

► Experiment No. 3 : Implementation of OLAP Operations

In this experiment, we will perform the following operations on the dimension tables and fact table creating in Experiment 2. For simplicity, we have only shown 1 query with result for each operation.

Roll-up Operation

select , Region, Country, State, City, sum(Revenue) from DimHotel inner join FactHotelOccupancy on DimHotel.HotelID = FactHotelOccupancy.HotelID group by Region, Country, State, City with rollup;

Region	Country	State	City	sum(Revenue)
17700 87 Ave NW	Canada	Alberta	Edmonton	4981383.1735
17700 87 Ave NW	Canada	Alberta		4981383.1735
17700 87 Ave NW	Canada			4981383.1735
70 RajaphillaMawatha	Sri Lanka	Kandy	70 RajaphillaMawatha	9987647.5030
70 RajaphillaMawatha	Sri Lanka	Kandy		9987647.5030
70 RajaphillaMawatha	Sri Lanka			9987647.5030
AvcilarMahallesi	Turkey	Goreme	IlkokulSokak No 16	7735696.0160
AvcilarMahallesi	Turkey	Goreme		7735696.0160
AvcilarMahallesi	Turkey			7735696.0160

Region	Country	State	City	sum(Revenue)
Edeforsvag 2 A	Sweden	Harads	Vid väg 97	11161382.6162
Edeforsvag 2 A	Sweden	Harads		11161382.6162
Edeforsvag 2 A	Sweden			11161382.6162
Kiilopaantie 9	Finland	Saariselka	Kiilopaantie 9	7696742.5189
Kiilopaantie 9	Finland	Saariselka		7696742.5189
Kiilopaantie 9	Finland			7696742.5189
Koitobos Rd	Kenya	Nairobi	Koitobos Rd	3904503.3812
Koitobos Rd	Kenya	Nairobi		3904503.3812
Koitobos Rd	Kenya			3904503.3812
Koitobos Rd				3904503.3812

Drill Down Operation

select Country, StarRating,sum(Revenue) from DimHotel inner join FactHotelOccupancy on DimHotel.HotelID = FactHotelOccupancy.HotelID where Country in ('Canada','Kenya') and StarRating in (1,2,3,4,5) group by StarRating with rollup;

Country	StarRating	sum(Revenue)
Kenya	3	3904503.3812
Canada	4	4981383.1735

Slicing Operation

Select Country, HotelType, sum(revenue) from DimHotel inner join FactHotelOccupancy on DimHotel.HotelID = FactHotelOccupancy.HotelID where HotelType='Hotel' GROUP BY Country ;

Country	HotelType	sum(Revenue)
Finland	Hotel	7696742.5189
Canada	Hotel	4981383.1735
Turkey	Hotel	7735696.0160
Sri Lanka	Hotel	9987647.5030

Dicing Operation

Select Country, HotelType, sum(revenue) from DimHotel inner join FactHotelOccupancy on DimHotel.HotelID = FactHotelOccupancy.HotelID where HotelType='Hotel' AND Country = 'Canada' GROUP BY Country ;

Country	HotelType	sum(Revenue)
Canada	Hotel	4981383.1735

PIVOT Operation

```
SELECT EXTRACT(YEAR FROM Date) year
, EXTRACT(MONTH FROM Date) month
, SUM(Revenue) revenue
FROM FactHotelOccupancy
GROUP BY EXTRACT(YEAR FROM Date)
, EXTRACT(MONTH FROM Date);
```

```
SELECT year
, SUM(CASE WHEN month = 1 THEN Revenue END) jan_revenue
, SUM(CASE WHEN month = 2 THEN Revenue END) feb_revenue
, SUM(CASE WHEN month = 3 THEN Revenue END) mar_revenue
, SUM(CASE WHEN month = 4 THEN Revenue END) apr_revenue
, SUM(CASE WHEN month = 5 THEN Revenue END) may_revenue
, SUM(CASE WHEN month = 6 THEN Revenue END) jun_revenue
, SUM(CASE WHEN month = 7 THEN Revenue END) jul_revenue
, SUM(CASE WHEN month = 8 THEN Revenue END) aug_revenue
, SUM(CASE WHEN month = 9 THEN Revenue END) sep_revenue
, SUM(CASE WHEN month = 10 THEN Revenue END) oct_revenue
, SUM(CASE WHEN month = 11 THEN Revenue END) nov_revenue
, SUM(CASE WHEN month = 12 THEN Revenue END) dec_revenue
FROM (SELECT FactHotelOccupancy.*
, EXTRACT(YEAR FROM Date) year
, EXTRACT(MONTH FROM Date) month
FROM FactHotelOccupancy
) invoices
```

GROUP BY year

Year	jan_revenue	feb_revenue	mar_revenue	apr_revenue	may_revenue	jun_revenue	jul_revenue	aug_revenue	sep_revenue	oct_revenue	nov_revenue	dec_revenue
2012												11161382.6162
2015						7696742.5189						9987647.5090
2016			3904503.3812									
2019				4981383.1735								
2018						7735606.0160						