EXPERIMENT NO. 3

Aim: To implement OLAP operations: Slice, Dice, Roll up, Drill down, and Pivot based on experiment 1 case study.

Theory:

1. ## Roll up (drill-up):

ROLLUP is used in tasks involving subtotals. It creates subtotals at any level of aggregation needed, from the most detailed up to a grand total i.e. climbing up a concept hierarchy for the dimension such as time or geography. Example : A Query could involve a ROLLUP of year>month>day or country>state>city.

Example:

City wise data is converted into State Wise Data

2. ## Drill down (Roll down):

This is a reverse of the ROLL UP operation discussed above. The data is aggregated from a higher level summary to a lower level summary/detailed data.

Example:

Yearly data is converted into Quarter wise data

3. ## Slicing :

A slice in a multidimensional array is a column of data corresponding to a single value for one or more members of the dimension. It helps the user to visualize and gather the information specific to a dimension.

Example:

Particular City "Mumbai" data is displayed

4. ## Dicing:

Dicing is similar to slicing, but it works a little bit differently. When one thinks of slicing, filtering is done to focus on a particular attribute. Dicing, on the other hand, is more of a zoom feature that selects a subset over all the dimensions, but for specific values of the dimension.

Example
Mumbai and Bengaluru's data is displayed as a dice

PROGRAM:

Roll up: Statewise indexes

```
SELECT a.state "State",
        f.temp "Temprature",
     i.*
FROM   Fact_table f,
     Index_dim i,
     Area a
WHERE  f.area_key = a.area_key
     AND f.index_key = i.index_key
GROUP  BY a.state;
```

State	Temprature	index_key	uv_index	heat_index	humidity	pressure	windspeed
Maharashtra	28	BOM1	7	28	42	1018	11
Karnataka	19	BEN1	1	19	83	1016	21
Delhi	20	DEL1	1	20	30	1020	6
Telangana	20	HYD1	1	20	83	1016	15
Rajasthan	17	JAI1	1	19	37	1016	12
Uttar Pradesh	17	KAN1	1	17	46	1020	7

Drill down: Quarterwise index

```
SELECT t.quarter  "Quarter",
        f.temp    "Temprature",
     i.*
FROM   Fact_table f,
     Index_dim i,
     Time t
WHERE  f.time_key = t.time_key
     AND f.index_key = i.index_key;
```

Quarter	Temprature	index_key	uv_index	heat_index	humidity	pressure	windspeed
Q1	28	BOM1	7	28	42	1018	11
Q2	30	BOM2	8	34	63	1011	7
Q3	24	BOM3	6	26	76	1004	9
Q4	28	BOM4	6	32	82	1011	14
Q1	19	BEN1	1	19	83	1016	21
Q2	26	BEN2	1	28	66	1007	20
Q3	21	BEN3	1	23	79	1012	21
Q4	20	BEN4	1	20	91	1012	9
Q1	22	NAG1	1	22	30	1013	13
Q2	40	NAG2	1	40	16	1000	11
Q3	26	NAG3	1	29	89	1000	12
Q4	21	NAG4	1	23	58	1014	6
Q1	20	DEL1	1	20	30	1020	6
Q2	32	DEL2	1	29	16	1006	11
Q3	39	DEL3	1	40	24	992	19
Q4	28	DEL4	1	30	70	1006	11
Q1	20	HYD1	1	20	83	1016	15
Q2	33	HYD2	1	34	38	1003	21
Q3	24	HYD3	1	26	82	1007	26
Q4	23	HYD4	1	25	84	1011	11
Q1	17	JAI1	1	19	37	1016	12
Q2	37	JAI2	1	36	15	1001	8
Q3	30	JAI3	1	35	68	1000	8
Q4	18	JAI4	1	18	50	1016	14
Q1	17	KAN1	1	17	46	1020	7

Slice: Mumbai city index

```
SELECT a.city  "City",
    f.temp "Temprature",
    i.*
FROM   Fact_table f,
    Index_dim i,
    Area a
WHERE  f.area_key = a.area_key
    AND f.index_key = i.index_key
    AND a.city = "Mumbai";
```

City	Temprature	index_key	uv_index	heat_index	humidity	pressure	windspeed
Mumbai	28	BOM1	7	28	42	1018	11
Mumbai	30	BOM2	8	34	63	1011	7
Mumbai	24	BOM3	6	26	76	1004	9
Mumbai	28	BOM4	6	32	82	1011	14

Dice: Mumbai and Bengaluru Temprature, UV, humidity

```
SELECT a.city    "City",
    f.temp    "Temprature",
    i.uv_index  "UV",
    i.humidity "Humidity"
FROM   Fact_table f,
    Index_dim i,
    Area a
```

WHERE f.area_key = a.area_key
      AND f.index_key = i.index_key
      AND a.city IN("Mumbai", "Bengaluru");

	City	Temprature	UV	Humidity
▶	Mumbai	28	7	42
	Mumbai	30	8	63
	Mumbai	24	6	76
	Mumbai	28	6	82
	Bengaluru	19	1	83
	Bengaluru	26	1	66
	Bengaluru	21	1	79
	Bengaluru	20	1	91

Conclusion:
Thus we performed olap operations on weather olap cube

SIGN AND REMARK

R1 (3 M)	R2 (3 M)	R3 (3 M)	R4 (3 M)	R5 (3 M)	Total	Sign

DATE