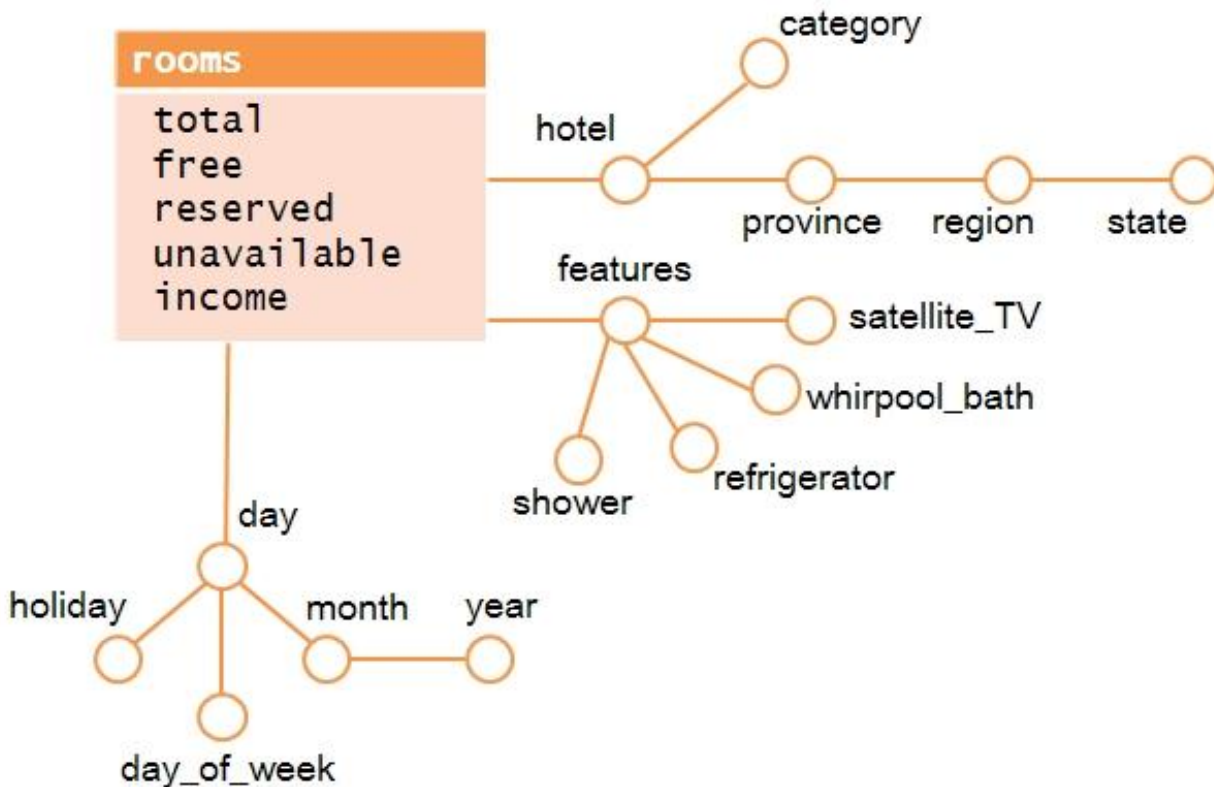


Logical Design



Fact:

ROOMS

FEATURES (Features_id, features, shower, refrigerator, whirlpool, satellite_TV)

TIME (Time_id, day, month, holiday, day_of_week, year)

HOTEL (Hotel_id, hotel_name, category, province, region, state)

ROOMS (Features_id, Time_id, Hotel_id, total, free, reserved, unavailable, income)

Query

A)

```
SELECT state, month, round(SUM(reserved)*100/SUM(total),2) as Reserved,
round(SUM(free)*100/SUM(total),2) as Free, round(SUM(unavailable)*100/SUM(total),2) as
Unavailable
FROM Rooms r, Time t, Hotel h
WHERE r.hotel_id=h.hotel_id AND r.time_id = t.time_id AND t.year = 2005
GROUP BY h.state, t.month
ORDER BY month ASC,state ASC;
```

B)
 SELECT state, round(SUM(reserved)*100/SUM(total),2) as Reserved, RANK() OVER (ORDER BY
 SUM(reserved)/SUM(total) DESC) as RankState
 FROM Rooms r, Time t, Hotel h
 WHERE r.hotel_id=h.hotel_id AND r.time_id = t.time_id AND year = 2005
 GROUP BY state
 ORDER BY RankState ASC;

C)
 SELECT state, month, SUM(income) as TotIncome, SUM(SUM(income)) OVER (PARTITION BY
 state ORDER BY month ROWS UNBOUNDED PRECEDING) as CumIncome
 FROM Rooms r, Time t, Hotel h
 WHERE r.hotel_id=h.hotel_id AND r.time_id = t.time_id AND category = 4 AND year=2005
 GROUP BY state, month

D)
 SELECT state, year, SUM(income) as TotIncome
 FROM Rooms r, Time t, Hotel h
 WHERE r.hotel_id=h.hotel_id AND r.time_id = t.time_id AND holiday = 'y'
 GROUP BY state, year
 ORDER BY year, state

E)
 SELECT r.hotel_id, hotel_name, SUM(income) as TotIncome
 FROM Rooms r, Features f, Hotel h, Time t
 WHERE r.hotel_id=h.hotel_id AND r.time_id = t.time_id AND r.features_id = f.features_id AND
 year=2005 AND satellite_TV = 'y' AND whirlpool_bath = 'y'
 GROUP BY r.hotel_id, hotel_name

MATERIALIZED VIEWS

Cardinality ROOMS: 500 hotles x (365 days X 2 years) X 2^8 configurations = $\sim 10^7$ tuples

Query	Group By	Where clauses
A	State, month	year
B	state	year
C	State, month	Year, category, year
D	Year, state	holiday
E	Hotel_name	Year, satellite_TV, whirlpool_bath
H	supplier, flag_component	2-months, year

MATERIALIZED VIEW 1 A-B-C

MATERIALIZED VIEW 2 D

MATERIALIZED VIEW 3 E