

## PESIT Department of Computer Science and Engineering

### Simple Data Cube Example

Consider the following data that represents the availability of parts in warehouses and provided by particular suppliers.

Part	Location	Supplier
P1	A	S1
P1	B	S2
P1	C	S3
P2	C	S4
P2	C	S4
P2	C	S5
P2	D	S4
P3	E	S6

Data Dimensions

- 3 Parts (P1, P2, P3)
- 5 Locations (A, B, C, D, E)
- 6 suppliers (S1, S2, S3 S4, S5, S6)

For this data, the following cuboids can be computed:

Dimension of Cuboid	Dimensions Included	Number of cells
3-D Base Cuboid	Part, Location, Supplier	$3 \times 5 \times 6 = 90$
2-D Cuboids	Part, Location	$3 \times 5 = 15$
	Part, Supplier	$3 \times 6 = 18$
	Location, Supplier	$5 \times 6 = 30$
1-D Cuboids	Part	3
	Location	5
	Supplier	6
0-D Apex Cuboid	None	1

Each of the cuboids will be shown in the subsequent pages. In each cuboid, cells that have a minimum count of 2 will be highlighted.

### Apex Cuboid

## Base Cuboid

The cuboid is shown below in the form of slices by Part.

### Part P1

	S1	S2	S3	S4	S5	S6
A	1					
B		1				
C			1			
D						
E						

### Part P2

	S1	S2	S3	S4	S5	S6
A						
B						
C				2	1	
D				1		
E						

### Part P3

	S1	S2	S3	S4	S5	S6
A						
B						
C						
D						
E						1

As can be seen, only 1 out of the 90 cells has the minimum support count.

## 2-D Cuboids

### Part, Location

	A	B	C	D	E
P1	1	1	1		
P2			3	1	
P3					1

### Part, Supplier

	S1	S2	S3	S4	S5	S6
P1	1	1	1			
P2				3		
P3						1

### Location, Supplier

	S1	S2	S3	S4	S5	S6
A	1					
B		1				
C			1	2	1	
D				1		
E						1

## 1-D Cuboids

### Part

P1	P2	P3
3	4	1

### Location

A	B	C	D	E
1	1	4	1	1

### Supplier

S1	S2	S3	S4	S5
1	1	1	3	1