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Roll no : 22

BSc Data Science Sem 2

Case Study :– DBMS – Database management system

Marks :- 40

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Subject = ecommerce Product based Company

1. Specify detailed problem statement?

Scenario :

You are Assigned to help an E-commerce Product based company to record the flow of product sales and also Assist in delivering products from the warehouse to individual customers?

1. The e-commerce platform sells products identified by their unique product ID. Each product has a price and an average rating.

2. Products are categorized by a category, each identified by a category ID.

3. Suppliers provide the products and are identified by their unique ID, name, and address.

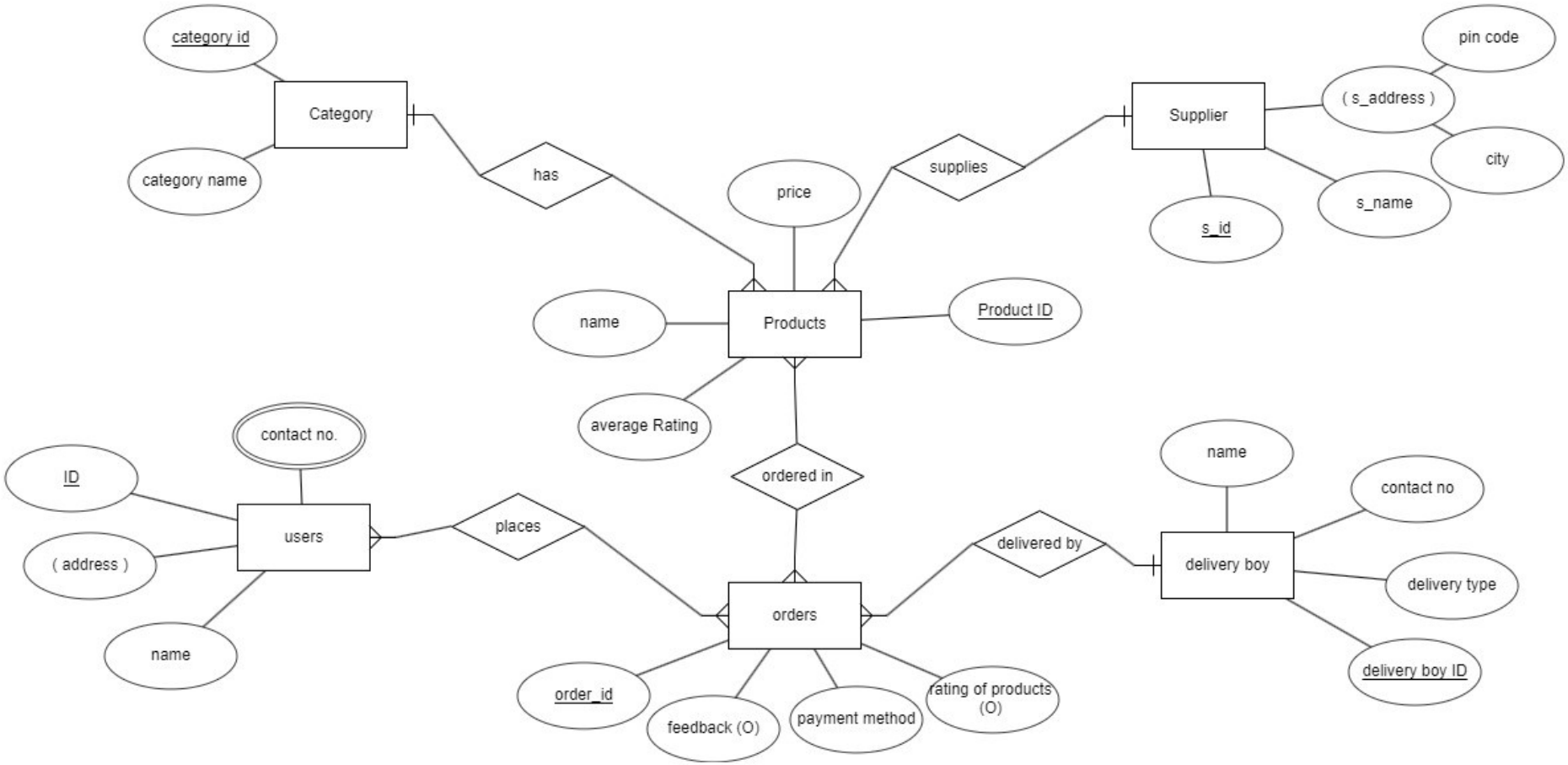
4. Delivery of products is handled by company delivery personnel, who each have their own ID and specific delivery duties.

5. Customers, who are users of the e-commerce platform, have their own ID, name, address, contact number, and may provide a rating for the product they purchase. Description

6. When a customer purchases a product, the order gets into orders section, orders section is uniquely identified by order_id, and it has user_id of a person who ordered the product, product_id of a product which was ordered and delivery_boy_id of a delivery_boy who is gonna deliver it

2. Draw ER diagram. Include constraints, cardinality ratios, keys?

ER DIAGRAM


category id
Category
category name
has
price
supplies
Supplier
pin code
(s_address)
city
s_name
s_id
name
Products
Product ID
average Rating
ordered in
contact no.
ID
users
(address)
name
places
orders
order_id
feedback (O)
payment method
rating of products (O)
delivered by
name
contact no
delivery boy
delivery type
delivery boy ID

CARDINALITY:

Many products come under single category

One supplier can supply many products

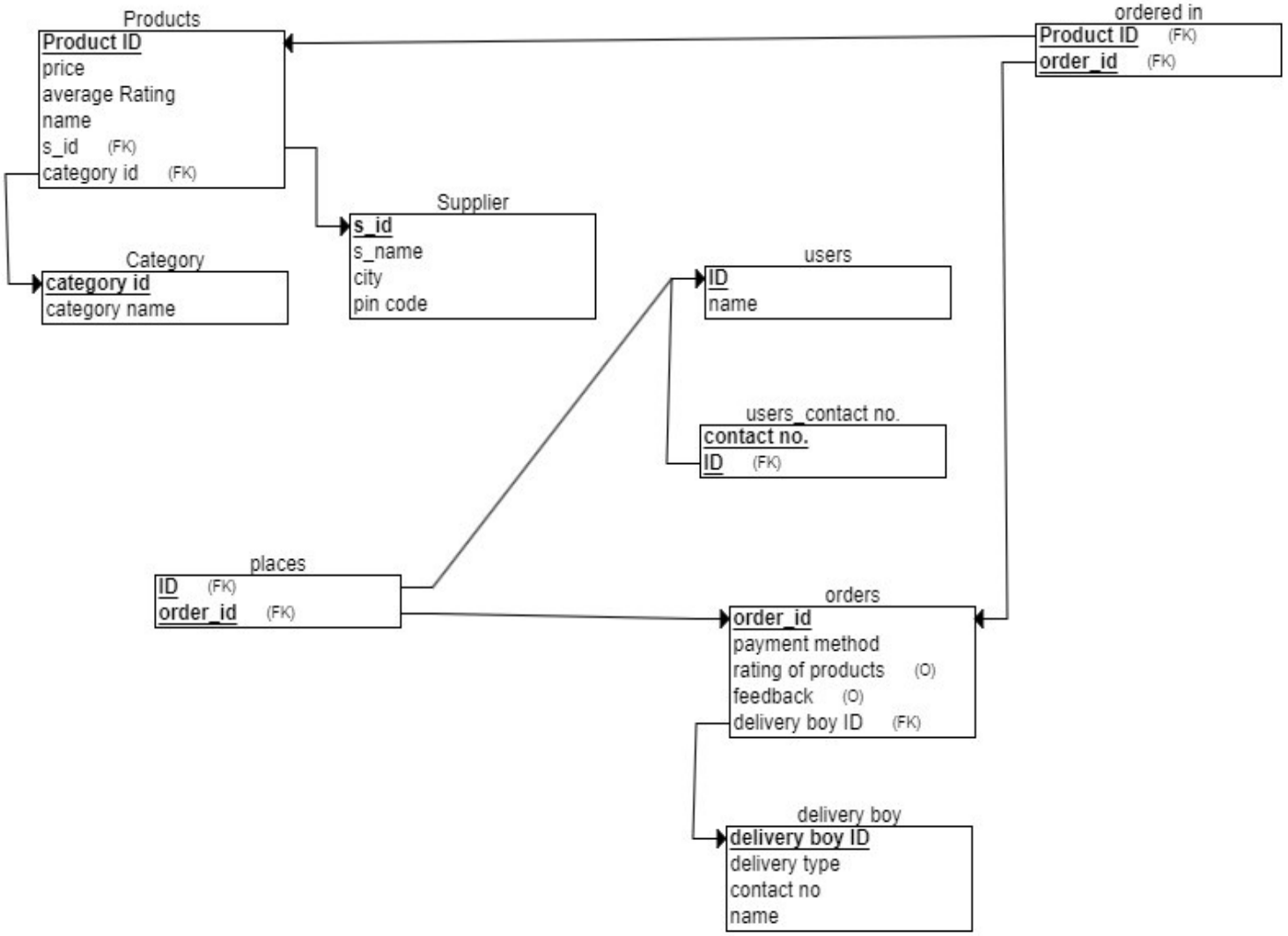
multiple products can be bought in multiple orders

Multiple orders can be delivered by one delivery boy

Multiple users can place multiple orders

3. Convert Er diagram to Relational schema ?

Relational Schema:


Products
Product ID
price
average Rating
name
s_id (FK)
category id (FK)
ordered in
Product ID (FK)
order_id (FK)
Supplier
s_id
s_name
city
pin code
Category
category id
category name
users
ID
name
users_contact no.
contact no.
ID (FK)
places
ID (FK)
order_id (FK)
orders
order_id
payment method
rating of products (O)
feedback (O)
delivery boy ID (FK)
delivery boy
delivery boy ID
delivery type
contact no
name

4. Create tables according to relational schema?

5. Insert 5 records in each table?

Code :

1.

SQL Worksheet

```
CREATE TABLE category(
    category_id INTEGER PRIMARY KEY,
    category_name VARCHAR(255)
);

INSERT INTO category VALUES(1,'Laptop');
INSERT INTO category VALUES(2,'TV');
INSERT INTO category VALUES(3,'Mobile');
INSERT INTO category VALUES(4,'Fridge');
INSERT INTO category VALUES(5,'Shirts');
SELECT * FROM category
```

Output :

CATEGORY_ID	CATEGORY_NAME
1	Laptop
2	TV
3	Mobile
4	Fridge
5	Shirts

2.

```sql
CREATE TABLE supplier(
    s_id INTEGER PRIMARY KEY,
    s_name VARCHAR(255),
    s_address VARCHAR(255)
);

INSERT INTO supplier VALUES(1,'Shubham Waghmare','Malad,Mumbai-400097');
INSERT INTO supplier VALUES(2,'Nikhil Vyas','Goregaon,Mumbai-400072');
INSERT INTO supplier VALUES(3,'Pratik Patil','Virar,Mumbai-401209');
INSERT INTO supplier VALUES(4,'Ankit Pandey','Patna,Bihar-800005');
INSERT INTO supplier VALUES(5,'Priyanka Ghosh','Bhandup,Mumbai-400078');
INSERT INTO supplier VALUES(6,'Mayura Patil','Goregaon,Mumbai-400087');
SELECT * FROM supplier
```

Output :

S_ID	S_NAME	S_ADDRESS
1	Shubham Waghmare	Malad,Mumbai-400097
2	Nikhil Vyas	Goregaon,Mumbai-400072
3	Pratik Patil	Virar,Mumbai-401209
4	Ankit Pandey	Patna,Bihar-800005
5	Priyanka Ghosh	Bhandup,Mumbai-400078
6	Mayura Patil	Goregaon,Mumbai-400087

3.

```sql
CREATE TABLE delivery_boys(
    delivery_boy_id INTEGER PRIMARY KEY,
    name VARCHAR(255),
    delivery_type VARCHAR(255),
    contact_no INTEGER
);

INSERT INTO delivery_boys VALUES(1,'Mukaadam Patel','Truck',98209121212);
INSERT INTO delivery_boys VALUES(2,'Sheikh Sayyed','Courier',1212173314);
INSERT INTO delivery_boys VALUES(3,'Balu Kamble','Bike',9211420430);
INSERT INTO delivery_boys VALUES(4,'Abhijeet Sangvikar','Van',NULL);
INSERT INTO delivery_boys VALUES(5,'Balu Waghmare','Marine',928443314);
INSERT INTO delivery_boys VALUES(6,'Pritesh','plane',68463841);
SELECT * FROM delivery_boys
```

Output :

DELIVERY_BOY_ID	NAME	DELIVERY_TYPE	CONTACT_NO
1	Mukaadam Patel	Truck	98209121212
2	Sheikh Sayyed	Courier	1212173314
3	Balu Kamble	Bike	9211420430
4	Abhijeet Sangvikar	Van	-
5	Balu Waghmare	Marine	928443314
6	Pritesh	plane	68463841

4.

```sql
CREATE TABLE users(
    user_id INTEGER PRIMARY KEY,
    user_name VARCHAR(255),
    address VARCHAR(255),
    contact_no INTEGER
);

INSERT INTO users VALUES(1,'Nitish','Gurgaon',6444964449);
INSERT INTO users VALUES(2,'Neha','Mumbra',48651234);
INSERT INTO users VALUES(3,'Shubhojeet','Delhi',286123854);
INSERT INTO users VALUES(4,'Ragvendra','Punjab',156231834);
INSERT INTO users VALUES(5,'Bhaskar','Kerala',163843129);
INSERT INTO users VALUES(6,'Akshita','Pune',16843218);
SELECT * FROM users
```

Output:

USER_ID	USER_NAME	ADDRESS	CONTACT_NO
1	Nitish	Gurgaon	6444964449
2	Neha	Mumbra	48651234
3	Shubhojeet	Delhi	286123854
4	Ragvendra	Punjab	156231834
5	Bhaskar	Kerala	163843129
6	Akshita	Pune	16843218

5.

```sql
CREATE TABLE products(
    product_id INTEGER PRIMARY KEY,
    avg_rating DECIMAL,
    product_name VARCHAR(255),
    price INTEGER,
    supplier_id INTEGER,
    category_id INTEGER,
    FOREIGN KEY(supplier_id) REFERENCES supplier(s_id),
    FOREIGN KEY(category_id) REFERENCES category(category_id)
);

INSERT INTO products VALUES(1,4,'Realme 5G',45999,6,3);
INSERT INTO products VALUES(2,3,'MSI Katana',72000,2,1);
INSERT INTO products VALUES(3,3,'LG WebOs',32000,4,2);
INSERT INTO products VALUES(4,5,'Iphone XII',150000,6,3);
INSERT INTO products VALUES(6,4,'SAMSUNG 132L Refrigerator',58999,3,4);
INSERT INTO products VALUES(8,5,'Vintage Look Black shirt L',659,5,5);
INSERT INTO products VALUES(9,2,'Dell B550',25999,2,1);
INSERT INTO products VALUES(10,1,'Micromax IN Note 1',14999,6,3)
SELECT * FROM products
```

Output:

PRODUCT_ID	AVG_RATING	PRODUCT_NAME	PRICE	SUPPLIER_ID	CATEGORY_ID
1	4	Realme 5G	45999	6	3
2	3	MSI Katana	72000	2	1
3	3	LG WebOs	32000	4	2
4	5	Iphone XII	150000	6	3
6	4	SAMSUNG 132L Refrigerator	58999	3	4
8	5	Vintage Look Black shirt L	659	5	5
9	2	Dell B550	25999	2	1

6

```sql
CREATE TABLE orders(
    order_id INTEGER PRIMARY KEY,
    product_id INTEGER,
    payment_method VARCHAR(255),
    user_id INTEGER,
    delivery_boy_id INTEGER,
    FOREIGN KEY(user_id) REFERENCES users(user_id),
    FOREIGN KEY(delivery_boy_id) REFERENCES delivery_boys(delivery_boy_id),
    FOREIGN KEY(product_id) REFERENCES products(product_id)
);

INSERT INTO orders VALUES(1,2,'Cash on Delivery',2,1);
INSERT INTO orders VALUES(2,1,'Online Payment',2,3);
INSERT INTO orders VALUES(3,8,'Cash on Delivery',1,3);
INSERT INTO orders VALUES(4,1,'Cash on Delivery',4,3);
INSERT INTO orders VALUES(5,9,'Online Payment',1,1);
INSERT INTO orders VALUES(6,10,'Cash on Delivery',5,3);
INSERT INTO orders VALUES(7,6,'Cash on Delivery',3,1);
INSERT INTO orders VALUES(8,1,'Cash on Delivery',5,3);
INSERT INTO orders VALUES(9,6,'Online Payment',2,5);
INSERT INTO orders VALUES(10,8,'Online Payment',1,2);
SELECT * FROM orders
```

Output:

ORDER_ID	PRODUCT_ID	PAYMENT_METHOD	USER_ID	DELIVERY_BOY_ID
1	2	Cash on Delivery	2	1
2	1	Online Payment	2	3
3	8	Cash on Delivery	1	3
4	1	Cash on Delivery	4	3
5	9	Online Payment	1	1
7	6	Cash on Delivery	3	1
8	1	Cash on Delivery	5	3
9	6	Online Payment	2	5
10	8	Online Payment	1	2

6. Execute any 5 select, 5 update, 5 subqueries?

Select queries

1)

```
113 SELECT product_id,avg_rating,product_name,price,supplier_id,category_name FROM products
114 INNER JOIN category
115 ON products.category_id = category.category_id;
```

Output:

PRODUCT_ID	AVG_RATING	PRODUCT_NAME	PRICE	SUPPLIER_ID	CATEGORY_NAME
1	4	Realme 5G	45999	6	Mobile
2	3	MSI Katana	72000	2	Laptop
3	3	LG WebOs	32000	4	TV
4	5	Iphone XII	150000	6	Mobile
6	4	SAMSUNG 132L Refrigerator	58999	3	Fridge
8	5	Vintage Look Black shirt L	659	5	Shirts
9	2	Dell B550	25999	2	Laptop

2)

```
118 SELECT * FROM products
119 ORDER BY avg_rating DESC
```

Output:

PRODUCT_ID	AVG_RATING	PRODUCT_NAME	PRICE	SUPPLIER_ID	CATEGORY_ID
4	5	Iphone XII	150000	6	3
8	5	Vintage Look Black shirt L	659	5	5
6	4	SAMSUNG 132L Refrigerator	58999	3	4
1	4	Realme 5G	45999	6	3
3	3	LG WebOs	32000	4	2
2	3	MSI Katana	72000	2	1
9	2	Dell B550	25999	2	1

3)

```sql
--Q.3.
SELECT payment_method,COUNT(*) AS frequency FROM orders
GROUP BY payment_method
```

Output :

PAYMENT_METHOD	FREQUENCY
Cash on Delivery	5
Online Payment	4

4)

```sql
SELECT category_name,COUNT(*) AS products_listed FROM products p
INNER JOIN category c
on p.category_id = c.category_id
GROUP BY category_name
```

Output :

CATEGORY_NAME	PRODUCTS_LISTED
Mobile	3
TV	1
Fridge	1
Laptop	2
Shirts	1

5)

```
133 SELECT u.user_id,user_name,COUNT(*) AS "number_orders" FROM users u
134 INNER JOIN orders o
135 ON u.user_id = o.user_id
136 GROUP BY u.user_id,user_name
137 ORDER BY COUNT(*) DESC
```

Output:

USER_ID	USER_NAME	number_orders
2	Neha	3
1	Nitish	3
5	Bhaskar	1
3	Shubhojeet	1
4	Ragvendra	1

Update Operations

1)

```sql
-- Q.1 Change Nitish's address to Gurugram
SELECT * FROM users
UPDATE users
    SET address = 'Gurugram'
    WHERE user_name = 'Nitish';

SELECT * FROM users
```

Output :

USER_ID	USER_NAME	ADDRESS	CONTACT_NO
1	Nitish	Gurgaon	6444964449
2	Neha	Mumbra	48651234
3	Shubhojeet	Delhi	286123854
4	Ragvendra	Punjab	156231834
5	Bhaskar	Kerala	163843129
6	Akshita	Pune	16843218

2)

```
149  -- Q.2 Change category name from fridge to refrigerator
150  UPDATE category
151  SET category_name ='Refrigerator'
152  WHERE category_name = 'Fridge'
153
154  SELECT * FROM category
```

Output :

CATEGORY_ID	CATEGORY_NAME
1	Laptop
2	TV
3	Mobile
4	Refrigerator
5	Shirts

3)

```
157  -- Q.3 The products which costs  >50k Increase their price by 10k,
158  UPDATE products
159  SET price=price+10000
160  WHERE price > 50000
161
162  SELECT * FROM products
```

Output :

PRODUCT_ID	AVG_RATING	PRODUCT_NAME	PRICE	SUPPLIER_ID	CATEGORY_ID
1	4	Realme 5G	45999	6	3
2	3	MSI Katana	82000	2	1
3	3	LG WebOs	32000	4	2
4	5	Iphone XII	160000	6	3
6	4	SAMSUNG 132L Refrigerator	68999	3	4
8	5	Vintage Look Black shirt L	659	5	5
9	2	Dell B550	25999	2	1

4)

```
165  -- Q.4 Change Cash on delivery text to cash in orders
166  UPDATE orders
167  SET payment_method = 'Cash'
168  WHERE payment_method = 'Cash on Delivery'
169
170  SELECT * FROM orders
```

output :

ORDER_ID	PRODUCT_ID	PAYMENT_METHOD	USER_ID	DELIVERY_BOY_ID
1	2	Cash	2	1
2	1	Online Payment	2	3
3	8	Cash	1	3
4	1	Cash	4	3
5	9	Online Payment	1	1
7	6	Cash	3	1
8	1	Cash	5	3
9	6	Online Payment	2	5
10	8	Online Payment	1	2

5)

```
172  -- Q.5 for supplier id 5, change address to Kandivali
173  UPDATE supplier
174  SET s_address = 'Kandivali'
175  WHERE s_id = 5
176
177  SELECT * FROM supplier
```

Output :

S_ID	S_NAME	S_ADDRESS
1	Shubham Waghmare	Malad,Mumbai-400097
2	Nikhil Vyas	Goregaon,Mumbai-400072
3	Pratik Patil	Virar,Mumbai-401209
4	Ankit Pandey	Patna,Bihar-800005
5	Priyanka Ghosh	Kandivali
6	Mayura Patil	Goregaon,Mumbai-400087

SUBQUERIES:

1)

```
183  -- Q.1 Display name of users who ordered more than once
184
185  SELECT user_name FROM users
186      WHERE user_id IN(
187  SELECT o.user_id FROM orders o
188  INNER JOIN users u
189  on o.user_id = u.user_id
190  GROUP BY o.user_id
191  Having COUNT(*)>1)
192
193  SELECT * FROM delivery_boys
```

Output :

USER_NAME
Nitish
Neha

DELIVERY_BOY_ID	NAME	DELIVERY_TYPE	CONTACT_NO
1	Mukaadam Patel	Truck	98209121212
2	Sheikh Sayyed	Courier	1212173314
3	Balu Kamble	Bike	9211420430
4	Abhijeet Sangvikar	Van	-
5	Balu Waghmare	Marine	928443314
6	Pritesh	plane	68463841

2)

```
195 -- q.2 Display delivery boy name who delivered most
196 SELECT name FROM delivery_boys
197     WHERE delivery_boy_id IN (
198     SELECT o.delivery_boy_id FROM orders o
199     INNER JOIN delivery_boys d
200     ON o.delivery_boy_id = d.delivery_boy_id
201     GROUP BY o.delivery_boy_id
202     ORDER BY COUNT(*) DESC
203     FETCH FIRST 1 ROWS ONLY)
```

Output :

NAME
Balu Kamble

3)

```
206 -- q.3 find delivery boys who never delivered anything
207
208 SELECT NAME FROM delivery_boys
209     WHERE NAME NOT IN (SELECT NAME FROM orders o
210 INNER JOIN delivery_boys d
211 ON o.delivery_boy_id = d.delivery_boy_id)
```

Output :

NAME
Abhijeet Sangvikar
Pritesh

4)

```
214 -- q.4 Find products whose rating is greater than average rating of all products
215 SELECT * FROM products
216     WHERE avg_rating > (SELECT AVG(avg_rating) as avgrating FROM products)
```

Output :

PRODUCT_ID	AVG_RATING	PRODUCT_NAME	PRICE	SUPPLIER_ID	CATEGORY_ID
1	4	Realme 5G	45999	6	3
4	5	Iphone XII	150000	6	3
6	4	SAMSUNG 132L Refrigerator	58999	3	4
8	5	Vintage Look Black shirt L	659	5	5

5)

```
219 -- q.5 Find users who never ordered
220 SELECT user_name from users
221     WHERE user_name NOT IN (SELECT DISTINCT(user_name) FROM orders o
222 INNER JOIN users u
223 on o.user id = u.user id)
```

Output :

USER_NAME
Akshita