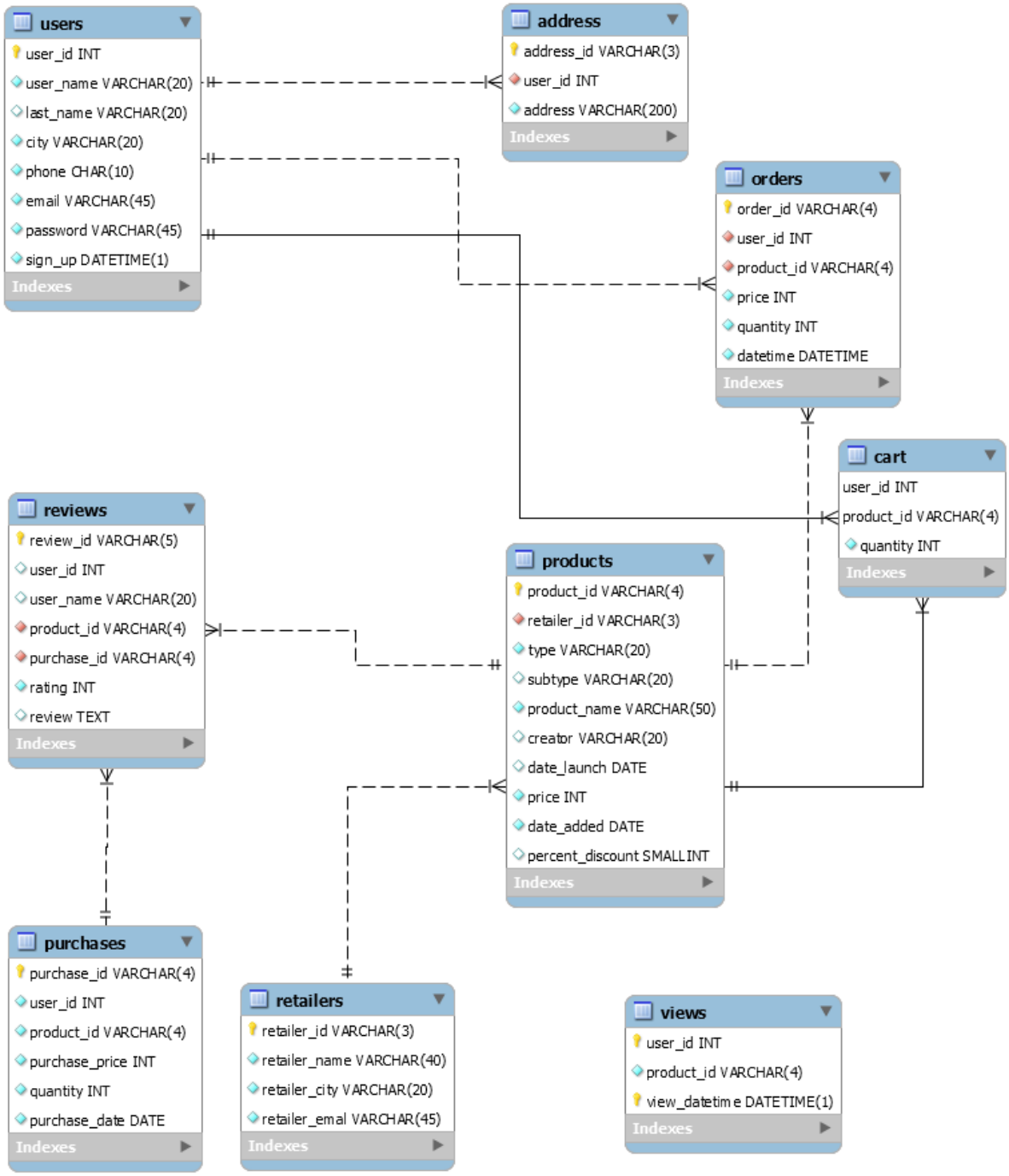
CS 432 Databases

Assignment - 2

Instructor : Prof. Mayank Singh

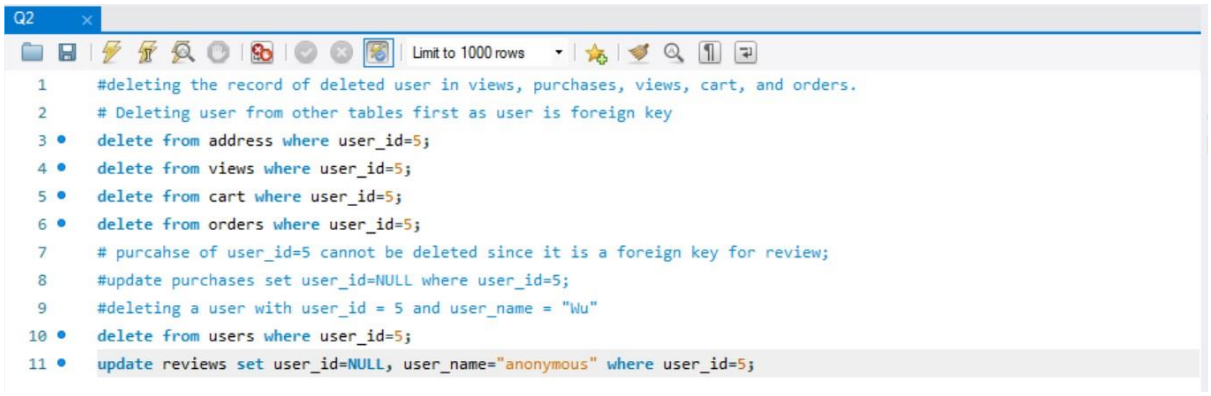
Devanshu Thakar
nilesh.thakar@iitgn.ac.in
18110174

The image of the schema diagram is shown below :



Q1. The schemas were defined using mySQL workbench. All tables were populated using mySQL workbench. A query file for creating database with the schema and data is given in Q1.sql

Q2. Suppose the user with user_id = 5 is to be deleted, after deleting the name of that use rin all ratings and reviews will be updated by anonymous. Also all his data in views, purchases, order and cart tables will be deleted. The image for deleting user_id = 5 is shown below :

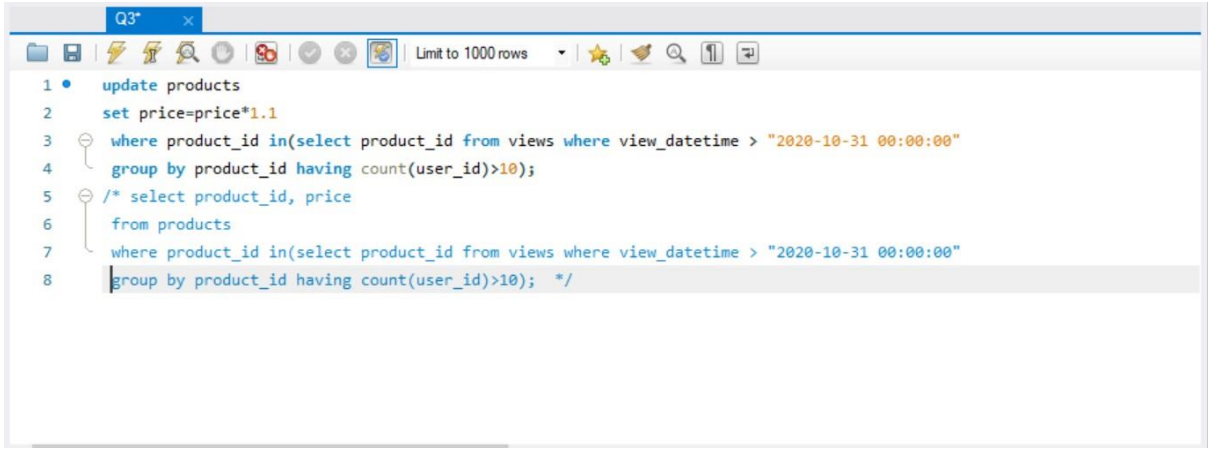


The result for the above query is as follows :

review_id	user_id	user_name	product_id	purchase_id	rating	review
RE1	14	Raman	PR4	PU4	5	Great the processing speed is fast. Good buy
RE10	8	Chris	PR1	PU11	4	Best fit
RE11	23	Robertson	PR20	PU12	5	Color combination is perfectly suited to urban world
RE12	7	Manas	PR29	PU20	3	Perfect size, and every gets impressed
RE13	25	Sunil	PR30	PU6	4	The camera is very good, even dark.
RE14	20	Moore	PR18	PU14	5	Good book. But don't gift to your parents.
RE15	28	Ahmad	PR34	PU1	3	Complete formal wear
RE16	NULL	anonymous	PR20	PU18	5	amazing laptop for professionals
RE17	27	JeJe	PR42	PU15	2	hats off to whom, who tailored this

Q3

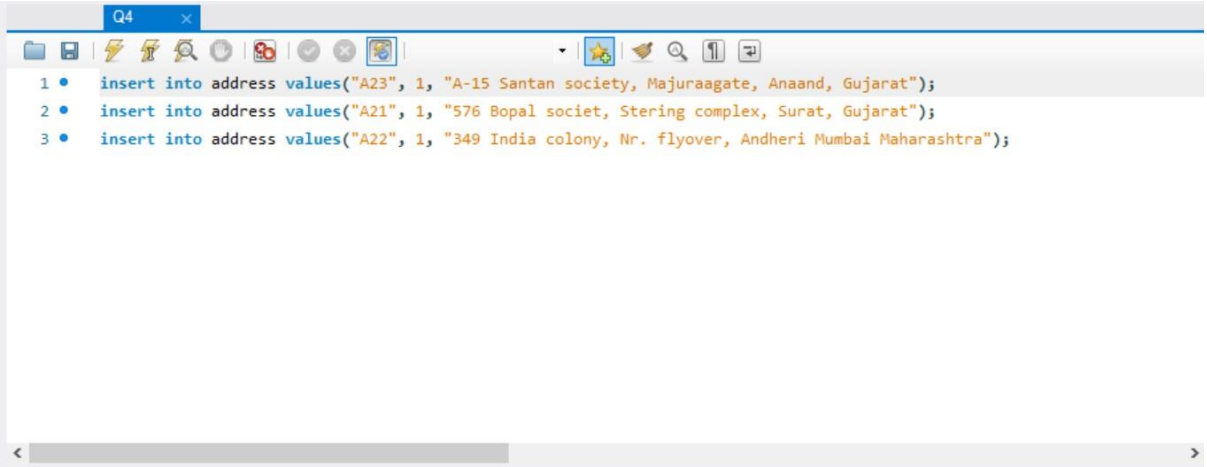
Assuming that today's date is **2021-01-31**. The following image query increases the price of products viewed by more then 10 users in last three months. Three months from 2021-01-31 up to 2020-10-31. The query for the same and result is shown below :



The answer for the query is

```
mysql> select product_id, price  from products  where product_id in(select product_id from views where view_datetime > "
2020-10-31 00:00:00" group by product_id having count(user_id)>10);
+------------+-------+
| product_id | price |
+------------+-------+
| PR1        |  1550 |
| PR24       |  1000 |
| PR4        |  3770 |
+------------+-------+
3 rows in set (0.05 sec)

mysql> select product_id, price  from products  where product_id in(select product_id from views where view_datetime > "
2020-10-31 00:00:00" group by product_id having count(user_id)>10);
+------------+-------+
| product_id | price |
+------------+-------+
| PR1        |  1705 |
| PR24       |  1100 |
| PR4        |  4147 |
+------------+-------+
3 rows in set (0.00 sec)

mysql>
```

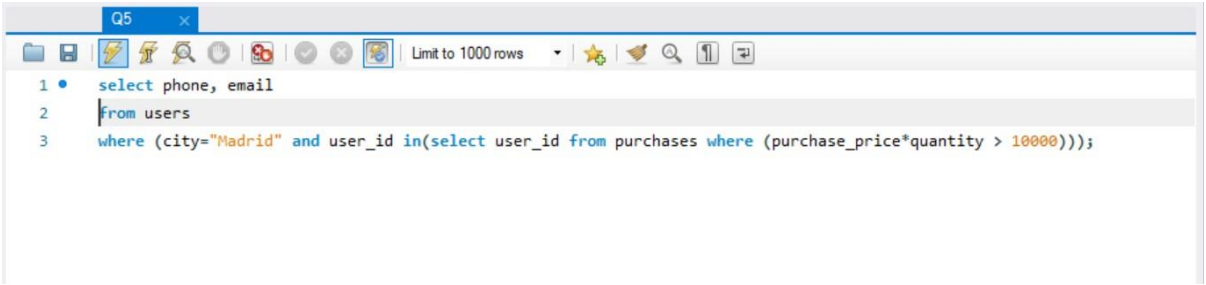
Q4. The query for adding 3 new address for user with user_id= 1 is shown as follows, along with the result



MySQL 8.0 Command Line Client

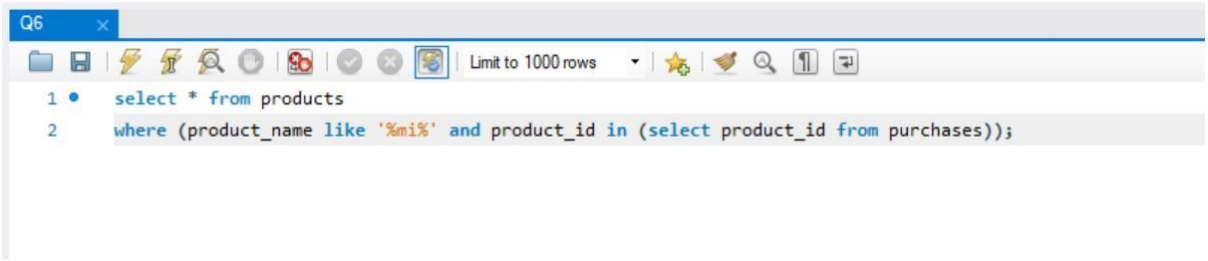
```
mysql> select * from address;
+------------+---------+--------------------------------------------------------------------------+
| address_id | user_id | address                                                                  |
+------------+---------+--------------------------------------------------------------------------+
| A1         |       7 | 773 Eden Drive Near, circle square Madrid Spain                          |
| A10        |      17 | A-285-7193 Ullamcorper Avenue  Amesbury, Army school, Vadodara Gujarat   |
| A11        |      14 | 666-4366 Lacinia Avenue Idaho Falls, Puddukuttai Vellore (TN)            |
| A12        |       4 | 773 Eden Drive Near Lake, Wu square, Hongkong                            |
| A13        |      10 | Aaron Hawkins 5587 Nunc. Avenue  Erie Rhode Island, London UK            |
| A14        |       9 | 516 Krishivan societ Krishivan societ Ghodasar Ahmedabad-360089 Gujarat  |
| A15        |      18 | 5543 Aliquet St. Fort Dodge GA, Times square Stretford UK                |
| A16        |       2 | 3235 Pretty View Lane Maninagar(East) Berlin                             |
| A17        |       6 | 516 Krishivan societ Krishivan societ Ghodasar Chennai-785745 TN         |
| A18        |      13 | 347-7666 Iaculis St. Woodruff SC, Majuragate Surat, Gujarat              |
| A19        |      16 | 557-6308 Lacinia Road San Bernardino ND, old GEB, Hyderabad TL           |
| A2         |      11 | Ap 696-3279 Viverra. Avenue Latrobe DE 38100, Opposite statue, Berlin    |
| A20        |      12 | P.O. Box 132 1599 Curabitur Rd.  Bandera South Dakota, Vadodara Gujarat  |
| A21        |       1 | 576 Bopal societ, Stering complex, Surat, Gujarat                        |
| A22        |       1 | 349 India colony, Nr. flyover, Andheri Mumbai Maharashtra                |
| A23        |       1 | A-15 Santan society, Majuraagate, Anaand, Gujarat                        |
| A3         |      20 | 6351 Fringilla Avenue Gardena Colorado, East of river, Alexendria UK     |
| A4         |       8 | Kenture square, Vishwas Duplex Atladara(East) Dallas (US)                |
| A5         |       3 | C-38 Myra Street Ghodasar, Kingston Britain                              |
| A6         |       1 | 773 Eden Drive Montpeiler Montpeiler Ahmedabad-380050 Gujarat            |
| A7         |      19 | 5037 Diam Rd.  Daly City Bridge, New Mills, Ohio US                      |
| A9         |      15 | P.O. Box 147 2546 Sociosqu Rd. Bethlehem Utah, Madrid Spain              |
+------------+---------+--------------------------------------------------------------------------+
22 rows in set (0.00 sec)
```

Q5 The query for finding the email, and phone for users from Madrid and have made a purchase of greater than 10000 is as follows:



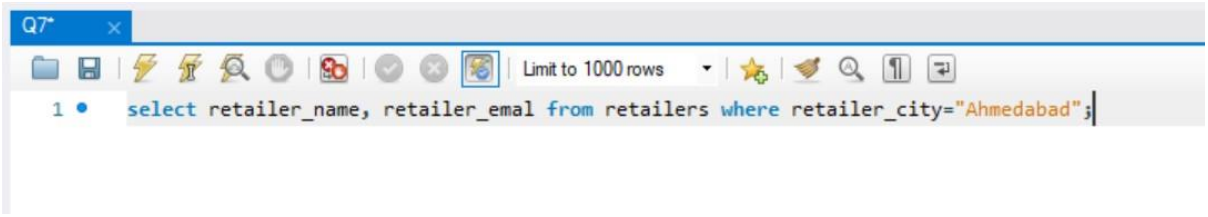

```
mysql> select phone, email from users where (city="Madrid" and user_id in(select use
r_id from purchases where (purchase_price*quantity > 10000)));
+------------+----------------------+
| phone      | email                |
+------------+----------------------+
| 2703738991 | manas.nfmv@email.com |
+------------+----------------------+
1 row in set (0.00 sec)
```

Q6 The query for selecting all products containing “mi” and have purchased by some user is



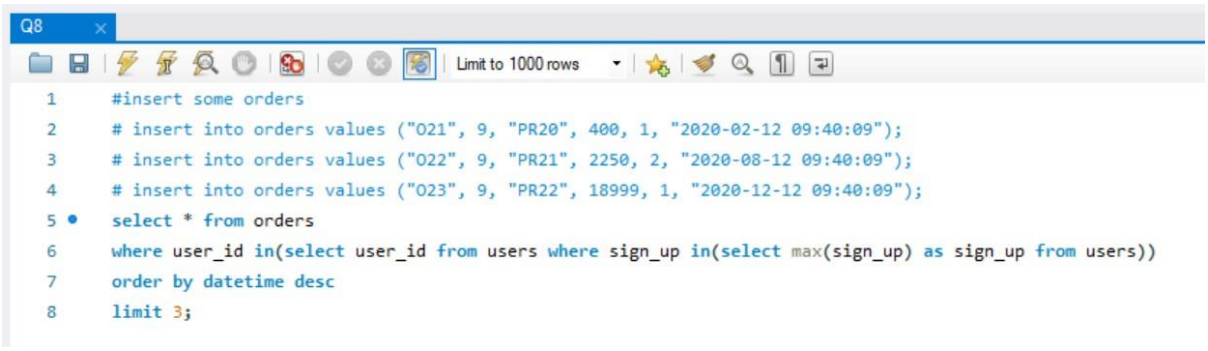

```
mysql> select * from products where (product_name like '%mi%' and product_id in (select product_id from purchases));
+------------+-------------+-------------+---------+--------------+---------+-------------+-------+------------+------------------+
| product_id | retailer_id | type        | subtype | product_name | creator | date_launch | price | date_added | percent_discount |
+------------+-------------+-------------+---------+--------------+---------+-------------+-------+------------+------------------+
| PR27       | R5          | electronics | laptop  | acer gaming  | acer    | 2010-06-29  | 20000 | 2014-12-07 |                0 |
| PR3        | R10         | clothes     | tshirt  | mimi tshirt  | Zudio   | NULL        |   400 | 2014-09-02 |                0 |
+------------+-------------+-------------+---------+--------------+---------+-------------+-------+------------+------------------+
2 rows in set (0.00 sec)

mysql>
```

Q7 The query for finding out all retailers from Ahmedabad is



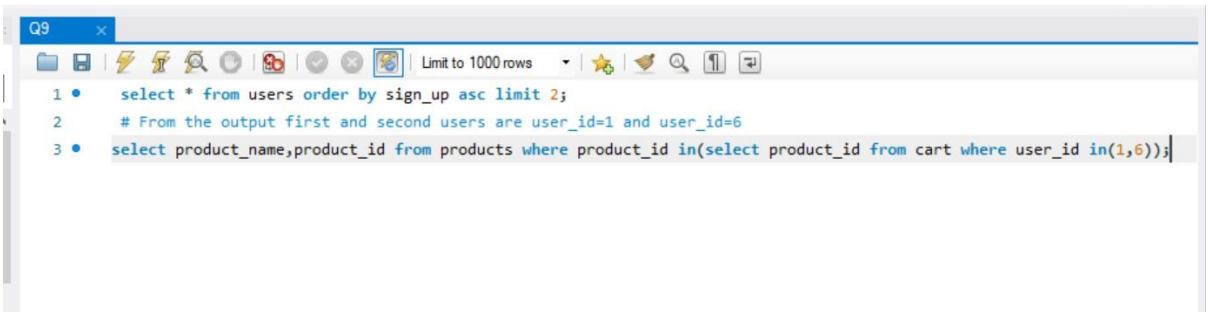

```
mysql> select retailers_name, retailer_emal from retailers where retailer_ci
ty="Ahmedabad";
ERROR 1054 (42S22): Unknown column 'retailers_name' in 'field list'
mysql> select retailer_name, retailer_emal from retailers where retailer_cit
y="Ahmedabad";
+---------------+-------------------------+
| retailer_name | retailer_emal           |
+---------------+-------------------------+
| VijayaSales   | vijayaSales@email.com   |
| Fashion Store | fashion.store@email.com |
| Best store    | best.store@email.com    |
| Pustak Store  | pustak.store@email.com  |
+---------------+-------------------------+
4 rows in set (0.04 sec)

mysql>
```

Q8 The query to find the last 3 orders of last users is as follows



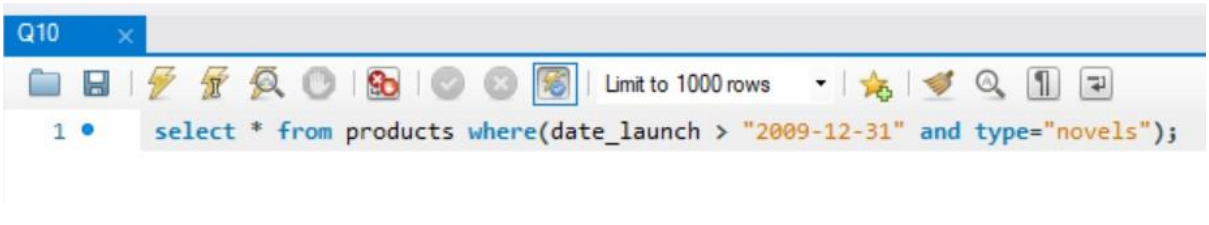

```
mysql> select * from orders where user_id in(select user_id from users where sign_up in(select max(sign_up) as sign_up from users)) order by d
atetime desc limit 3;
+----------+---------+------------+-------+----------+---------------------+
| order_id | user_id | product_id | price | quantity | datetime            |
+----------+---------+------------+-------+----------+---------------------+
| O2       |       9 | PR37       |   700 |        1 | 2020-12-17 18:03:33 |
| O23      |       9 | PR22       | 18999 |        1 | 2020-12-12 09:40:09 |
| O7       |       9 | PR19       |   260 |        1 | 2020-10-03 14:11:10 |
+----------+---------+------------+-------+----------+---------------------+
3 rows in set (0.00 sec)
```

Q9 The query and the result for finding the products in the cart of first and second users is




```
mysql> select product_name,product_id from products where product_id in(select product_id from cart where user_id in(1,6));
+-------------------------+------------+
| product_name            | product_id |
+-------------------------+------------+
| macbook pro             | PR17       |
| mimi tshirt             | PR3        |
| samsung a50             | PR18       |
| Henry Miller on Writing | PR8        |
+-------------------------+------------+
4 rows in set (0.00 sec)
```

Q10 Here are the list of novels published after 2010




```
mysql> select * from products where(date_launch > "2009-12-31" and type="novels");
+------------+-------------+-------+-----------+-----------------------------------+-----------------+-------------+-------+------------+------------------+
| product_id | retailer_id | type  | subtype   | product_name                      | creator         | date_launch | price | date_added | percent_discount |
+------------+-------------+-------+-----------+-----------------------------------+-----------------+-------------+-------+------------+------------------+
| PR12       | R6          | novels | thriller  | Digital Fortress                  | Dan Brown       | 2014-02-08  |   499 | 2014-04-07 |                0 |
| PR19       | R3          | novels | horror    | CliffsNotes on Tolstoy's Anna Karenina | Marianne Sturman | 2011-03-09 |   260 | 2013-05-22 |                0 |
| PR33       | R18         | novels | mysterious | Wrinkles in Time                  | George Smoot    | 2012-01-18  |  1270 | 2013-02-10 |                0 |
| PR35       | R13         | novels | thriller  | The Blue Umbrella                 | Ruskin Bond     | 2010-03-06  |   320 | 2013-02-13 |                0 |
| PR38       | R5          | novels | mysterious | The lost symbol                   | Dan Brown       | 2010-07-23  |  1800 | 2011-05-26 |                0 |
| PR9        | R18         | novels | horror    | War and Piece                     | Amy Madelker    | 2012-07-06  |   920 | 2012-11-07 |                0 |
+------------+-------------+-------+-----------+-----------------------------------+-----------------+-------------+-------+------------+------------------+
6 rows in set (0.00 sec)
```

Q11 List of electronics in the range of 10-20 k.

```
Q11
Limit to 1000 rows
1 • * from products where(type="electronics" and price>=10000 and price<=20000);
```

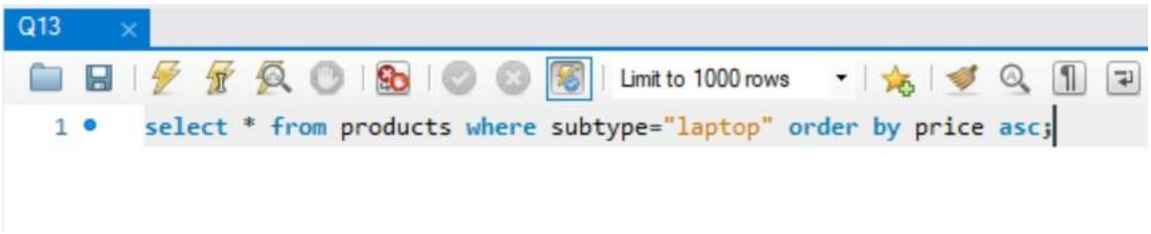
```
mysql> select * from products where(type="electronics" and price>=10000 and price<=20000);
+------------+-------------+-------------+---------+---------------+---------+-------------+-------+------------+------------------+
| product_id | retailer_id | type        | subtype | product_name  | creator | date_launch | price | date_added | percent_discount |
+------------+-------------+-------------+---------+---------------+---------+-------------+-------+------------+------------------+
| PR15       | R11         | electronics | laptop  | lenovo omen   | lenovo  | 2010-02-26  | 15999 | 2012-01-04 |                0 |
| PR18       | R2          | electronics | mobile  | samsung a50   | samsung | 2012-03-26  | 19999 | 2013-08-15 |                0 |
| PR2        | R16         | electronics | laptop  | dell inspiron | dell    | 2011-04-23  | 19900 | 2012-10-21 |                0 |
| PR22       | R4          | electronics | laptop  | dell g3 gaming| dell    | 2009-08-29  | 18990 | 2010-08-27 |                0 |
| PR27       | R5          | electronics | laptop  | acer gaming   | acer    | 2010-06-29  | 20000 | 2014-12-07 |                0 |
| PR28       | R4          | electronics | tablet  | apple ipad 8  | apple   | 2015-01-23  | 12000 | 2015-08-25 |                0 |
| PR29       | R11         | electronics | mobile  | iphone 9      | apple   | 2009-08-14  | 18499 | 2011-02-10 |                0 |
| PR32       | R11         | electronics | laptop  | asus tuf      | asus    | 2009-02-10  | 12890 | 2010-01-21 |                0 |
| PR40       | R3          | electronics | mobile  | xiaomi note9  | xiaomi  | 2013-07-05  | 12500 | 2013-08-04 |                0 |
| PR46       | R11         | electronics | laptop  | hp pavillion  | hp      | 2009-01-11  | 19000 | 2013-03-10 |                0 |
| PR6        | R16         | electronics | mobile  | samsung m30   | samsung | 2010-03-11  | 14999 | 2010-05-15 |                0 |
+------------+-------------+-------------+---------+---------------+---------+-------------+-------+------------+------------------+
11 rows in set (0.00 sec)
```

Q12 Some data is added to relation, in the comment od sql query file. List of all users who bought more then 3 electronics and more than 3 novels are

```
Q12*
Limit to 1000 rows
1   -- insert into purchases values("PU22", 7, "PR22", 18990, 1, "2020-11-20");
2   -- insert into purchases values("PU26", 7, "PR23", 2250, 1, "2019-11-20");
3   -- insert into purchases values("PU22", 7, "PR25", 99, 1, "2020-10-20");
4   -- insert into purchases values("PU23", 7, "PR35", 320, 1, "2019-09-20");
5   -- insert into purchases values("PU24", 7, "PR32", 12980, 1, "2019-12-20");
6   -- insert into purchases values("PU25", 7, "PR43", 1840, 1, "2020-12-20");
7   -- insert into purchases values("PU27", 7, "PR35", 320, 1, "2020-08-20");
8   -- insert into purchases values("PU28", 28, "PR40", 12500, 1, "2019-12-20");
9 •  select user_id, purchase_id, type, product_id
10  from users natural join purchases natural join products group by type having count(type)>3;
11
```

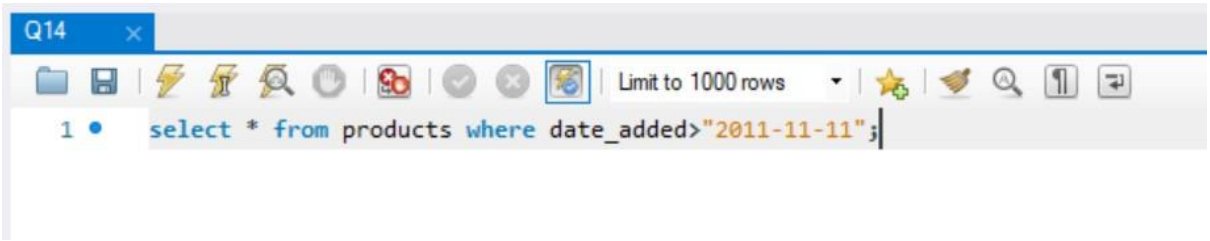
```
mysql> select user_id, purchase_id, type, product_id from users natural join purchases natural join products group by type having count(type)>3;
+---------+-------------+-------------+------------+
| user_id | purchase_id | type        | product_id |
+---------+-------------+-------------+------------+
|      28 | PU1         | novels      | PR34       |
|       7 | PU10        | electronics | PR11       |
+---------+-------------+-------------+------------+
2 rows in set (0.00 sec)
```

Q13 Laptops sorted in increasing price




```
mysql> select * from products where subtype="laptop" order by price asc;
+------------+-------------+------------+---------+---------------+---------+-------------+-------+------------+------------------+
| product_id | retailer_id | type       | subtype | product_name  | creator | date_launch | price | date_added | percent_discount |
+------------+-------------+------------+---------+---------------+---------+-------------+-------+------------+------------------+
| PR17       | R2          | electronics | laptop  | macbook pro   | apple   | 2008-11-15  |  8000 | 2011-12-20 |                0 |
| PR32       | R11         | electronics | laptop  | asus tuf      | asus    | 2009-02-10  | 12890 | 2010-01-21 |                0 |
| PR15       | R11         | electronics | laptop  | lenovo omen   | lenovo  | 2010-02-26  | 15999 | 2012-01-04 |                0 |
| PR22       | R4          | electronics | laptop  | dell g3 gaming | dell   | 2009-08-29  | 18990 | 2010-08-27 |                0 |
| PR46       | R11         | electronics | laptop  | hp pavillion  | hp      | 2009-01-11  | 19000 | 2013-03-10 |                0 |
| PR2        | R16         | electronics | laptop  | dell inspiron | dell    | 2011-04-23  | 19900 | 2012-10-21 |                0 |
| PR27       | R5          | electronics | laptop  | acer gaming   | acer    | 2010-06-29  | 20000 | 2014-12-07 |                0 |
+------------+-------------+------------+---------+---------------+---------+-------------+-------+------------+------------------+
7 rows in set (0.00 sec)
```

Q14 List of products added after 11-11-2011

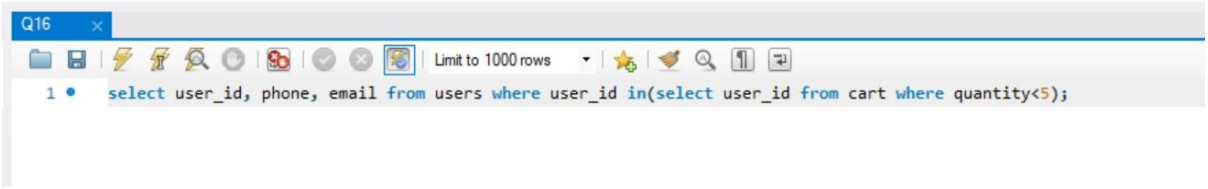



```
mysql> select * from products where date_added>"2011-11-11";
+------------+-------------+------------+-----------+-----------------------------------+---------------+-------------+-------+------------+------------------+
| product_id | retailer_id | type       | subtype   | product_name                      | creator       | date_launch | price | date_added | percent_discount |
+------------+-------------+------------+-----------+-----------------------------------+---------------+-------------+-------+------------+------------------+
| PR10       | R2          | clothes    | shirt     | white shirt                       | first cry     | NULL        |   200 | 2012-02-16 |                0 |
| PR12       | R6          | novels     | thriller  | Digital Fortress                  | Dan Brown     | 2014-02-08  |   499 | 2014-04-07 |                0 |
| PR13       | R15         | electronics | tablet    | ipad pro max                      | apple         | 2009-01-03  | 23000 | 2013-09-01 |                0 |
| PR15       | R11         | electronics | laptop    | lenovo omen                       | lenovo        | 2010-02-26  | 15999 | 2012-01-04 |                0 |
| PR16       | R3          | electronics | tv        | samsung uled tv                   | samsung       | 2010-06-17  | 50000 | 2012-04-18 |                0 |
| PR17       | R2          | electronics | laptop    | macbook pro                       | apple         | 2008-11-15  |  8000 | 2011-12-20 |                0 |
| PR18       | R2          | electronics | mobile    | samsung a50                       | samsung       | 2012-03-26  | 19999 | 2013-08-15 |                0 |
| PR19       | R3          | novels     | horror    | CliffsNotes on Tolstoy's Anna Karenina | Marianne Sturman | 2011-03-09 |  260 | 2013-05-22 |                0 |
| PR2        | R16         | electronics | laptop    | dell inspiron                     | dell          | 2011-04-23  | 19900 | 2012-10-21 |                0 |
| PR24       | R17         | electronics | tv        | micromax fullhd tv                | micromax      | 2011-11-13  |  1100 | 2013-02-09 |                0 |
| PR26       | R19         | clothes    | denime    | men's blue jeans                  | raymond       | NULL        |  1000 | 2014-02-07 |                0 |
| PR27       | R5          | electronics | laptop    | acer gaming                       | acer          | 2010-06-29  | 20000 | 2014-12-07 |                0 |
| PR28       | R4          | electronics | tablet    | apple ipad 8                      | apple         | 2015-01-23  | 12000 | 2015-08-25 |                0 |
| PR3        | R10         | clothes    | tshirt    | mimi tshirt                       | Zudio         | NULL        |   400 | 2014-09-02 |                0 |
| PR31       | R17         | clothes    | tshirt    | orange tshirt                     | Zudio         | NULL        |   650 | 2014-03-11 |                0 |
| PR33       | R18         | novels     | mysterious | Wrinkles in Time                  | George Smoot  | 2012-01-18  |  1270 | 2013-02-10 |                0 |
| PR34       | R19         | novels     | mysterious | The Inferno                       | Dan Brown     | 2007-05-30  |  1400 | 2011-11-27 |                0 |
| PR35       | R13         | novels     | thriller  | The Blue Umbrella                 | Ruskin Bond   | 2010-03-06  |   320 | 2013-02-13 |                0 |
| PR36       | R3          | clothes    | tshirt    | Its afternoon relax               | Zudio         | NULL        |   300 | 2012-05-22 |                0 |
| PR40       | R3          | electronics | mobile    | xiaomi note9                      | xiaomi        | 2013-07-05  | 12500 | 2013-08-04 |                0 |
| PR45       | R1          | electronics | tv        | samsung led 10                    | samsung       | 2010-04-22  |  5000 | 2015-08-07 |                0 |
| PR46       | R11         | electronics | laptop    | hp pavillion                      | hp            | 2009-01-11  | 19000 | 2013-03-10 |                0 |
| PR9        | R18         | novels     | horror    | War and Piece                     | Amy Madelker  | 2012-07-06  |   920 | 2012-11-07 |                0 |
+------------+-------------+------------+-----------+-----------------------------------+---------------+-------------+-------+------------+------------------+
23 rows in set (0.00 sec)
```

Q15 Novels by Dan Brown

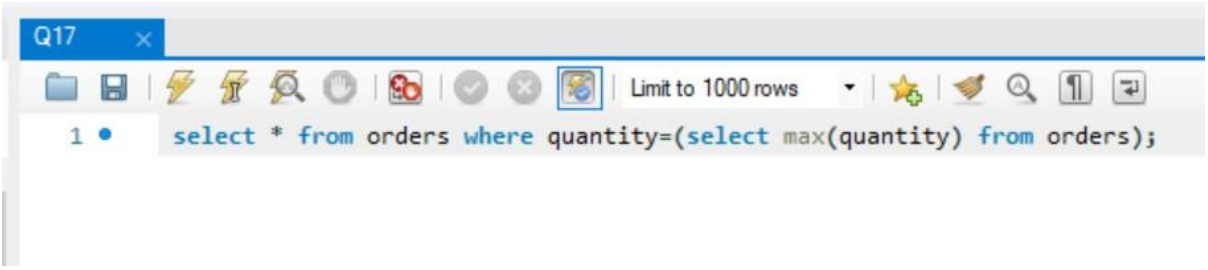
```
mysql> select * from products where creator="Dan Brown";
+------------+-------------+--------+-----------+-----------------+----------+-------------+-------+------------+------------------+
| product_id | retailer_id | type   | subtype   | product_name    | creator  | date_launch | price | date_added | percent_discount |
+------------+-------------+--------+-----------+-----------------+----------+-------------+-------+------------+------------------+
| PR1        | R18         | novels | mysterious | Deception point | Dan Brown | 2009-08-03 |  1705 | 2011-02-27 |                0 |
| PR12       | R6          | novels | thriller   | Digital Fortress | Dan Brown | 2014-02-08 |   499 | 2014-04-07 |                0 |
| PR34       | R19         | novels | mysterious | The Inferno     | Dan Brown | 2007-05-30 |  1400 | 2011-11-27 |                0 |
| PR38       | R5          | novels | mysterious | The lost symbol | Dan Brown | 2010-07-23 |  1800 | 2011-05-26 |                0 |
+------------+-------------+--------+-----------+-----------------+----------+-------------+-------+------------+------------------+
4 rows in set (0.00 sec)
```

Q16 Details of user having less then 5 items in cart.



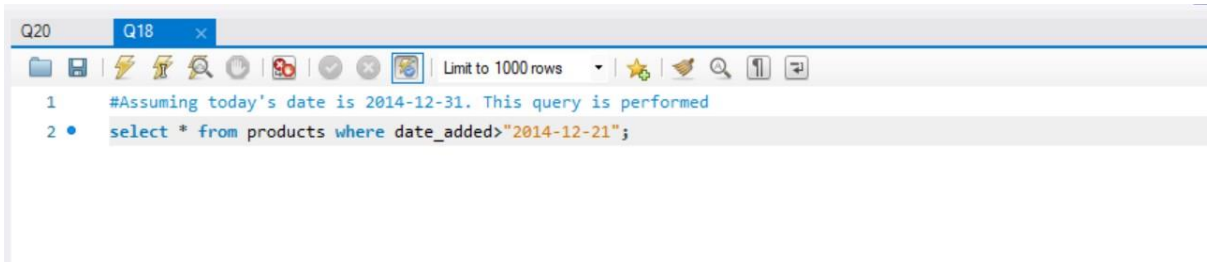

```
mysql> select user_id, phone, email from users where user_id in(select user_id from cart where quantity<5);
+---------+------------+--------------------------+
| user_id | phone      | email                    |
+---------+------------+--------------------------+
|       1 | 3885318267 | ajay.shah@email.com      |
|       2 | 5930723887 | bernard.wslq@email.com   |
|       6 | 8458809020 | raman.fxvf@email.com     |
|      11 | 4466184883 | xavier.mckf@email.com    |
|      12 | 8720665218 | deepak.duds@email.com    |
|      16 | 8714390596 | munnedra.mira@email.com  |
|      19 | 4927602042 | wallace.rghl@email.com   |
|      22 | 6275271752 | manoj.nwvu@email.com     |
|      23 | 6258517009 | robertson.wdlo@email.com |
|      24 | 5267155759 | wright.nsth@email.com    |
|      28 | 7922446781 | ahmad.osbw@email.com     |
|      29 | 8082412423 | farjan.rrnr@email.com    |
+---------+------------+--------------------------+
12 rows in set (0.00 sec)
```

Q17 Order with maximum number of products



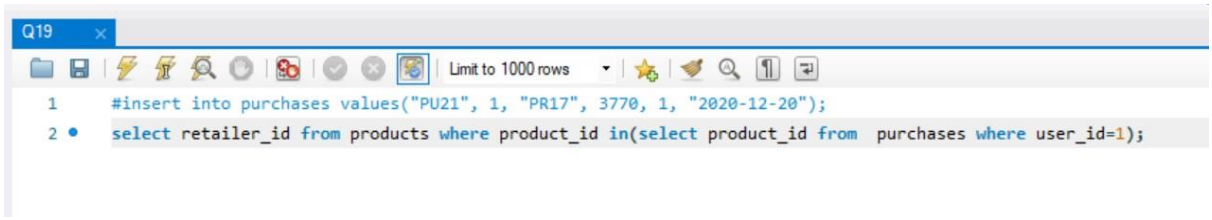

```
mysql> select * from orders where quantity=(select max(quantity) from orders);
+----------+---------+------------+-------+----------+---------------------+
| order_id | user_id | product_id | price | quantity | datetime            |
+----------+---------+------------+-------+----------+---------------------+
| O15      |      28 | PR31       |   650 |        4 | 2020-03-17 01:29:13 |
+----------+---------+------------+-------+----------+---------------------+
1 row in set (0.00 sec)
```

Q18 Assuming today's date is 2014-12-31, the products added in past 10 days are



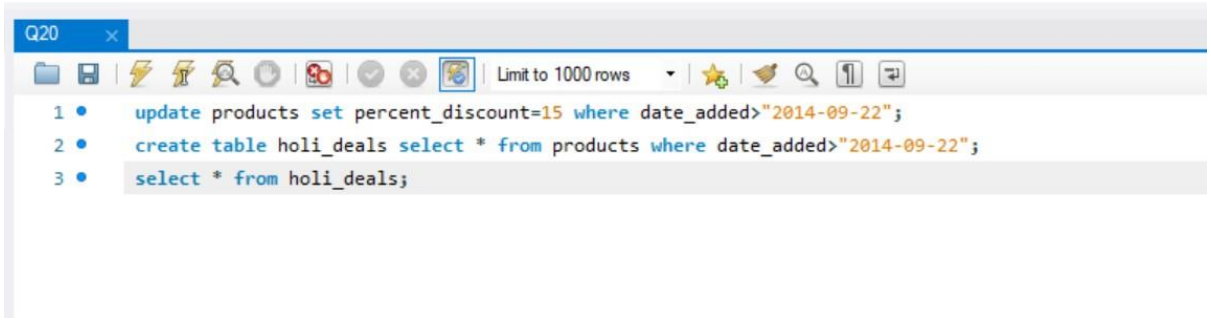

```
mysql> select * from products where date_added>"2014-12-21";
+------------+------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
| product_id | retailer_id | type        | subtype | product_name   | creator | date_launch | price | date_added | percent_discount |
+------------+------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
| PR28       | R4         | electronics | tablet  | apple ipad 8   | apple   | 2015-01-23  | 12000 | 2015-08-25 |                0 |
| PR45       | R1         | electronics | tv      | samsung led 10 | samsung | 2010-04-22  |  5000 | 2015-08-07 |                0 |
+------------+------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
2 rows in set (0.00 sec)
```

Q19 Retailer id whose products user_id=1 have purchased.




```
mysql> select retailer_id from products where product_id in(select product_id from  purchases where user_id=1);
+-------------+
| retailer_id |
+-------------+
| R2          |
+-------------+
1 row in set (0.00 sec)
```

Q20 A new table named holi_deals containing the discount for all the new products is shown :



```
mysql> update products set percent_discount=15 where date_added>"2014-09-22";
Query OK, 3 rows affected (0.15 sec)
Rows matched: 3  Changed: 3  Warnings: 0

mysql> create table holi_deals select * from products where date_added>"2014-09-22";
Query OK, 3 rows affected (2.91 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> select * from holi_deals;
+------------+-------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
| product_id | retailer_id | type        | subtype | product_name   | creator | date_launch | price | date_added | percent_discount |
+------------+-------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
| PR27       | R5          | electronics | laptop  | acer gaming    | acer    | 2010-06-29  | 20000 | 2014-12-07 |               15 |
| PR28       | R4          | electronics | tablet  | apple ipad 8   | apple   | 2015-01-23  | 12000 | 2015-08-25 |               15 |
| PR45       | R1          | electronics | tv      | samsung led 10 | samsung | 2010-04-22  |  5000 | 2015-08-07 |               15 |
+------------+-------------+-------------+---------+----------------+---------+-------------+-------+------------+------------------+
3 rows in set (0.00 sec)

mysql>
```

Q21 First Selecting which type of products are liked by user by checking his view history. From the below query the answer is electronics type of products were most viewed by user,

```
 9 •  select type, product_id from products natural join views where user_id=1;
10    # Selecting which type of prducts are liked by user, From the above query the answer is
11    # electronics type of products were most viewd by user, Based on the latest purchases, top
12    # 10 electronics product are recommended for the user_id=1
13 •  select product_id, product_name
14    from purchases
15    natural join products where type="electronics" order by purchase_date limit 10;
```

Based on the latest purchases, top 10 electronics product. 10 electronics products are are recommended for the user_id=1. The following is the output of 10 recommended products

```
mysql> select product_id, product_name from purchases natural join products where type="electronics" order by purchase_date limit 10;
+------------+----------------+
| product_id | product_name   |
+------------+----------------+
| PR29       | iphone 9       |
| PR4        | samsung galaxy |
| PR40       | xiaomi note9   |
| PR32       | asus tuf       |
| PR40       | xiaomi note9   |
| PR32       | asus tuf       |
| PR27       | acer gaming    |
| PR16       | samsung uled tv |
| PR45       | samsung led 10 |
| PR27       | acer gaming    |
+------------+----------------+
10 rows in set (0.00 sec)
```