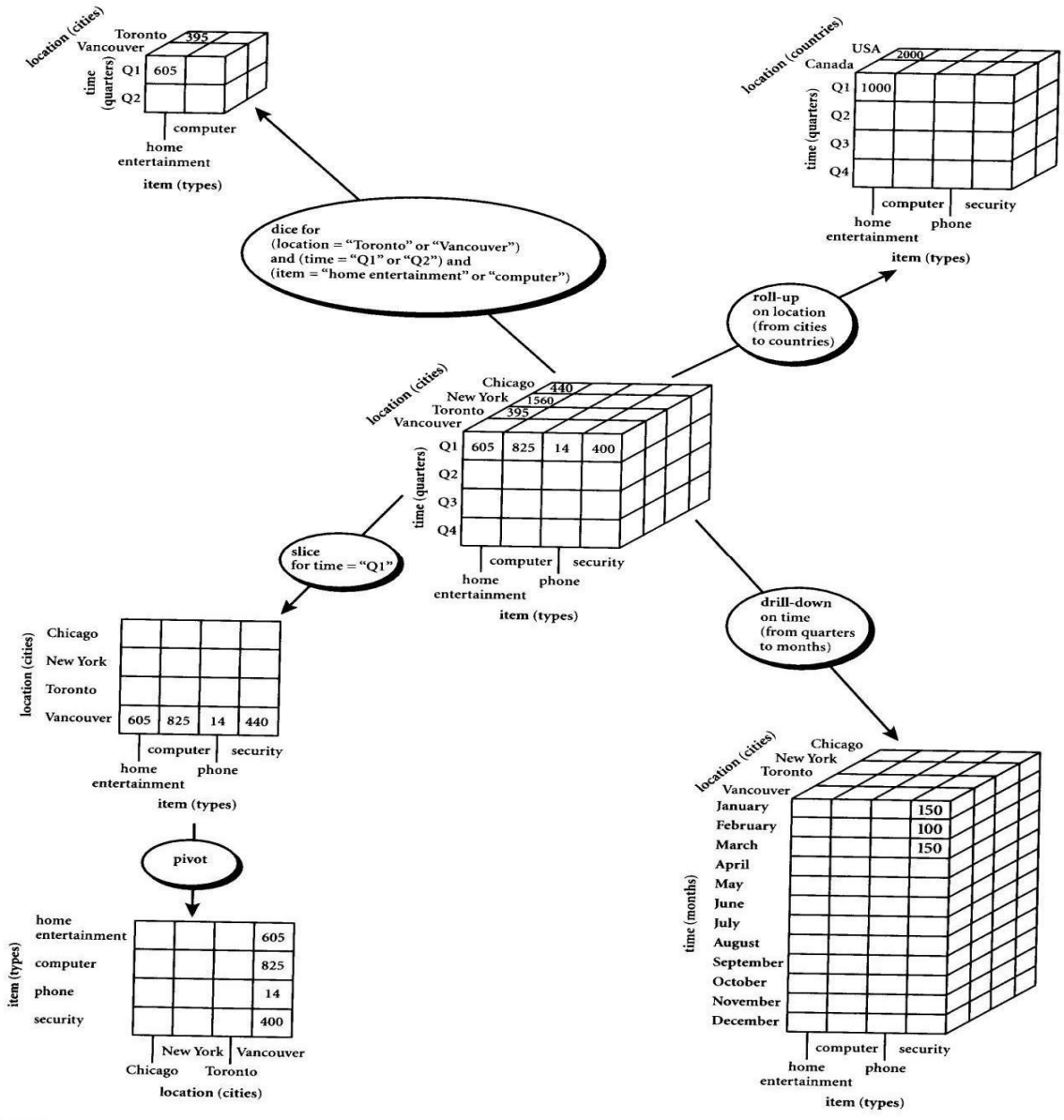

Figure 1: EXAMPLE

EXERCISE 1

Consider a datawarehouse 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.

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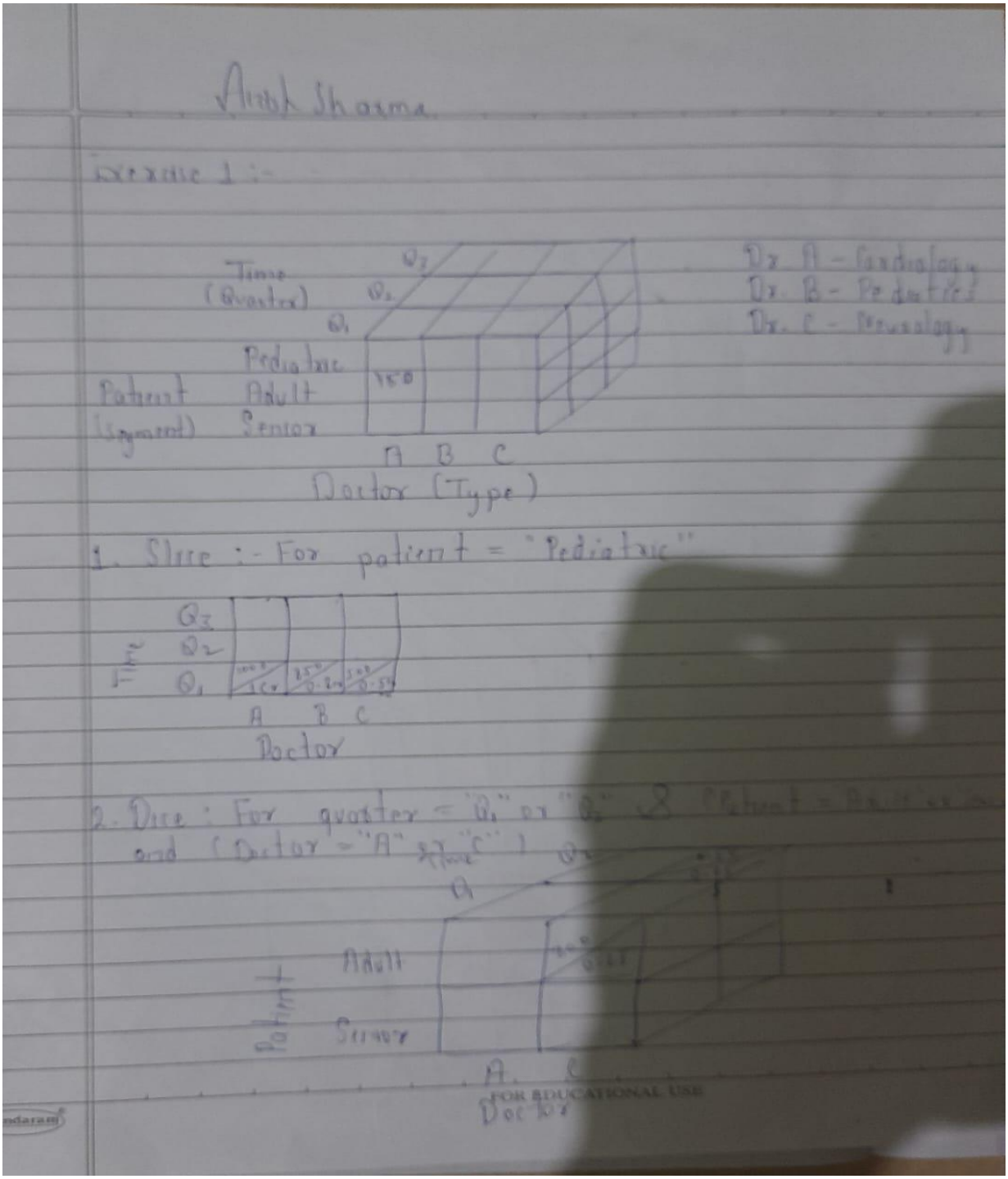

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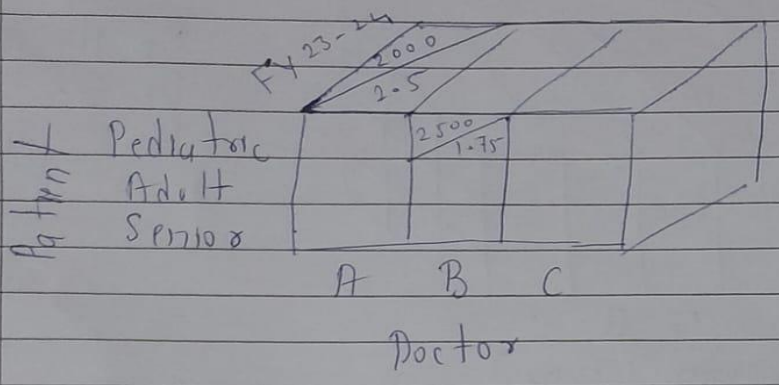
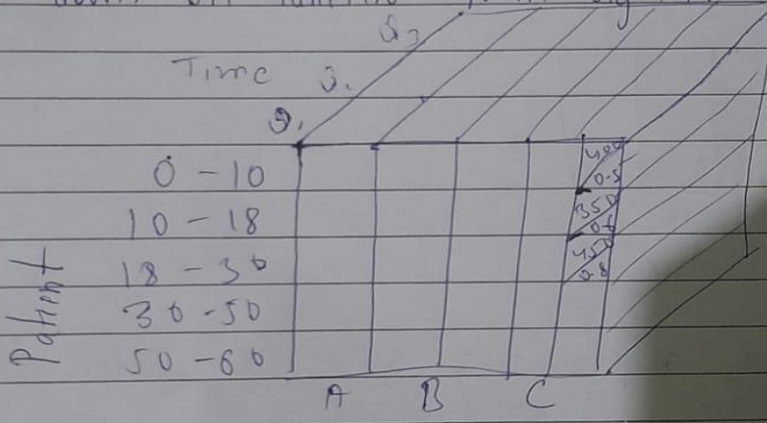
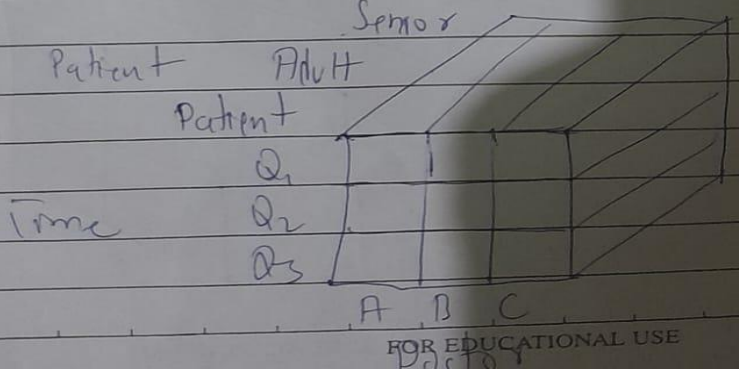
3. Roll up : on quarter from quarter to Annual



4. Drill down on Patients from segment to age group



5. Pivot



EXERCISE 2

Steps to be performed:

1. Create a PivotTable

Count of PARTY	Column Labels						
Row Labels	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	(blank)	Grand Total
2401		23	106	2	31		162
2402	6	33	128	5	55		227
2403	2	17	72	4	28		123
2404	3	17	94	3	34		151
2405	3	31	80	2	60		176
2406	3	24	90	2	51		170
2407	3	19	72	2	22		118
2408	1	24	89	1	43		158
2409		32	92	2	53		179
2411	1	26	76		42		145
2412	1	26	83	2	38		150
2413	5	26	95		63		189
2414	4	21	83	4	42		154
2415	2	26	96	5	54		183
2416	2	24	111	3	59		199
2417	2	14	136	2	69		223
2418	6	40	135		87		268
2419	4	33	108	1	92		238
2420	2	12	75	1	26		116
2421	2	15	94		64		175
2422	3	16	66		42		127
2423	6	30	87		74		197
2424		21	89		62		172
(blank)							
Grand Total	**61**	**550**	**2157**	**41**	**1191**		**4000**

2. Pivoting data

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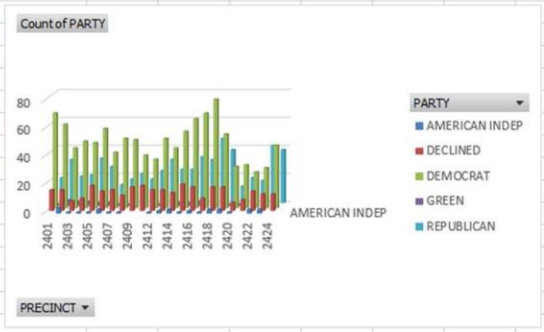
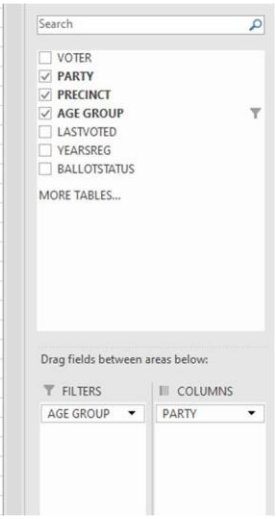
Count of PARTY	Column Labels					
Row Labels	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total
2401		15	68	1	18	102
2402	4	15	60	4	31	114
2403	1	7	43	3	19	73
2404	1	9	48	3	20	81
2405	1	18	47	2	32	100
2406	3	14	57	2	26	102
2407	1	15	40	1	13	70
2408	1	11	50	1	17	80
2409		17	49		21	87
2411		18	38		17	73
2412	1	15	35	1	23	75
2413	2	15	50		31	98
2414	3	13	43	2	24	85
2415	1	19	55	2	24	101
2416	2	17	64	3	33	119
2417	1	9	68		31	109
2418	3	17	78		46	144
2419	3	17	53	1	38	112
2420	1	6	30	1	12	50
2421		8	31		18	57
2422	3	14	26		16	59
2423	3	12	29		41	85
2424		12	45		38	95
Grand Total	35	313	1107	27	589	2071



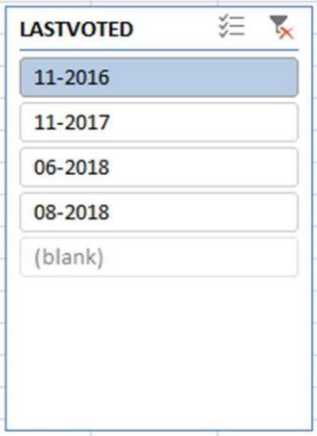
3. Add Filters

Count of PARTY	Column Labels					
Row Labels	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total
2401		1	3		1	5
2402		2	8	2		12
2403		3	5			8
2404			4			4
2405		3	2		3	8
2406		2	5			7
2407		2	6		1	9
2408		3	3			6
2409		1	5		1	7
2411			2		1	3
2412		4	6	1	1	12
2413		1	4		2	7
2414		3	3		3	9
2415		1	5	1	3	10
2416		2	9		3	14
2417		1	8		4	13
2418		1	10		3	14
2419	1	2	5		6	14
2420	1	1	3		2	7
2421	1	1	3		4	9
2422	1	1	3		3	8
2423		3	3		4	10
2424		2	5		1	8
Grand Total	4	40	110	4	46	204



4. Add a slicer

Count of PARTY	Column Labels				
Row Labels	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total
2401	1	3		2	6
2402		5		2	7
2403				1	1
2404	1	3	1	3	8
2405	1				1
2406		2		2	4
2407	1	2			3
2408		1		1	2
2409	1	1		2	4
2411	1	4			5
2412		1		1	2
2413		3		2	5
2414		1		2	3
2415	1	3		3	7
2416		1		2	3
2417	1	3		2	6
2418		3			3
2419		2		2	4
2420	1	2		2	5
2421		1		1	2
2422	2			1	3
2423	1	1		1	3
2424	1	1		4	6
Grand Total	13	43	1	36	93



References:

[1] https://www.timeatlas.com/excel-pivot-tables/#h-how-to-create-excel-pivot-table