

Q.3. The research is about to create the star schema for the sales system. The research consists of all the information related to the sale's record like items, location and the time etc. Create a schema (database) with fact and dimension tables. Perform the OLAP operations on your schema.

• Suppose we want to record in a warehouse information about every Item sale, e.g.:

- Product number,
- location from where the product was sold,
- date of the sale, and
- Units sold.

• The fact table is thus:

Sales(item_key, loc_key, time_key, units)

• The dimension tables include information about the Items, Location, and time “dimensions”:

- Loc(loc_key, city,state,country)
- items(item_key,item_name, item_category, color,price)
- Time(time_key,sdate,week,month,quarter,year),

1. Display data for quarter 1.

2. Display total sales of pen or jeans from “mumbai” or “chennai” for quarter 1 or 2.

3. Find the total units sales in each state.

4. Find the total units sales in each city

1. Display data for quarter 1.

SQL Query:

```
SELECT *
FROM salesfact
JOIN times ON salesfact.time_key = times.time_key
WHERE times.quater = 1;
```

LOC_KEY	ITEMS_KEY	TIME_KEY	UNITS_SOLD	TIME_KEY	SDATE	WEEK	MONTHS	QUATER	SYEAR
1	1101	01-JAN-98	10	01-JAN-98	01-JAN-98	1	1	1	1998
2	1101	02-JAN-98	10	02-JAN-98	02-JAN-98	1	1	1	1998
3	1102	03-JAN-98	20	03-JAN-98	03-JAN-98	1	1	1	1998
4	1113	03-JAN-98	15	03-JAN-98	03-JAN-98	1	1	1	1998
4	1103	04-JAN-98	20	04-JAN-98	04-JAN-98	1	1	1	1998
5	1104	05-JAN-98	30	05-JAN-98	05-JAN-98	2	1	1	1998
3	1113	05-JAN-98	30	05-JAN-98	05-JAN-98	2	1	1	1998
6	1105	06-JAN-98	30	06-JAN-98	06-JAN-98	2	1	1	1998
7	1106	07-JAN-98	40	07-JAN-98	07-JAN-98	2	1	1	1998
8	1107	08-JAN-98	15	08-JAN-98	08-JAN-98	2	1	1	1998
9	1108	09-JAN-98	16	09-JAN-98	09-JAN-98	2	1	1	1998
10	1102	10-JAN-98	17	10-JAN-98	10-JAN-98	2	1	1	1998
1	1103	11-JAN-98	18	11-JAN-98	11-JAN-98	2	1	1	1998
1	1104	12-JAN-98	11	12-JAN-98	12-JAN-98	3	1	1	1998
2	1105	13-JAN-98	15	13-JAN-98	13-JAN-98	3	1	1	1998
2	1106	14-JAN-98	19	14-JAN-98	14-JAN-98	3	1	1	1998
3	1107	15-JAN-98	20	15-JAN-98	15-JAN-98	3	1	1	1998
4	1108	16-JAN-98	5	16-JAN-98	16-JAN-98	3	1	1	1998
1	1101	11-FEB-98	10	11-FEB-98	11-FEB-98	7	2	1	1998
1	1101	12-FEB-98	20	12-FEB-98	12-FEB-98	7	2	1	1998
1	1101	13-FEB-98	30	13-FEB-98	13-FEB-98	7	2	1	1998
10	1102	14-FEB-98	40	14-FEB-98	14-FEB-98	7	2	1	1998
10	1102	15-FEB-98	40	15-FEB-98	15-FEB-98	7	2	1	1998

2. Display total sales of pen or jeans from “mumbai” or “chennai” for quarter 1 or 2.

SQL Query:

```
select i.item_name, l.city, t.quater, sum(s.units_sold) from salesfact s
  left join items i on s.items_key = i.items_key
  left join loc l on s.loc_key = l.loc_key
  left join times t on s.time_Key = t.time_Key
where(i.item_name in ('Pen','Jeans') and l.city in ('Mumbai','Chennai'))
group by(i.item_name, l.city, t.quater);
```

no data found

If we check total sales of 'GoProHero' or 'Caravaan2' from 'Los Angeles' or 'Oakland' for quarter 1 or 2.

SQL Query:

```
select i.item_name, l.city, t.quater, sum(s.units_sold) from salesfact s
  left join items i on s.items_key = i.items_key
  left join loc l on s.loc_key = l.loc_key
  left join times t on s.time_Key = t.time_Key
where(i.item_name in ('GoProHero','Caravaan2') and l.city in ('Los Angeles','Oakland') and t.quater in (1,2))
group by(i.item_name, l.city, t.quater)
order by t.quater;
```

ITEM_NAME	CITY	QUATER	SUM(S.UNITS_SOLD)
Caravaan2	Los Angeles	1	30
GoProHero	Los Angeles	1	40
Caravaan2	Oakland	1	15
GoProHero	Oakland	1	40
Caravaan2	Los Angeles	2	30
GoProHero	Los Angeles	2	30
Caravaan2	Oakland	2	40
GoProHero	Oakland	2	20

3. Find the total units sales in each state.

SQL Query:

```
SELECT
  loc.states,
  SUM(salesfact.units_sold) AS total_units_sold
FROM salesfact
JOIN loc ON salesfact.loc_key = loc.loc_key
GROUP BY loc.states
ORDER BY total_units_sold DESC;
```

STATES	TOTAL_UNITS_SOLD
Texas	1508
California	1455
Ontario	1298
Maharashtra	1268
Alberta	1250

4. Find the total units sales in each city.

SQL Query:

```
SELECT  
  loc.city,  
  SUM(salesfact.units_sold) AS total_units_sold  
FROM loc  
LEFT JOIN salesfact ON salesfact.loc_key = loc.loc_key  
GROUP BY loc.city  
ORDER BY total_units_sold asc;
```

CITY	TOTAL_UNITS_SOLD
Ratnagiri	534
Fairview	574
Bemont	648
Algoma	650
Oakland	651
Devon	676
Southlake	700
Mumbai	734
Los Angeles	804
Houston	808
Adur	-
Cochin	-
Sydney	-
Chennai	-
Brisbane	-