Q] Consider a data warehouse for a hospital where there are three dimension:
a) Doctor   b) Patient   c) Time

And two measures i) Count   ii) Change where Change is the fee that the doctor charges a patient for a visit

using the above example describe the following OLAP operations.

1) Slice   2) Dice   3) Rollup   4) Drill down   5/Pi

Soln] Dimension table:

1) Doctor (DID, name, mob, add, specialization)

2) Patient (PID, name, mob, address)

3) Time (TID, day, month, quarter, year)

Fact Table: Fact_table (DID, PID, TID, count, change)

T_1 O 500 550
T_2 300 280 180
T_3 250 240 150

D_1 100 180 125 70 150 170
D_2 200 0 300 350 450 206
D_3 180 530 280 100 280 100

P_1 P_2 P_3

operation

1) Slice : Slice on fact table with $DID = 2$
this cuts the cube at $DID = 2$ along the time
and patient axis thus it will display a slice
of cube, in which time on x and patient
on y axis

T_1 O 500 350
T_2 300 280 180
T_3 250 240 180 450 200

P_2 200 0 300 350

P_1 P_2 P_3

2) Dice : It is a Sub cube of main cube. They it cuts, the cube with more than predicate like dice on cube with DID= and DID = 1, and PID=1 and PID 03 and TID = 02, 03.

3) foll up = It gives summary based on concept hierarchies. Assuming there exits concept hierarchy in patient table as state → city → location. Then roll up will summarize the changes or count in terms of city or further roll up will give changes for a particular state etc

First cube diagram with axes T1, T2, T3 (top), P1, P2, P3 (left), D1, D2, P3 (bottom):

- T1: 8, 500, 250
- T2: 300, 280, 180
- T3: 250, 240
- P1: 100, 200, 180, 100, 150, 170
- P2: 130, 0, 630, 350, 450, 200
- P3: 125, 300, 280, 100, 280, 100

a) **Drill down** : It is opposite to rollup that means if currently cube is summarised with with also show detailed view

Second cube diagram with axes T1, T2, T3 (top), P11, P12, P13, P21, P31, P32 (left), D1, D2, P3 (bottom):

- T1: 0, 200, 250
- T2: 100, 150, 75, 70
- T3: 250, 240, 150, 45
- P11: 50, 50, 50, 20
- P12: 25, 50, 25, 30, 75, 50
- P13: 25, 30, 25, 50, 20, 50
- P21: 200, 0, 300, 35, 45, 270
- P31: 100, 350, 200, 20, 180, 50
- P32: 80, 180, 80, 0, 100, 50

3) Pivot : It rotates the cube, sub cube or rolled up or drilled down cube, thus changing the view of the cube