**Expt2**

**Aim: To perform various OLAP operations such as slice, dice, drilldown, rollup, pivot for sales cube by considering following dimensions and facts**

product( pid, pkey, pname, unit price, category)

time( tid, tkey, day, month, quarter, year)

store(sid, skey, sname, city, state, county, region)

sales( pid, sid, tid, units\_sold, total\_sales)

Links :

* <https://www.codeproject.com/Articles/658912/Create-First-OLAP-Cube-in-SQL-Server-Analysis-Serv>
* <https://www.postgresqltutorial.com/postgresql-grouping-sets/>]
* **https://docs.oracle.com/cd/B19306\_01/olap.102/b14349/sql\_queries.htm#CHDBDJCF**

**Perform OLAP operations using SQL queries**

1. Describe all DT
2. Describe FT
3. Create basic cube by considering all queries (refer expt1.)[ <https://www.postgresqltutorial.com/postgresql-grouping-sets/>]
4. Describe cube
5. Give sales cube for ( all quarters(q1,q2,q3,q4), all product categories(ci,c2,c3,c4), all store states(s1,s2,s3,s4)) for year 2017
6. Write appropriate SQL queries for slice operation,

Give the sales of MH or s1 state stores for all product categories, for all quarter for the year 2018

1. Write appropriate SQL queries for dice operation

Give the sales of MH or s1 state and GJ or s2 for product categories c1 and c2, for quarter q1 and q2 for the year 2018

1. Write appropriate SQL queries for drilldown operation

Give the sales of MH or s1 state for all product categories, for all months for the year 2018

1. Write appropriate SQL queries rollup operation

Give the sales of MH or s1 state stores for all product categories, for all years 2018, 2017, 2016, and 2015

1. Pivot for sales cube

Give the sales of all state stores for product categories c1, for all years 2018, 2017, 2016, and 2015

**11. Calculate total no. of cuboids for above problem.**

**Post lab:**

1)In data warehouse technology, a multiple dimensional view can be implemented by a relational database technique (*ROLAP*), by a multidimensional database technique (*MOLAP*), or by a hybrid database technique (*HOLAP*).

(a) Briefly describe each implementation technique.

(b) For each technique, explain how each of the following functions may be

implemented:

**i.** The generation of a data warehouse (including aggregation)

**ii.** Roll-up

**iii.** Drill-down

**iv.** Incremental updating

(c) Which implementation techniques do you prefer, and why?

2) Explain difference between Rollup and cube function in postgresql.

**SQL concepts:**

create table

create table as select

describe table

insert by selecting data from other table

select

Group by,

Order by

union all

sum(),

count(),

round(), avg(), min(), max(), range(),

join

PL/SQL and triggers

Example 4

Displaying Aggregates at All Levels of Time

/\* Select key descriptions and facts \*/

SELECT time\_ldsc time,

ROUND(sales) sales

/\* From cube view \*/

FROM units\_cube\_cubeview

/\* No filter on Time \*/

WHERE product\_level = 'TOTAL\_PRODUCT'

AND customer\_level = 'TOTAL\_CUSTOMER'

AND channel\_level = 'TOTAL\_CHANNEL'

ORDER BY time\_end\_date;