Course Code: CSL603	Course Name: DWM LAB
Class: TE-CO	Batch: 3
Roll no: 18CO63	Name: SHAIKH TAUSEEF MUSHTAQUE ALI

Experiment :04

Aim: To perform various OLAP operations such as slice, dice, drilldown, rollup, pivot

Output:

Setting environment for using XAMPP for Windows.

tp@DESKTOP-K5A8CTB e:\xampp

mysql -u root -p

Enter password:

Welcome to the MariaDB monitor.   Commands end with ; or \g.

Your MariaDB connection id is 108

Server version: 10.4.18-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use dwm;

Database changed

MariaDB [dwm]> show tables;

+---------------+

| Tables_in_dwm |

+---------------+

| abc |

| fact_sales |

+---------------+

2 rows in set (0.001 sec)

MariaDB [dwm]> select * from fact_sales;

id	year	month	product	sales_qty
1	2015	1	hard disk	15000
2	2015	2	hard disk	9000
3	2015	3	hard disk	16000
4	2015	4	hard disk	1000
5	2015	5	hard disk	9690
6	2015	6	hard disk	7800
7	2015	7	hard disk	13000
8	2015	8	hard disk	9800
9	2015	9	hard disk	13000
10	2015	10	hard disk	12680
11	2015	11	hard disk	15690
12	2015	12	hard disk	14200
13	2016	1	hard disk	1200
14	2016	2	hard disk	12200
15	2016	3	hard disk	1900
16	2016	4	hard disk	2500
17	2016	5	hard disk	15000
18	2016	6	hard disk	11000
19	2016	7	hard disk	10890
20	2016	8	hard disk	7300
21	2016	9	hard disk	9560
22	2016	10	hard disk	10610
23	2016	11	hard disk	19830
24	2016	12	hard disk	5630
25	2017	1	hard disk	15302
26	2017	2	hard disk	13090
27	2017	3	hard disk	11890
28	2017	4	hard disk	18722

	29	2017	5	hard disk	8780
	30	2017	6	hard disk	9820
	31	2017	7	hard disk	3400
	32	2017	8	hard disk	3190
	33	2017	9	hard disk	8800
	34	2017	10	hard disk	12920
	35	2017	11	hard disk	1920
	36	2017	12	hard disk	13050
	37	2018	1	hard disk	1090
	38	2018	2	hard disk	2908
	39	2018	3	hard disk	11800
	40	2018	4	hard disk	13900
	41	2018	5	hard disk	9900
	42	2018	6	hard disk	8350
	43	2018	7	hard disk	5650
	44	2018	8	hard disk	4950
	45	2018	9	hard disk	9670
	46	2018	10	hard disk	8020
	47	2018	11	hard disk	10290
	48	2018	12	hard disk	12030
	49	2015	1	keyboard	1230
	50	2015	2	keyboard	3000
	51	2015	3	keyboard	3400
	52	2015	4	keyboard	6700
	53	2015	5	keyboard	1790
	54	2015	6	keyboard	12900
	55	2015	7	keyboard	2980
	56	2015	8	keyboard	10900
	57	2015	9	keyboard	9980
	58	2015	10	keyboard	7880
	59	2015	11	keyboard	6890
	60	2015	12	keyboard	11890

61	2016	1	keyboard	8090
62	2016	2	keyboard	9010
63	2016	3	keyboard	6570
64	2016	4	keyboard	6100
65	2016	5	keyboard	7768
66	2016	6	keyboard	1908
67	2016	7	keyboard	11900
68	2016	8	keyboard	8900
69	2016	9	keyboard	8766
70	2016	10	keyboard	9878
71	2016	11	keyboard	7800
72	2016	12	keyboard	9000
73	2017	1	keyboard	8000
74	2017	2	keyboard	10900
75	2017	3	keyboard	9870
76	2017	4	keyboard	1770
77	2017	5	keyboard	7170
78	2017	6	keyboard	9880
79	2017	7	keyboard	10880
80	2017	8	keyboard	10180
81	2017	9	keyboard	12000
82	2017	10	keyboard	10200
83	2017	11	keyboard	12350
84	2017	12	keyboard	11310
85	2018	1	keyboard	9289
86	2018	2	keyboard	9010
87	2018	3	keyboard	1920
88	2018	4	keyboard	11920
89	2018	5	keyboard	9080
90	2018	6	keyboard	9000
91	2018	7	Seyboard	8270
92	2018	8	keyboard	4220

93	2018	9	keyboard	2230
94	2018	10	keyboard	6770
95	2018	11	keyboard	7879
96	2018	12	keyboard	8089
97	2015	1	monitor	7009
98	2015	2	monitor	8999
99	2015	3	monitor	8780
100	2015	4	monitor	1780
101	2015	5	monitor	1080
102	2015	6	monitor	2290
103	2015	7	monitor	8290
104	2015	8	monitor	7090
105	2015	9	monitor	8780
106	2015	10	monitor	6760
107	2015	11	monitor	3029
108	2015	12	monitor	6780
109	2016	1	monitor	2290
110	2016	2	monitor	8900
111	2016	3	monitor	7000
112	2016	4	monitor	2800
113	2016	5	monitor	8020
114	2016	6	monitor	7878
115	2016	7	monitor	9800
116	2016	8	monitor	8950
117	2016	9	monitor	1090
118	2016	10	monitor	3490
119	2016	11	monitor	13490
120	2016	12	monitor	12390
121	2017	1	monitor	9180
122	2017	2	monitor	8000
123	2017	3	monitor	7890
124	2017	4	monitor	3890

125	2017	5	monitor	2990
126	2017	6	monitor	6990
127	2017	7	monitor	12000
128	2017	8	monitor	11020
129	2017	9	monitor	9800
130	2017	10	monitor	7800
131	2017	11	monitor	9878
132	2017	12	monitor	9800
133	2018	1	monitor	8700
134	2018	2	monitor	8670
135	2018	3	monitor	6770
136	2018	4	monitor	8790
137	2018	5	monitor	1980
138	2018	6	monitor	7789
139	2018	7	monitor	9880
140	2018	8	monitor	10890
141	2018	9	monitor	7677
142	2018	10	monitor	8700
143	2018	11	monitor	6750
144	2018	12	monitor	8700
145	2015	1	pendrive	18700
146	2015	2	pendrive	12900
147	2015	3	pendrive	19920
148	2015	4	pendrive	10190
149	2015	5	pendrive	11900
150	2015	6	pendrive	11800
151	2015	7	pendrive	18300
152	2015	8	pendrive	15670
153	2015	9	pendrive	12800
154	2015	10	pendrive	11900
155	2015	11	pendrive	12000
156	2015	12	pendrive	9010

157	2016	1	pendrive	13440
158	2016	2	pendrive	7040
159	2016	3	pendrive	16010
160	2016	4	pendrive	14500
161	2016	5	pendrive	12500
162	2016	6	pendrive	12920
163	2016	7	pendrive	11095
164	2016	8	pendrive	13080
165	2016	9	pendrive	12900
166	2016	10	pendrive	11200
167	2016	11	pendrive	12800
168	2016	12	pendrive	17800
169	2017	1	pendrive	19800
170	2017	2	pendrive	11900
171	2017	3	pendrive	9500
172	2017	4	pendrive	15000
173	2017	5	pendrive	17020
174	2017	6	pendrive	10220
175	2017	7	pendrive	11230
176	2017	8	pendrive	18050
177	2017	9	pendrive	12350
178	2017	10	pendrive	12350
179	2017	11	pendrive	10220
180	2017	12	pendrive	17620
181	2018	1	pendrive	16000
182	2018	2	pendrive	18720
183	2018	3	pendrive	12902
184	2018	4	pendrive	15020
185	2018	5	pendrive	17000
186	2018	6	pendrive	13900
187	2018	7	pendrive	12330
188	2018	8	pendrive	17800

189	2018	9	pendrive	15400
190	2018	10	pendrive	11200
191	2018	11	pendrive	11320
192	2018	12	pendrive	17320
193	2015	1	RAM	12210
194	2015	2	RAM	15000
195	2015	3	RAM	12900
196	2015	4	RAM	14390
197	2015	5	RAM	9390
198	2015	6	RAM	8990
199	2015	7	RAM	7820
200	2015	8	RAM	8010
201	2015	9	RAM	6980
202	2015	10	RAM	7677
203	2015	11	RAM	8090
204	2015	12	RAM	6700
217	2016	1	RAM	9700
218	2016	2	RAM	14700
219	2016	3	RAM	7900
220	2016	4	RAM	12000
221	2016	5	RAM	14050
222	2016	6	RAM	15600
223	2016	7	RAM	12600
224	2016	8	RAM	12800
225	2016	9	RAM	17890
226	2016	10	RAM	13490
227	2016	11	RAM	12335
228	2016	12	RAM	13500
229	2017	1	RAM	11800
230	2017	2	RAM	17300
231	2017	3	RAM	15690
232	2017	4	RAM	5700

```
| 233 | 2017 | 5    | RAM    |       9080 |
| 234 | 2017 | 6    | RAM    |      11800 |
| 235 | 2017 | 7    | RAM    |      12380 |
| 236 | 2017 | 8    | RAM    |      13220 |
| 237 | 2017 | 9    | RAM    |       5320 |
| 238 | 2017 | 10   | RAM    |       7000 |
| 239 | 2017 | 11   | RAM    |       4890 |
| 240 | 2017 | 12   | RAM    |       6600 |
| 241 | 2018 | 1    | RAM    |       5600 |
| 242 | 2018 | 2    | RAM    |       8090 |
| 243 | 2018 | 3    | RAM    |       8690 |
| 244 | 2018 | 4    | RAM    |       3400 |
| 245 | 2018 | 5    | RAM    |       2720 |
| 246 | 2018 | 6    | RAM    |       5069 |
| 247 | 2018 | 7    | RAM    |       7870 |
| 248 | 2018 | 8    | RAM    |       9800 |
| 249 | 2018 | 9    | RAM    |       6500 |
| 250 | 2018 | 10   | RAM    |       8800 |
| 251 | 2018 | 11   | RAM    |      10900 |
| 252 | 2018 | 12   | RAM    |      12890 |
+-----+------+-------+----------+-----------+
```

240 rows in set (0.001 sec)

1. Slicing Operation:

MariaDB [dwm]> select * from fact_sales where product='pendrive';

id	year	month	product	sales_qty
145	2015	1	pendrive	18700
146	2015	2	pendrive	12900
147	2015	3	pendrive	19920
148	2015	4	pendrive	10190
149	2015	5	pendrive	11900
150	2015	6	pendrive	11800
151	2015	7	pendrive	18300
152	2015	8	pendrive	15670
153	2015	9	pendrive	12800
154	2015	10	pendrive	11900
155	2015	11	pendrive	12000
156	2015	12	pendrive	9010
157	2016	1	pendrive	13440
158	2016	2	pendrive	7040
159	2016	3	pendrive	16010
160	2016	4	pendrive	14500
161	2016	5	pendrive	12500
162	2016	6	pendrive	12920
163	2016	7	pendrive	11095
164	2016	8	pendrive	13080
165	2016	9	pendrive	12900
166	2016	10	pendrive	11200
167	2016	11	pendrive	12800
168	2016	12	pendrive	17800
169	2017	1	pendrive	19800
170	2017	2	pendrive	11900

171	2017	3	pendrive	9500
172	2017	4	pendrive	15000
173	2017	5	pendrive	17020
174	2017	6	pendrive	10220
175	2017	7	pendrive	11230
176	2017	8	pendrive	18050
177	2017	9	pendrive	12350
178	2017	10	pendrive	12350
179	2017	11	pendrive	10220
180	2017	12	pendrive	17620
181	2018	1	pendrive	16000
182	2018	2	pendrive	18720
183	2018	3	pendrive	12902
184	2018	4	pendrive	15020
185	2018	5	pendrive	17000
186	2018	6	pendrive	13900
187	2018	7	pendrive	12330
188	2018	8	pendrive	17800
189	2018	9	pendrive	15400
190	2018	10	pendrive	11200
191	2018	11	pendrive	11320
192	2018	12	pendrive	17320

```
+-----+------+-------+----------+-----------+
```

48 rows in set (0.001 sec)

```
MariaDB [dwm]> select sum(sales_qty) from fact_sales where year=2015;

+----------------+
| sum(sales_qty) |
+----------------+
|         570314 |
+----------------+
1 row in set (0.001 sec)
```

2. Dice Operation:

MariaDB [dwm]> select * from fact_sales where product='pendrive' and year='2015';

```
+-----+------+-------+----------+-----------+
| id  | year | month | product  | sales_qty |
+-----+------+-------+----------+-----------+
| 145 | 2015 | 1     | pendrive |     18700 |
| 146 | 2015 | 2     | pendrive |     12900 |
| 147 | 2015 | 3     | pendrive |     19920 |
| 148 | 2015 | 4     | pendrive |     10190 |
| 149 | 2015 | 5     | pendrive |     11900 |
| 150 | 2015 | 6     | pendrive |     11800 |
| 151 | 2015 | 7     | pendrive |     18300 |
| 152 | 2015 | 8     | pendrive |     15670 |
| 153 | 2015 | 9     | pendrive |     12800 |
| 154 | 2015 | 10    | pendrive |     11900 |
| 155 | 2015 | 11    | pendrive |     12000 |
| 156 | 2015 | 12    | pendrive |      9010 |
+-----+------+-------+----------+-----------+
```

12 rows in set (0.001 sec)

3. Rollup Operation:

MariaDB [dwm]> select product, sum(sales_qty) from fact_sales group by product;

```
+-----------+----------------+
| product   | sum(sales_qty) |
+-----------+----------------+
| hard disk |         463922 |
| keyboard  |         377417 |
| monitor   |         351299 |
| pendrive  |         664547 |
| RAM       |         485831 |
+-----------+----------------+
5 rows in set (0.001 sec)
```

MariaDB [dwm]> select year, sum(sales_qty) from fact_sales group by year with rollup;

```
+------+----------------+
| year | sum(sales_qty) |
+------+----------------+
| 2015 |         570314 |
| 2016 |         601258 |
| 2017 |         620672 |
| 2018 |         550772 |
| NULL |        2343016 |
+------+----------------+
5 rows in set (0.001 sec)
```

4. Pivot Operation:

MariaDB [dwm]> select product,sum(if(year=2015,sales_qty,0))

    -> as '2015',sum(if(year=2016,sales_qty,0))

    -> as '2016',sum(if(year=2017,sales_qty,0))

    -> as '2017',sum(if(year=2018,sales_qty,0))

    -> as '2018' from fact_sales group by product;

```
+-----------+--------+--------+--------+--------+
| product   | 2015   | 2016   | 2017   | 2018   |
+-----------+--------+--------+--------+--------+
| hard disk | 136860 | 107620 | 120884 |  98558 |
| keyboard  |  79540 |  95690 | 114510 |  87677 |
| monitor   |  70667 |  86098 |  99238 |  95296 |
| pendrive  | 165090 | 155285 | 165260 | 178912 |
| RAM       | 118157 | 156565 | 120780 |  90329 |
+-----------+--------+--------+--------+--------+
```

5 rows in set (0.001 sec)

5. Drilldown Operation:

MariaDB [dwm]> select year,sum(if(month=1,sales_qty,0))

    -> as 'JAN',sum(if(month=2,sales_qty,0))

    -> as 'FEB',sum(if(month=3,sales_qty,0))

    -> as 'MAR',sum(if(month=4,sales_qty,0))

    -> as 'APR',sum(if(month=5,sales_qty,0))

    -> as 'MAY',sum(if(month=6,sales_qty,0))

    -> as 'JUNE',sum(if(month=7,sales_qty,0))

    -> as 'JUL',sum(if(month=8,sales_qty,0))

    -> as 'AUG',sum(if(month=9,sales_qty,0))

    -> as 'SEP',sum(if(month=10,sales_qty,0))

    -> as 'OCT',sum(if(month=11,sales_qty,0))

    -> as 'NOV',sum(if(month=12,sales_qty,0))

    -> as 'DEC' from fact_sales group by year;

year	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC
2015	54149	48899	61000	34060	33850	43780	50390	51470	51540	46897	45699	48580
2016	34720	51850	39380	37900	57338	49306	56285	51030	50206	48668	66255	58320
2017	64082	61190	54840	45082	45040	48710	49890	55660	48270	50270	39258	58380
2018	40679	47398	42082	53030	40680	44108	44000	47660	41477	43490	47139	59029

4 rows in set (0.003 sec)