

OLAP Operations:

Problem Statement:

Consider a data warehouse for Hotel Occupancy which contains 4 dimension

- 1) Hotel dimensions
- 2) Room dimensions
- 3) Customer dimensions
- 4) Time dimensions

Perform olap operations such as Slice,Dice, Drill-down, Roll-up and Pivot

Create Tables

```
create table cust(  
  cust_id int,  
  cust_name varchar(50),  
  no_of_days int,  
  amount_paid int,  
  primary key(cust_id)  
);
```

```
create table room(  
  room_id int,  
  room_type varchar(50),  
  max_occupied int,  
  no_of_beds int,  
  renovation_year int,  
  primary key(room_id)  
);
```

```
create table hotel(  
  hotel_id int,  
  hotel_name varchar(50),  
  rooms_available int,  
  ratings int,  
  city varchar(50),  
  state varchar(50),  
  country varchar(50),  
  primary key(hotel_name)  
);
```

```
create table time(  
booking_date varchar(50),  
booking_day varchar(50),  
primary key (booking_date)  
);
```

Insert values:

```
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(01,'Ganga',6,2000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(02,'Simran',4,1500);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(03,'Aayush',7,6000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(04,'Varun',5,1700);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(05,'Aditya',9,10000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(06,'Vansh',4,2000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(07,'Abhay',6,5000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(08,'Gauri',3,2000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(09,'Mohan',7,6000);  
insert into cust(cust_id,cust_name ,no_of_days,amount_paid) values  
(10,'Soham',9,10000);
```

```
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (01,'AC',6,4,2017);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (02,'Non AC',4,4,2019);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (03,'AC',7,2,2014);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (04,'AC',5,1,2016);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (05,'Non AC',9,4,2022);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (06,'AC',4,3,2020);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (07,'AC',6,2,2019);  
insert into room(room_id,room_type  
,max_occupied,no_of_beds,renovation_year) values (08,'Non AC',3,1,2016);
```

```
insert into room(room_id,room_type
,max_occupied,no_of_beds,renovation_year) values (09,'Non AC',7,1,2018);
insert into room(room_id,room_type
,max_occupied,no_of_beds,renovation_year) values (10,'AC',9,4,2019);
```

```
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values
(01,'Paradise',650,3,'Mumbai','Maharashtra','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (02,'Crowne
Plaza',750,4,'Pune','Maharashtra','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (03,'Hotel
Bliss',550,3,'Thane','Maharashtra','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (04,'Ramada Limited &
Suites',560,5,'Ahmedabad','Gujarat','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (05,'Sunset
Lodge',470,4,'Hyderabad','AndhraPradesh','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (06,'Beacon
Motel',590,5,'Warangal','Telangana','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (07,'The Fresco
Hotel',490,6,'Mumbai','Maharashtra','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (08,'Holly
House',390,5,'Nanded','Maharashtra','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (09,'Golden Cherry
Motel',450,7,'Bhopal','UttarPradesh','India');
insert into hotel(hotel_id,hotel_name
,rooms_available,ratings,city,state,country) values (10,'Sapphires
Hotel',650,6,'Trichy','TamilNadu','India');
```

```

insert into time (booking_date,booking_day) values
('2021-03-21','Monday');
insert into time (booking_date,booking_day) values
('2020-09-04','Wednesday');
insert into time (booking_date,booking_day) values
('2019-07-18','Thursday');
insert into time (booking_date,booking_day) values
('2018-11-15','Saturday');
insert into time (booking_date,booking_day) values
('2017-12-11','Monday');
insert into time (booking_date,booking_day) values
('2016-10-09','Sunday');
insert into time (booking_date,booking_day) values
('2015-02-20','Tuesday');
insert into time (booking_date,booking_day) values
('2014-09-15','Friday');
insert into time (booking_date,booking_day) values
('2012-06-17','Wednesday');
insert into time (booking_date,booking_day) values
('2011-05-16','Thursday');

```

After this create Fact table and insert hotel record in it

```

create table fact(
hotel_name varchar(100) references hotel(hotel_name),
cust_id int references cust(cust_id),
room_id int references room(room_id),
booking_date varchar(50) references time(booking_date)
);

```

```

insert into fact select h.hotel_name, c.cust_id, r.room_id, t.booking_date
from cust c cross join room r cross join hotel h cross join time t ;

```

```

select * from fact;

```

Perform OLAP Operations

1) Slice:

```

/*SLICE*/
select cust_id,sum(room_id) from fact where
booking_date='2015-02-20' group by cust_id;

```

2) Dice:

```
/*DICE*/  
select * from fact where hotel_name='Paradise' and cust_id=2 and  
room_id=3 and booking_date='2021-03-21';
```

3) Drill-down:

```
/*DRILLDOWN*/  
select * from (fact natural join cust) join time on  
fact.booking_date=time.booking_date;
```

4) Roll-up:

```
/*ROLLUP*/  
select cust_id, sum(room_id) from fact group by rollup(cust_id);
```

5) Pivot:

```
select * from fact pivot(count(cust_id) for booking_date in  
(2021-03-21, 2020-09-04, 2019-07-18, 2018-11-15, 2017-12-11));
```