

EXPERIMENT NO. 3

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Div: A



komalchitnis02@komal-virtual-machine: ~

```
komalchitnis02@komal-virtual-machine:~$ sudo mysql
[sudo] password for komalchitnis02:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.29-0ubuntu0.20.04.3 (Ubuntu)

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owners.

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

mysql> create database dwm_db;
Query OK, 1 row affected (0.05 sec)

mysql> use dwm_db;
Database changed
mysql> create table customer_dim(cust_id int,name varchar(20),city varchar(20),state varchar(20),country varchar(20),primary key(cust_id));
Query OK, 0 rows affected (0.10 sec)

mysql> insert into cust_dim values(1,'komal','thane','maharashtra','india');
ERROR 1146 (42S02): Table 'dwm_db.cust_dim' doesn't exist
mysql> insert into customer_dim values(1,'komal','thane','maharashtra','india');
Query OK, 1 row affected (0.03 sec)

mysql> insert into customer_dim values(2,'mahek','thane','maharashtra','india');
Query OK, 1 row affected (0.01 sec)

mysql> insert into customer_dim values(3,'sahil','mumbai','maharashtra','india');
Query OK, 1 row affected (0.01 sec)

mysql> insert into customer_dim values(4,'manav','kalyan','maharashtra','india');
Query OK, 1 row affected (0.00 sec)

mysql> select *from customer_dim;
+-----+-----+-----+-----+-----+
| cust_id | name  | city  | state  | country |
+-----+-----+-----+-----+-----+
| 1       | komal | thane | maharashtra | india   |
| 2       | mahek | thane | maharashtra | india   |
| 3       | sahil | mumbai | maharashtra | india   |
| 4       | manav | kalyan | maharashtra | india   |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```



komalchitnis02@komal-virtual-machine: ~

```
mysql> create table wallet_dim(wallet_id int,name varchar(20),code int);
Query OK, 0 rows affected (0.07 sec)

mysql> insert into wallet_dim values(1001,'gpay',1234);
Query OK, 1 row affected (0.01 sec)

mysql> insert into wallet_dim values(1002,'phonepay',4567);
Query OK, 1 row affected (0.01 sec)

mysql> insert into wallet_dim values(1003,'paytm',7890);
Query OK, 1 row affected (0.00 sec)

mysql> drop table wallet_dim;
Query OK, 0 rows affected (0.05 sec)

mysql> create table wallet_dim(wallet_id int,name varchar(20),code int, primary key(wallet_id));
Query OK, 0 rows affected (0.05 sec)

mysql> insert into wallet_dim values(1001,'gpay',1234);
Query OK, 1 row affected (0.00 sec)

mysql> insert into wallet_dim values(1002,'phonepay',4567);
Query OK, 1 row affected (0.00 sec)

mysql> insert into wallet_dim values(1003,'paytm',7890);
Query OK, 1 row affected (0.01 sec)

mysql> insert into wallet_dim values(1004,'razorpay',2357);
Query OK, 1 row affected (0.00 sec)

mysql> select *from wallet_dim;
+-----+-----+-----+
| wallet_id | name    | code |
+-----+-----+-----+
| 1001      | gpay    | 1234 |
| 1002      | phonepay | 4567 |
| 1003      | paytm   | 7890 |
| 1004      | razorpay | 2357 |
+-----+-----+-----+
4 rows in set (0.01 sec)
```

```
mysql> create table time_dim(time_key int,day int,month varchar(20),year int,primary key(time_key));
Query OK, 0 rows affected (0.08 sec)
```

```
mysql> insert into time_dim values(10,1,'february',2021);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into time_dim values(11,5,'may',2022);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into time_dim values(12,15,'august',2020);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into time_dim values(13,20,'october',2023);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select *from time_dim;
```

time_key	day	month	year
10	1	february	2021
11	5	may	2022
12	15	august	2020
13	20	october	2023

```
4 rows in set (0.00 sec)
```

```
mysql> create table usageservice_dim(service_id int,type varchar(20),company varchar(20),primary key(service_id));
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> insert into usageservice_dim values(500,'mobile_recharge','jio');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into usageservice_dim values(510,'appliance','acer');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into usageservice_dim values(520,'shopping','vanhusen');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into usageservice_dim values(550,'stationary','camlin');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select *from usageservice_dim;
```

service_id	type	company
500	mobile_recharge	jio
510	appliance	acer
520	shopping	vanhusen
550	stationary	camlin

```
4 rows in set (0.00 sec)
```

```
komalchitnis02@komal-virtual-machine: ~
mysql> create table transaction_fact(trans_id int,cust_id int,time_key int,wallet_id int,service_id int,trans_date date,trans_credit int,trans_debit int,primary key(trans_id),foreign key(cust_id) referen
ces customer_dim(cust_id),foreign key(wallet_id) references wallet_dim(wallet_id),foreign key(time_key) references time_dim(time_key),foreign key(service_id) references usageservice_dim(service_id));
ERROR 2013 (HY000): lost connection to MySQL server during query
No connection. Trying to reconnect...
Connection id: 8
Current database: dwn_db

Query OK, 0 rows affected (0.39 sec)

mysql> desc transaction_fact;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| trans_id | int | NO | PRI | NULL | |
| cust_id | int | YES | MUL | NULL | |
| time_key | int | YES | MUL | NULL | |
| wallet_id | int | YES | MUL | NULL | |
| service_id | int | YES | MUL | NULL | |
| trans_date | date | YES | | NULL | |
| trans_credit | int | YES | | NULL | |
| trans_debit | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.02 sec)

mysql> insert into transaction_fact values(101,1,10,1001,500,'2021-02-01',50000,6000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into transaction_fact values(102,2,11,1002,510,'2022-05-05',60000,4000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into transaction_fact values(103,3,12,1003,520,'2020-08-15',30000,5000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into transaction_fact values(104,4,13,1004,550,'2023-10-20',70000,7000);
Query OK, 1 row affected (0.01 sec)

mysql> select *from transaction_fact;
+-----+-----+-----+-----+-----+-----+-----+-----+
| trans_id | cust_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | 1 | 10 | 1001 | 500 | 2021-02-01 | 50000 | 6000 |
| 102 | 2 | 11 | 1002 | 510 | 2022-05-05 | 60000 | 4000 |
| 103 | 3 | 12 | 1003 | 520 | 2020-08-15 | 30000 | 5000 |
| 104 | 4 | 13 | 1004 | 550 | 2023-10-20 | 70000 | 7000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
komalchitnis02@komal-virtual-machine: ~

4 rows in set (0.00 sec)

mysql> select max(trans_credit) from transaction_fact;
+-----+
| max(trans_credit) |
+-----+
| 70000 |
+-----+
1 row in set (0.00 sec)

mysql> select max(trans_debit) from transaction_fact;
+-----+
| max(trans_debit) |
+-----+
| 7000 |
+-----+
1 row in set (0.00 sec)

mysql> select min(trans_credit) from transaction_fact;
+-----+
| min(trans_credit) |
+-----+
| 30000 |
+-----+
1 row in set (0.00 sec)

mysql> select min(trans_debit) from transaction_fact;
+-----+
| min(trans_debit) |
+-----+
| 4000 |
+-----+
1 row in set (0.00 sec)
```

```
komalchitnis02@komal-virtual-machine: ~

mysql> select *from customer_dim where cust_id=(select cust_id from transaction_fact where trans_credit=70000);
+-----+-----+-----+-----+-----+
| cust_id | name | city | state | country |
+-----+-----+-----+-----+-----+
| 4 | manav | kalyan | maharashtra | india |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select *from customer_dim where cust_id=(select cust_id,max(trans_credit) from transaction_fact );
ERROR 1241 (21000): Operand should contain 1 column(s)

mysql> select cust_id,max(trans_credit) from transaction_fact group by cust_id;
+-----+-----+
| cust_id | max(trans_credit) |
+-----+-----+
| 1 | 50000 |
| 2 | 60000 |
| 3 | 30000 |
| 4 | 70000 |
+-----+-----+
4 rows in set (0.01 sec)
```



```
mysql> select cust_id from transaction_fact where trans_credit=(select max(trans_credit) from transaction_fact);
```

```
+-----+
| cust_id |
+-----+
|      4 |
+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> select *from transaction_fact where trans_credit=(select max(trans_credit) from transaction_fact);
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+
| trans_id | cust_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit |
+-----+-----+-----+-----+-----+-----+-----+-----+
|      104 |      4 |      13 |      1004 |      550 | 2023-10-20 |      70000 |      7000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select *from transaction_fact order by trans_credit,cust_id;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+
| trans_id | cust_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit |
+-----+-----+-----+-----+-----+-----+-----+-----+
|      103 |      3 |      12 |      1003 |      520 | 2020-08-15 |      30000 |      5000 |
|      101 |      1 |      10 |      1001 |      500 | 2021-02-01 |      50000 |      6000 |
|      102 |      2 |      11 |      1002 |      510 | 2022-05-05 |      60000 |      4000 |
|      104 |      4 |      13 |      1004 |      550 | 2023-10-20 |      70000 |      7000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
4 rows in set (0.00 sec)
```

```
mysql> select *from transaction_fact order by trans_debit,cust_id;
```

```
+-----+-----+-----+-----+-----+-----+-----+-----+
| trans_id | cust_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit |
+-----+-----+-----+-----+-----+-----+-----+-----+
|      102 |      2 |      11 |      1002 |      510 | 2022-05-05 |      60000 |      4000 |
|      103 |      3 |      12 |      1003 |      520 | 2020-08-15 |      30000 |      5000 |
|      101 |      1 |      10 |      1001 |      500 | 2021-02-01 |      50000 |      6000 |
|      104 |      4 |      13 |      1004 |      550 | 2023-10-20 |      70000 |      7000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
4 rows in set (0.01 sec)
```

```
mysql> select city,count(*) from customer_dim group by city;
```

```
+-----+-----+
| city | count(*) |
+-----+-----+
| thane |      2 |
| mumbai |      1 |
| kalyan |      1 |
+-----+-----+
```

```
3 rows in set (0.01 sec)
```

```
mysql> select avg(trans_credit) from transaction_fact;
```

```
+-----+
| avg(trans_credit) |
+-----+
|      52500.0000 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select avg(trans_debit) from transaction_fact;
```

```
+-----+
| avg(trans_debit) |
+-----+
|      5500.0000 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select *from customer_dim where name like 'm%';
```

```
+-----+-----+-----+-----+-----+
| cust_id | name | city | state | country |
+-----+-----+-----+-----+-----+
|      2 | mahesh | thane | maharashtra | india |
|      4 | manav | kalyan | maharashtra | india |
+-----+-----+-----+-----+-----+
```

```
2 rows in set (0.01 sec)
```

```
mysql> select state,count(*) from customer_dim group by state having city in ('thane');
```

```
ERROR 1054 (42S22): Unknown column 'city' in 'having clause'
```

```
mysql> select state,count(*) from customer_dim group by state having state in('maharashtra');
```

```
+-----+-----+
| state | count(*) |
+-----+-----+
| maharashtra |      4 |
+-----+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select city,count(*) from customer_dim group by city having city in ('thane','mumbai');
```

```
+-----+-----+
| city | count(*) |
+-----+-----+
| thane |      2 |
| mumbai |      1 |
+-----+-----+
```

```
2 rows in set (0.00 sec)
```

```

mysql> select *from transaction_fact where trans_debit=(select avg(trans_debit) from transaction_fact where trans_date='2022-05-05');
+-----+-----+-----+-----+-----+-----+-----+-----+
| trans_id | cust_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 102 | 2 | 11 | 1002 | 510 | 2022-05-05 | 60000 | 4000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select*from customer_dim where cust_id=(select cust_id from transaction_fact where service_id=(select service_id from usageservice_dim where type='paytm'));
Empty set (0.01 sec)

mysql> select*from customer_dim where cust_id=(select cust_id from transaction_fact where service_id=(select service_id from usageservice_dim where type='shopping'));
+-----+-----+-----+-----+-----+
| cust_id | name | city | state | country |
+-----+-----+-----+-----+-----+
| 3 | sahil | mumbai | maharashtra | india |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select*from customer_dim where cust_id=(select cust_id from transaction_fact where wallet_id=(select wallet_id from wallet_dim where type='jio'));
ERROR 1054 (42S22): Unknown column 'type' in 'where clause'
mysql> select*from customer_dim where cust_id=(select cust_id from transaction_fact where wallet_id=(select wallet_id from wallet_dim where name='jio'));
Empty set (0.01 sec)

mysql> select*from customer_dim where cust_id=(select cust_id from transaction_fact where wallet_id=(select wallet_id from wallet_dim where name='paytm'));
+-----+-----+-----+-----+-----+
| cust_id | name | city | state | country |
+-----+-----+-----+-----+-----+
| 3 | sahil | mumbai | maharashtra | india |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

```

```

mysql> select *from transaction_fact natural join customer_dim;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| cust_id | trans_id | time_key | wallet_id | service_id | trans_date | trans_credit | trans_debit | name | city | state | country |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 101 | 10 | 1001 | 500 | 2021-02-01 | 50000 | 6000 | komal |thane |maharashtra |india |
| 2 | 102 | 11 | 1002 | 510 | 2022-05-05 | 60000 | 4000 | mahek |thane |maharashtra |india |
| 3 | 103 | 12 | 1003 | 520 | 2020-08-15 | 30000 | 5000 | sahil |mumbai |maharashtra |india |
| 4 | 104 | 13 | 1004 | 550 | 2023-10-20 | 70000 | 7000 | manav |kalyan |maharashtra |india |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

```

Slice

```

select T.trans_id, C.cust_id, sum(trans_credit)
from transaction_fact T, customer_dim C
where T.cust_id=C.cust_id and city='thane'
group by T.trans_id, cust_id;

```

trans_id		cust_id	sum(trans_credit)
101	1	50000	
105	1	40000	
102	2	60000	
106	2	80000	

Dice

```

select T.trans_id, T.service_id, C.cust_id ,sum(trans_debit)
from transaction_fact T, customer_dim C, usageservice_dim U
where T.cust_id=C.cust_id and T.service_id=U.service_id and city='mumbai' and type='shopping'
group by T.trans_id, T.service_id, cust_id;

```

trans_id		service_id	cust_id	sum(trans_debit)
103	520	3	5000	
107	520	3	3000	

Roll up

```

select city, type, sum(trans_credit)
from transaction_fact T, customer_dim C, usageservice_dim U
where T.cust_id=C.cust_id and T.service_id=U.service_id
group by city, type;

```

city	type	sum(trans_credit)
thane	mobile_recharge	90000
thane	appliance	140000
mumbai	shopping	50000
kalyan	stationary	160000

Drill down

```

select country ,city, w.name, type ,sum(trans_debit)
from transaction_fact T, customer_dim C, wallet_dim W, usageservice_dim U
where T.cust_id=C.cust_id and T.service_id=U.service_id and T.wallet_id=W.wallet_id
group by country ,city ,name,type;

```

country	city	name	type	sum(trans_debit)
india	thane	gpay	mobile_recharge	14000
india	thane	phonepay	appliance	13000
india	mumbai	paytm	shopping	8000
india	kalyan	razorpay	stationary	17000