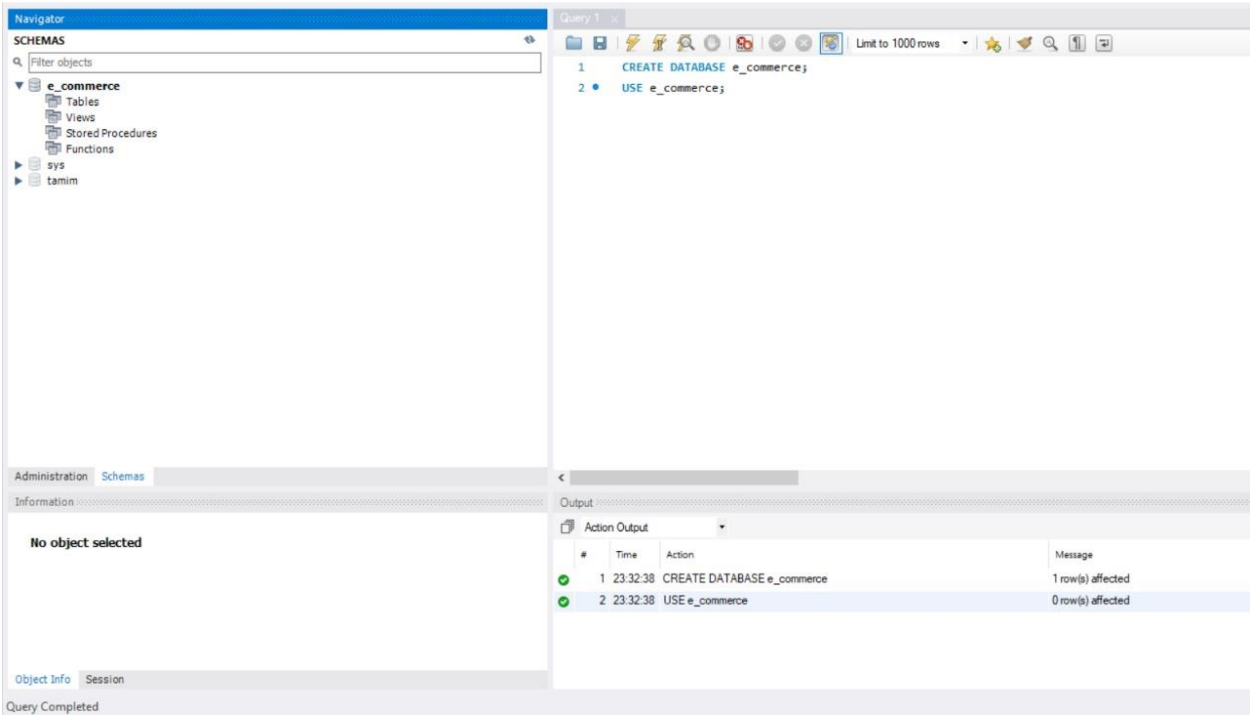
Basic SQL Training Questions

1. Create Database e_commerce.

Query:

```
create database e_commerce;

use e_commerce;
```



2. Create following Tables:

Customers:

a. customer_id - int auto-increment primary key

b. name - varchar(50)

c. email - varchar(50)

d. mobile - varchar(15)

Products:

a. id - int

b. name - varchar(50) not null

c. description - varchar(200)

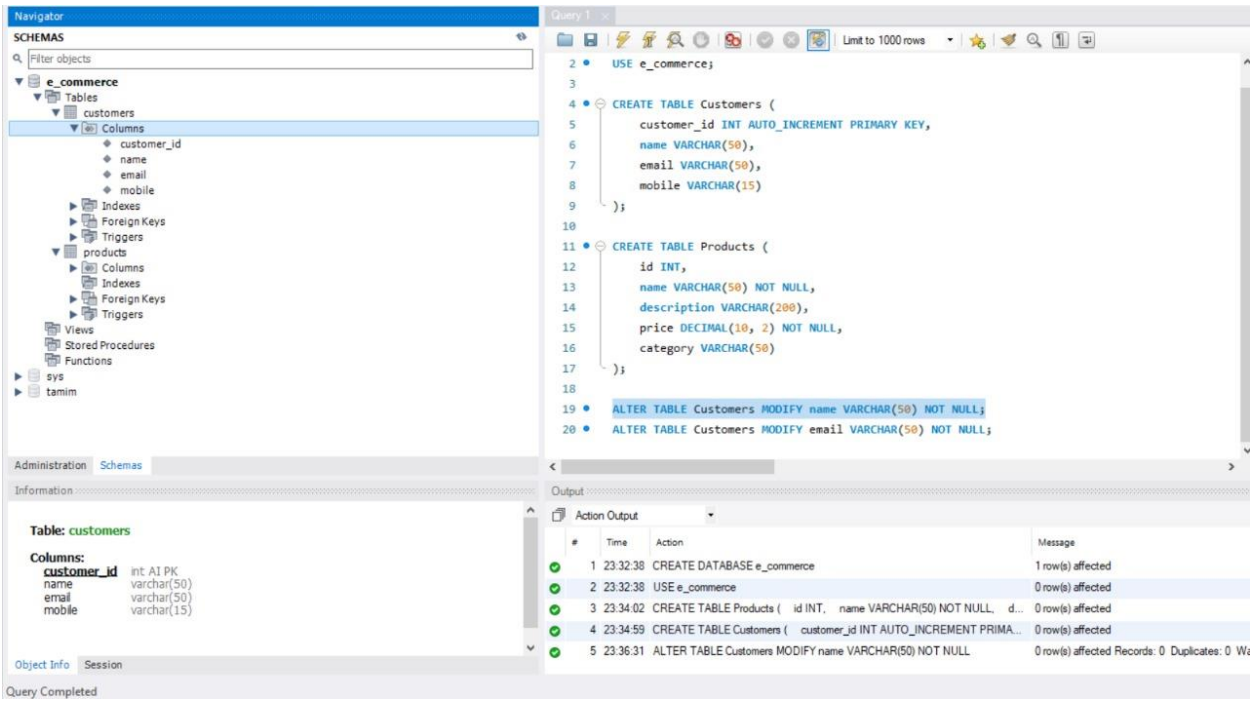
d. price - decimal(10, 2) not null

e. category - varchar(50)

Query:

```
create table Customers(
customer_id int auto_increment primary key,
name varchar(50), email varchar(50), mobile varchar(15)
);

create table Products(
id int, name varchar(50) not null, description varchar(200), price decimal(10,2) not null, category varchar(50)
);
```



3. Modify Tables(using Alter keyword):

a. Add not null on name and email in the Customers table

b. Add unique key on email in the Customers table

c. Add column age in the Customers table

d. Change column name from id to product_id in the Products table;

e. Add primary key and auto increment on product_id in the Products table

f. Change datatype of description from varchar to text in the Products table

Query:

a. Add NOT NULL on name and email in Customers ALTER TABLE Customers MODIFY name VARCHAR(50) NOT NULL; ALTER TABLE Customers MODIFY email VARCHAR(50) NOT NULL;

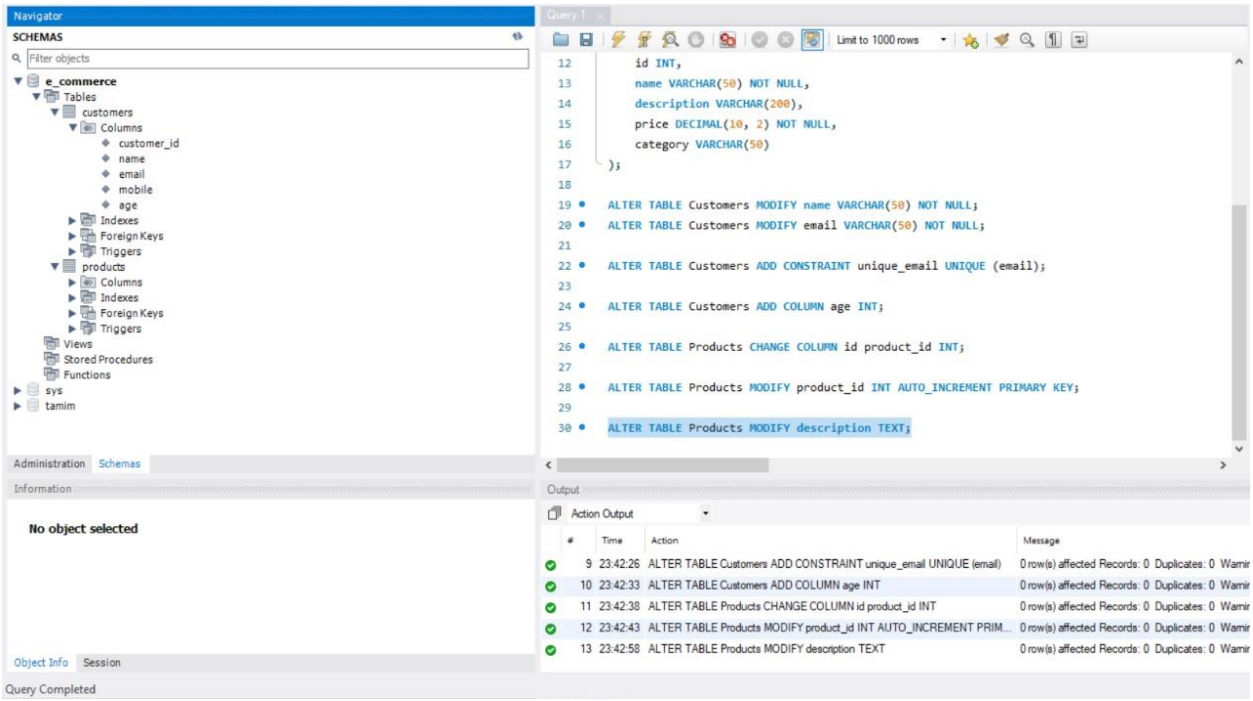
b. Add UNIQUE key on email in Customers ALTER TABLE Customers ADD CONSTRAINT unique_email UNIQUE (email);

c. Add column age in Customers ALTER TABLE Customers ADD COLUMN age INT;

d. Change column name from id to product_id in Products ALTER TABLE Products CHANGE COLUMN id product_id INT;

e. Add PRIMARY KEY and AUTO_INCREMENT on product_id in Products ALTER TABLE Products MODIFY product_id INT AUTO_INCREMENT PRIMARY KEY;

f. Change datatype of description from VARCHAR to TEXT in Products ALTER TABLE Products MODIFY description TEXT;



4. Create table Order:

a. order_id - int auto-increment primary key

b. customer_id - int -foreign key

c. product_id - int

d. quantity - int not null,

e. order_date - date not null,

f. status - enum(Pending, Success, Cancel),

g. payment_method - enum(Credit, Debit, UPI),

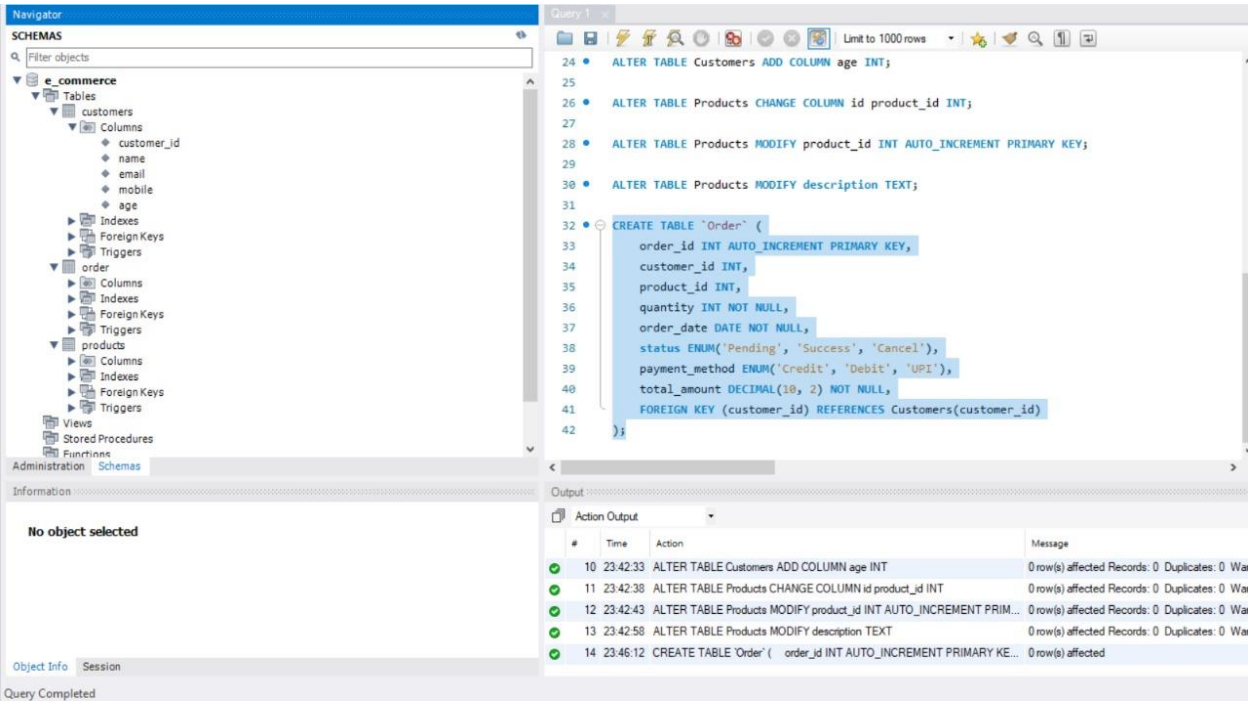
h. total_amount - decimal(10, 2) not null

Query:

CREATE TABLE Order (

order_id INT AUTO_INCREMENT PRIMARY KEY, customer_id INT, product_id INT, quantity INT NOT NULL, order_date DATE NOT NULL, status ENUM('Pending', 'Success', 'Cancel'), payment_method ENUM('Credit', 'Debit', 'UPI'), total_amount DECIMAL(10, 2) NOT NULL, FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)

);



5. Modify Orders Table(using Alter keyword):

a. Change table name Order -> Orders

b. Set default value pending in status.

c. Modify payment_method ENUM to add one more value: 'COD'

d. Make product id as foreign key.

Query:

a. Change table name Order -> Orders

ALTER TABLE Order RENAME TO Orders;

b. Set default value 'Pending' in status

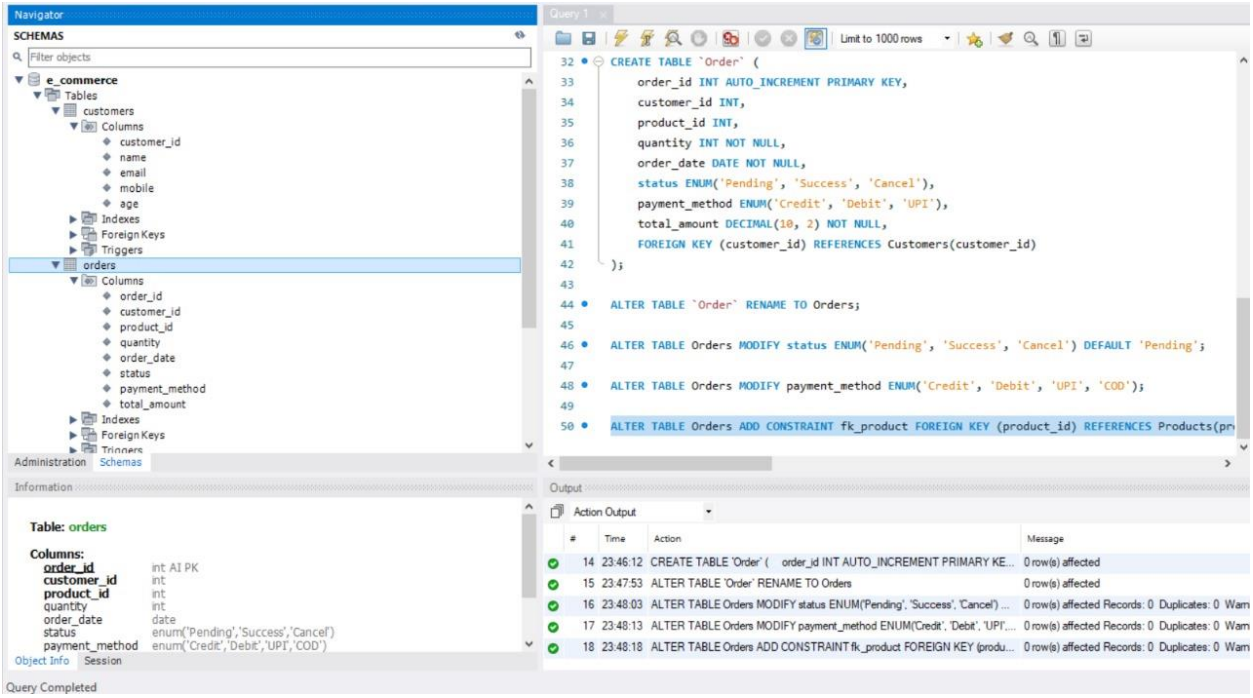
ALTER TABLE Orders MODIFY status ENUM('Pending', 'Success', 'Cancel') DEFAULT 'Pending';

c. Modify payment_method

ENUM to add 'COD' ALTER TABLE Orders MODIFY payment_method ENUM('Credit', 'Debit', 'UPI', 'COD');

d. Make product_id as foreign key

ALTER TABLE Orders ADD CONSTRAINT fk_product FOREIGN KEY (product_id) REFERENCES Products(product_id);



6. Insert 20 sample records in all the tables.

Query:

insert into Customers (name, email, mobile, age) values

('Tamim kothari', 'tamimkothari@example.com', '9876543210', 21),

('Priya Patel', 'priya.patel@example.com', '8765432109', 25),

('Amit Rathore', 'amit.rathore@example.com', '7654321098', 30),

('Neha Gupta', 'neha.gupta@example.com', '6543210987', 22),

('Vikram Yadav', 'vikram.yadav@example.com', '5432109876', 35),

('Anjali Desai', 'anjali.desai@example.com', '4321098765', 27),

('Rajesh Kumar', 'rajesh.kumar@example.com', '3210987654', 40),

('Rudransh Reddy', 'Rudransh.reddy@example.com', '2109876543', 29),

('Arun Jain', 'arun.jain@example.com', '1098765432', 33),

('Pooja Choudhary', 'pooja.choudhary@example.com', '9988776655', 26),

('Sanjay Lela', 'sanjay.lela@example.com', '8877665544', 31),

('Kavita Joshi', 'kavita.joshi@example.com', '7766554433', 24),

('Akshat Tiwari', 'akshat.tiwari@example.com', '6655443322', 38),

('Sunita Mehta', 'sunita.mehta@example.com', '5544332211', 36),

('Deepak Rao', 'deepak.rao@example.com', '4433221100', 32),

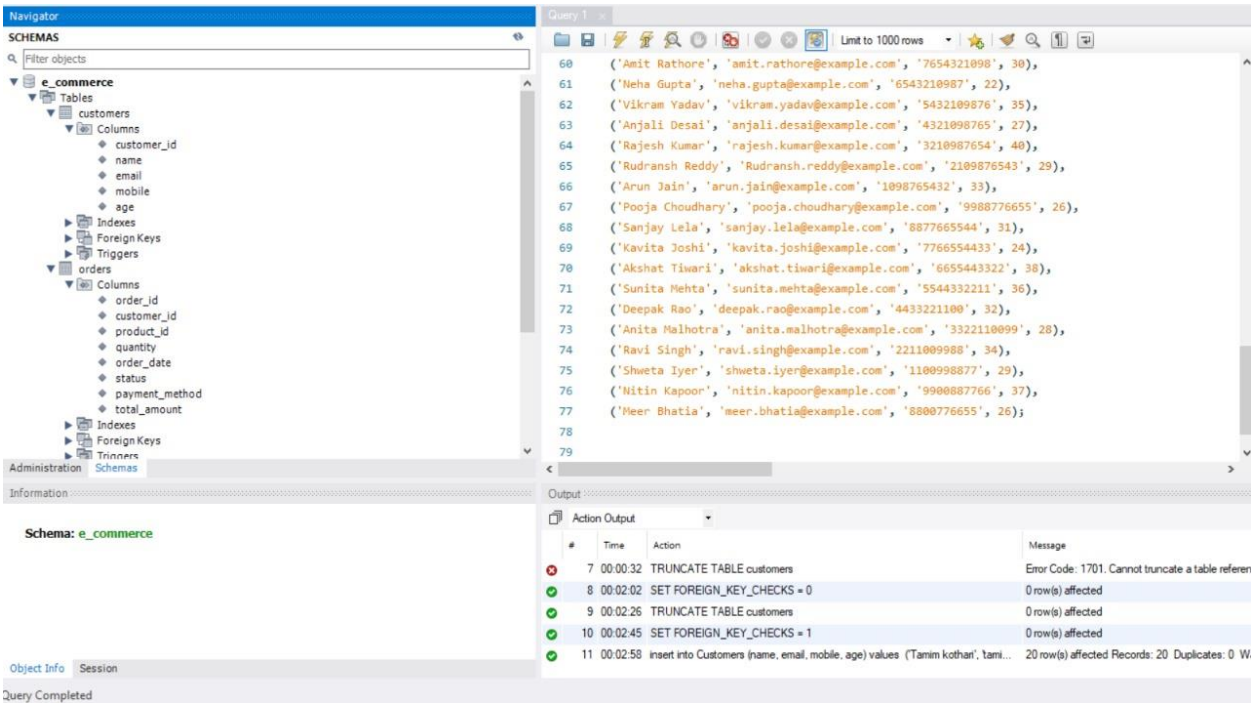
('Anita Malhotra', 'anita.malhotra@example.com', '3322110099', 28),

('Ravi Singh', 'ravi.singh@example.com', '2211009988', 34),

('Shweta Iyer', 'shweta.iyer@example.com', '1100998877', 29),

('Nitin Kapoor', 'nitin.kapoor@example.com', '9900887766', 37),

('Meer Bhatia', 'meer.bhatia@example.com', '8800776655', 26);



Query:

insert into Products (name, description, price, category)

values

('Laptop', 'High-performance laptop with 16GB RAM and 512GB SSD', 903.61, 'Electronics'),

('Smartphone', 'Latest smartphone with 128GB storage and 48MP camera', 301.20, 'Electronics'),

('Tablet', '10-inch tablet with 64GB storage and 8MP camera', 216.87, 'Electronics'),

('Desktop Computer', 'Powerful desktop with 8GB RAM and 1TB HDD', 542.17, 'Electronics'),

('Smartwatch', 'Fitness tracker with heart rate monitor and GPS', 144.58, 'Electronics'),

('Headphones', 'Noise-cancelling over-ear headphones', 60.24, 'Electronics'),

('Printer', 'Wireless all-in-one printer', 108.43, 'Electronics'),

('Camera', 'DSLR camera with 24MP sensor and 4K video', 662.65, 'Electronics'),

('Sofa', '3-seater leather sofa', 301.20, 'Furniture'),

('Dining Table', '6-seater wooden dining table', 216.87, 'Furniture'),

('Bed', 'Queen-size bed with storage', 361.45, 'Furniture'),

('Novel', 'Bestseller fiction novel', 3.61, 'Books'),

('Textbook', 'Engineering textbook', 14.46, 'Books'),

('T-Shirt', 'Cotton crew-neck t-shirt', 6.02, 'Clothing'),

('Jeans', 'Slim-fit denim jeans', 18.07, 'Clothing'),

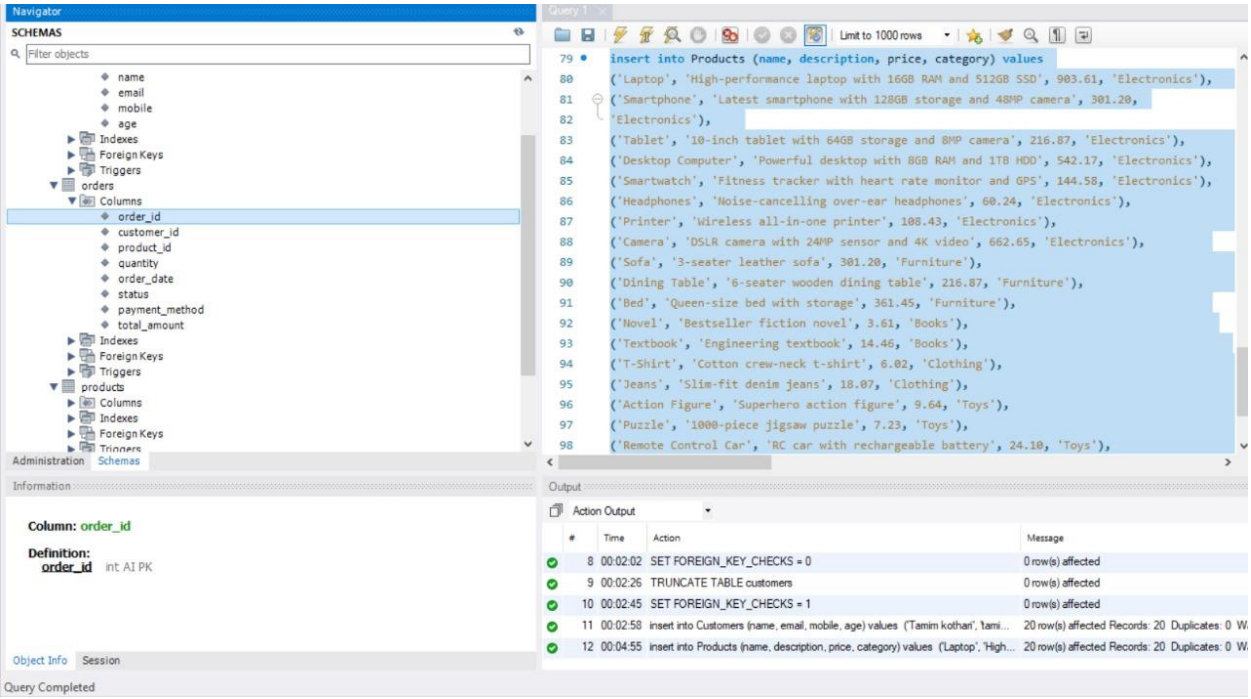
('Action Figure', 'Superhero action figure', 9.64, 'Toys'),

('Puzzle', '1000-piece jigsaw puzzle', 7.23, 'Toys'),

('Remote Control Car', 'RC car with rechargeable battery', 24.10, 'Toys'),

('Rice', 'Basmati rice, 5kg pack', 6.02, 'Grocery'),

('Cooking Oil', 'Sunflower oil, 1 liter', 2.41, 'Grocery');



insert into Orders (customer_id, product_id, quantity, order_date, status, payment_method, total_amount)

values (1, 1, 1, '2025-10-01', 'Success', 'Credit', 903.61),

(2, 2, 2, '2025-10-02', 'Pending', 'Debit', 602.40),

(3, 3, 1, '2025-10-03', 'Success', 'UPI', 216.87),

(3, 6, 1, '2025-10-06', 'Pending', 'UPI', 60.24),

(4, 7, 1, '2025-10-07', 'Success', 'Credit', 108.43),

(5, 10, 1, '2025-10-09', 'Pending', 'UPI', 301.20),

(5, 10, 1, '2025-10-10', 'Success', 'Credit', 216.87),

(6, 4, 1, '2025-10-04', 'Cancel', 'Credit', 542.17),

(6, 12, 1, '2025-10-11', 'Success', 'Debit', 361.45),

(9, 12, 2, '2025-10-12', 'Success', 'UPI', 28.92),

(9, 13, 2, '2025-10-13', 'Success', 'Debit', 7.22),

(10, 13, 3, '2025-10-14', 'Success', 'UPI', 18.06),

(11, 15, 1, '2025-10-15', 'Cancel', 'COD', 18.07),

(12, 16, 1, '2025-10-16', 'Pending', 'COD', 9.64),

(12, 17, 1, '2025-10-17', 'Success', 'Credit', 7.23),

(12, 17, 2, '2025-10-18', 'Success', 'COD', 48.20),

(16, 16, 5, '2025-10-19', 'Pending', 'UPI', 30.10),

(19, 20, 2, '2025-10-20', 'Success', 'Debit', 4.82),

(19, 5, 2, '2025-10-05', 'Cancel', 'Debit', 289.16),

(18, 8, 1, '2025-10-08', 'Success', 'UPI', 662.65);

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

order_id	customer_id	product_id	quantity	order_date	status	payment_method	total_amount
1	1	1	1	2025-10-01	Success	Credit	903.61
2	2	2	2	2025-10-02	Pending	Debit	602.40
3	3	3	1	2025-10-03	Success	UPI	216.87
4	3	6	1	2025-10-06	Pending	UPI	60.24
5	4	7	1	2025-10-07	Success	Credit	108.43
6	5	10	1	2025-10-09	Pending	UPI	301.20
7	5	10	1	2025-10-10	Success	Credit	216.87
8	6	4	1	2025-10-04	Cancel	Credit	542.17
9	6	12	1	2025-10-11	Success	Debit	361.45
10	9	12	2	2025-10-12	Success	UPI	28.92
11	9	13	2	2025-10-13	Success	Debit	7.22
12	10	13	3	2025-10-14	Success	UPI	18.06
13	11	15	1	2025-10-15	Cancel	COD	18.07
14	12	16	1	2025-10-16	Pending	COD	9.64
15	12	17	1	2025-10-17	Success	Credit	7.23
16	12	17	2	2025-10-18	Success	COD	48.20
17	16	16	5	2025-10-19	Pending	UPI	30.10
18	19	20	2	2025-10-20	Success	Debit	4.82
19	19	5	2	2025-10-05	Cancel	Debit	289.16
20	18	8	1	2025-10-08	Success	UPI	662.65
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

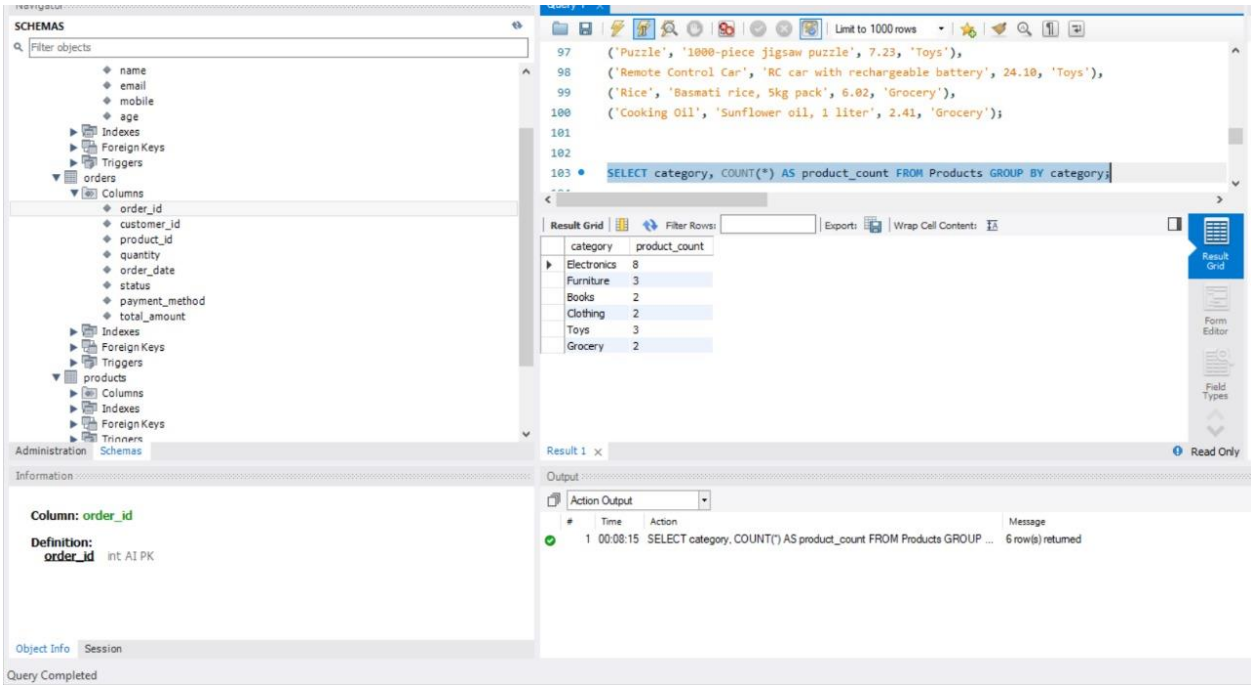
7. Perform following queries:

a. Count the number of products as product_count in each category.

Query:

select category,

count(*) as product_count from Products group by category;



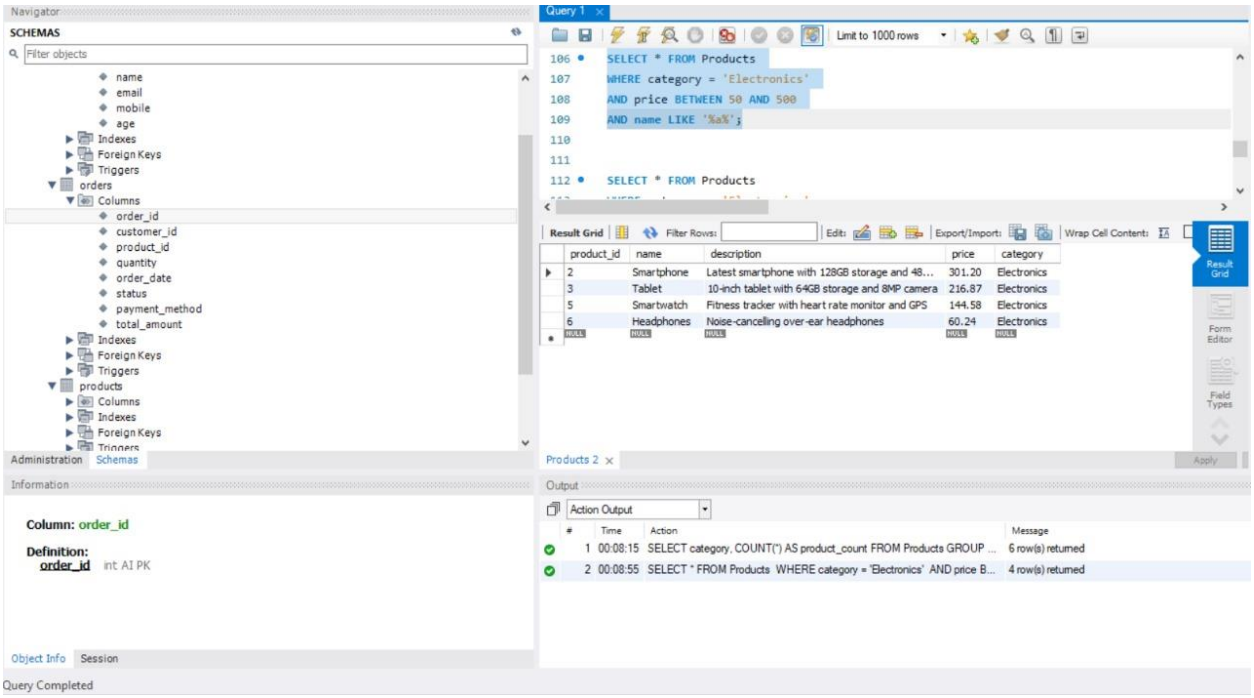
b. Retrieve all products that belong to the 'Electronics' category, have a price between $50 and $500, and whose name contains the letter 'a'.

Query:

select * from Products

where category = 'Electronics' and price between 50 and 500

and name like '%a%';



c. Get the top 5 most expensive products in the 'Electronics' category, skipping the first 2.

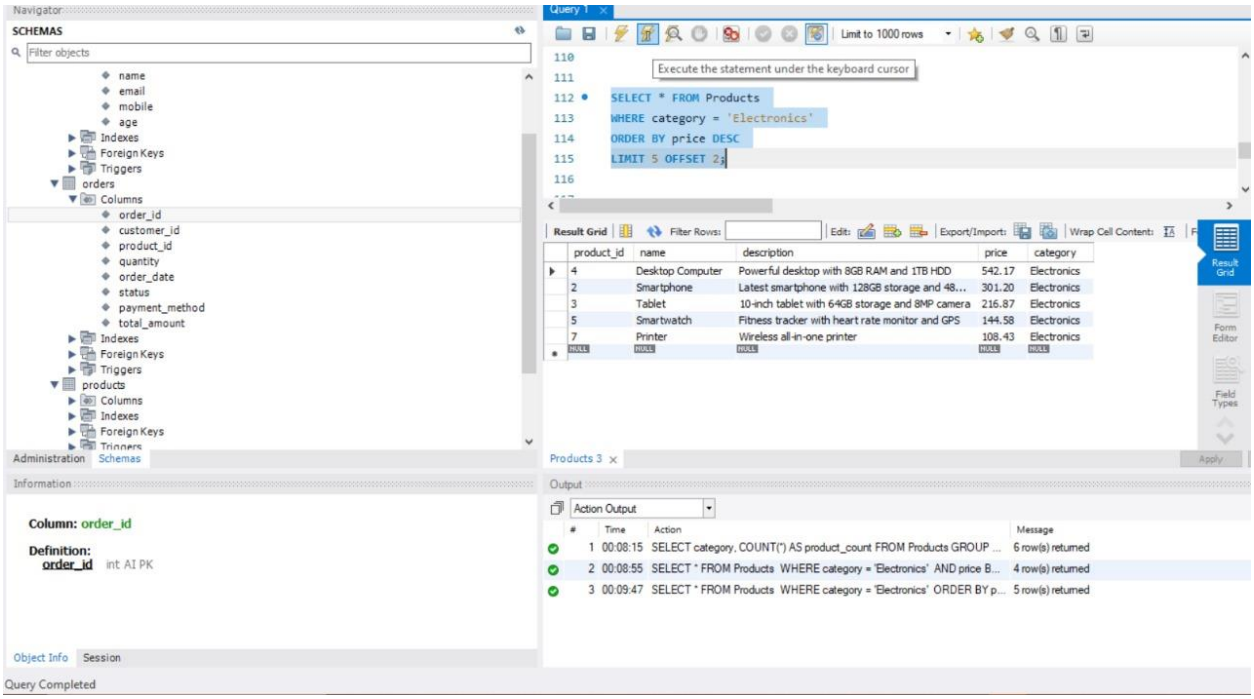
Query:

select * from Products

where category = 'Electronics'

order by price desc

limit 5 offset 2;

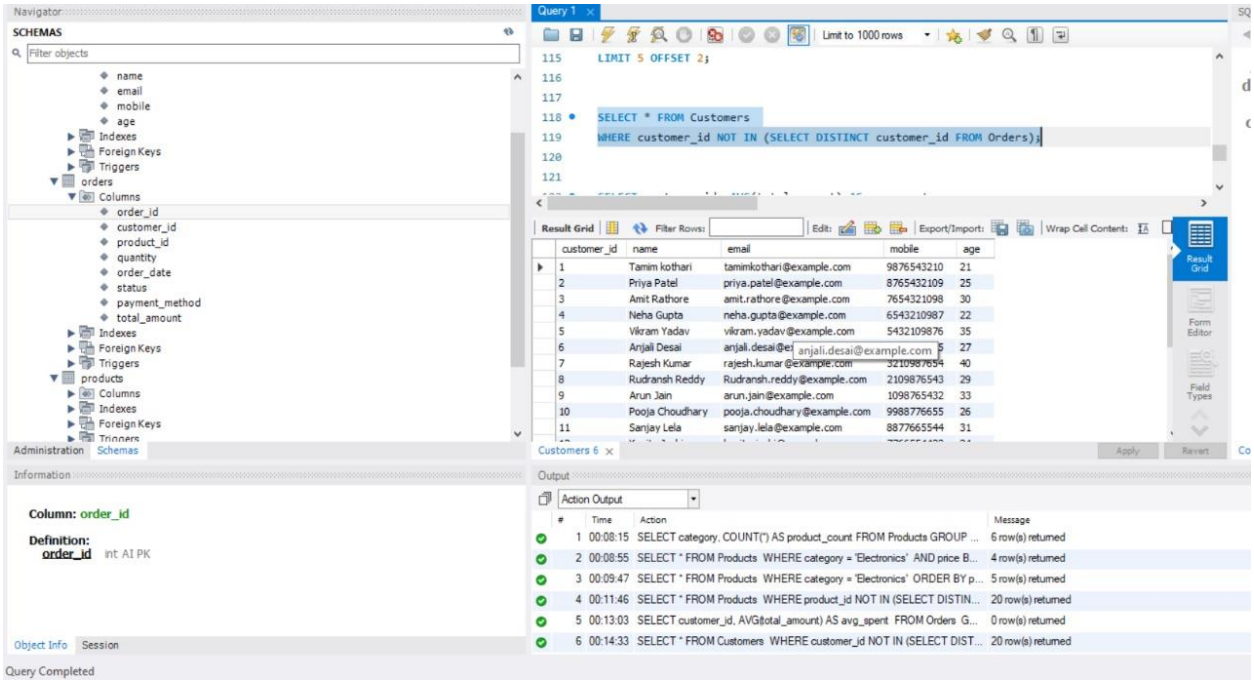


d. Retrieve customers who have not placed any orders.

Query:

select * from Customers

where customer_id not in (select distinct customer_id from Orders);



e. Find the average total amount spent by each customer.

Query:

```
select customer_id,
AVG(total_amount) as Average_Each_Spent
from Orders
group by customer_id;
```

Result Grid | Filter Rows:

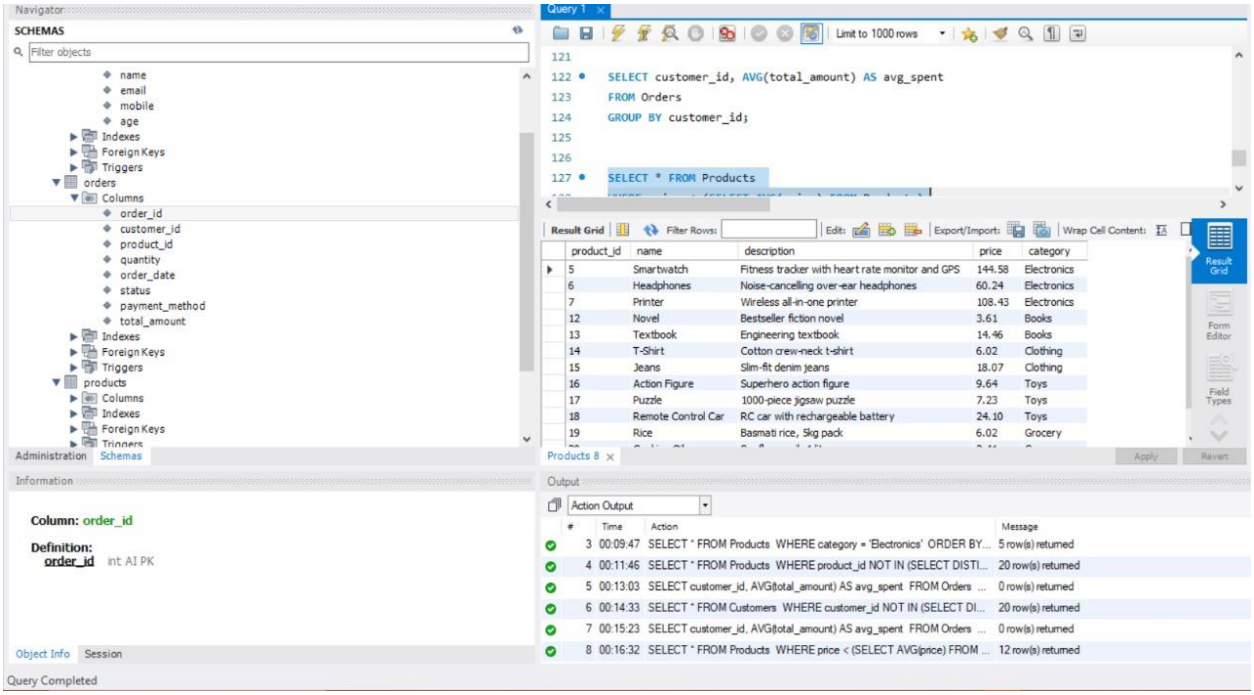
customer_id	Average_Each_Spent
1	903.610000
2	602.400000
3	138.555000
4	108.430000
5	259.035000
6	451.810000
9	18.070000
10	18.060000
11	18.070000
12	21.690000
16	30.100000
18	662.650000
19	146.990000

f. Get the products that have a price less than the average price of all products.

Query:

select * from Products

where price < (select AVG(price) from Products);



g. Calculate the total quantity of products ordered by each customer:

Query:

select customer_id,

SUM(quantity) as Total_Quantity

from Orders

group by customer_id;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	Total_Quantity
1	1
2	2
3	2
4	1
5	2
6	2
9	4
10	3
11	1
12	4
16	5
18	1
19	4

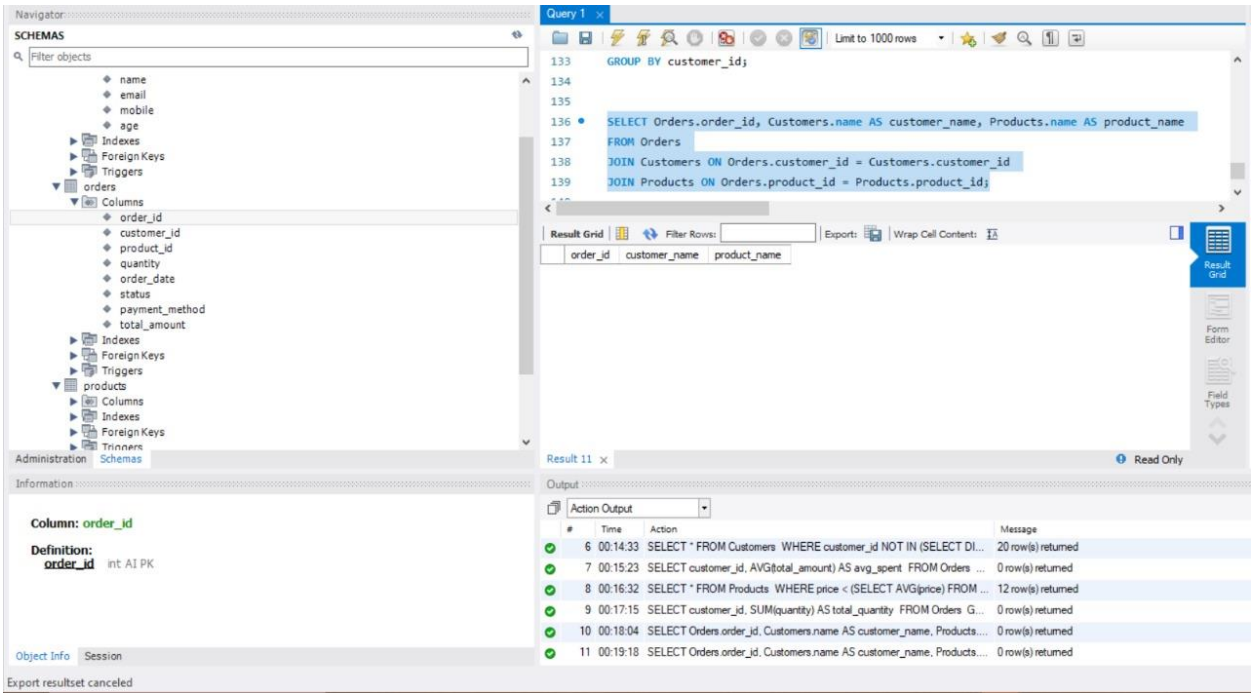
h. List all orders along with customer name and product name.

Query: select O.order_id, C.name AS customer_name, P.name AS product_name, O.quantity, O.order_date, O.status, O.payment_method, O.total_amount

from Orders O

JOIN Customers C on O.customer_id = C.customer_id

JOIN Products P on O.product_id = P.product_id;

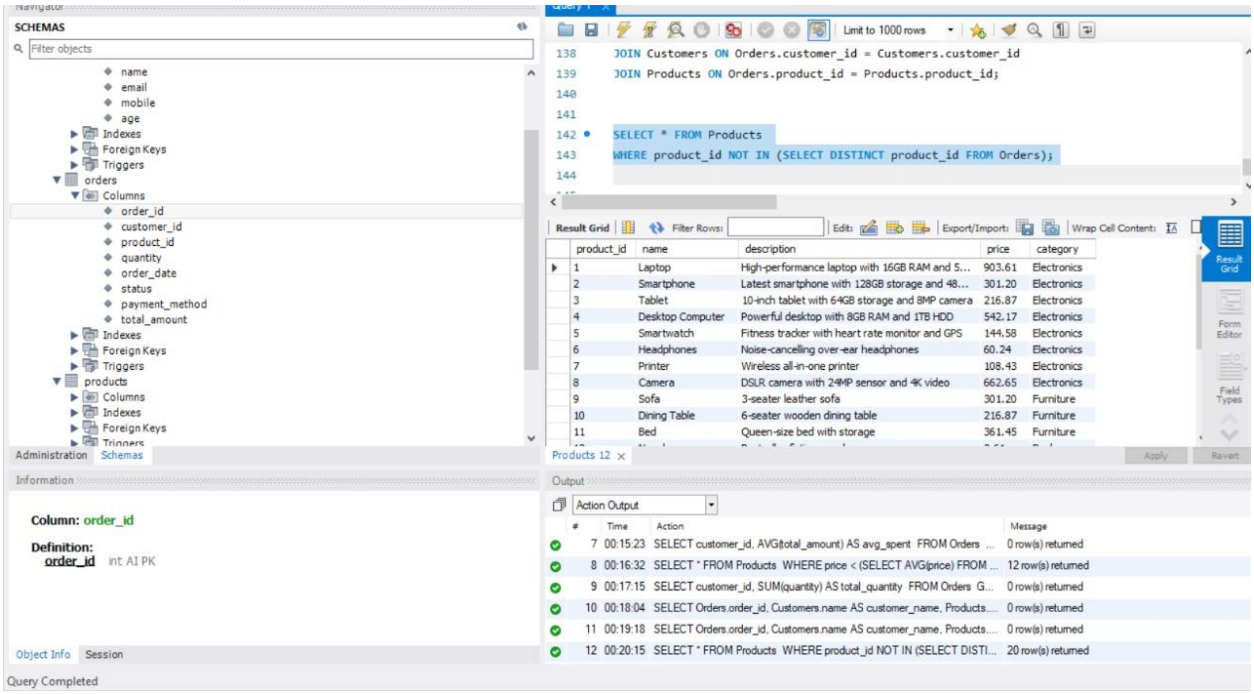


i. Find products that have never been ordered.

Query:

select * from Products

where product_id not in (select distinct product_id from Orders);


SCHEMAS
Filter objects
name
email
mobile
age
Indexes
Foreign Keys
Triggers
orders
Columns
order_id
customer_id
product_id
quantity
order_date
status
payment_method
total_amount
Indexes
Foreign Keys
Triggers
products
Columns
Indexes
Foreign Keys
Triggers
Administration
Schemas
Limit to 1000 rows
138 JOIN Customers ON Orders.customer_id = Customers.customer_id
139 JOIN Products ON Orders.product_id = Products.product_id;
142 SELECT * FROM Products
143 WHERE product_id NOT IN (SELECT DISTINCT product_id FROM Orders);
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
product_id name description price category
1 Laptop High-performance laptop with 16GB RAM and 5... 903.61 Electronics
2 Smartphone Latest smartphone with 128GB storage and 48... 301.20 Electronics
3 Tablet 10-inch tablet with 64GB storage and 8MP camera 216.87 Electronics
4 Desktop Computer Powerful desktop with 8GB RAM and 1TB HDD 542.17 Electronics
5 Smartwatch Fitness tracker with heart rate monitor and GPS 144.58 Electronics
6 Headphones Noise-cancelling over-ear headphones 60.24 Electronics
7 Printer Wireless all-in-one printer 108.43 Electronics
8 Camera DSLR camera with 24MP sensor and 4K video 662.65 Electronics
9 Sofa 3-seater leather sofa 301.20 Furniture
10 Dining Table 6-seater wooden dining table 216.87 Furniture
11 Bed Queen-size bed with storage 361.45 Furniture
Products 12
Apply
Revert
Information
Column: order_id
Definition:
order_id int AI PK
Object Info
Session
Output
Action Output
Time Action Message
7 00:15:23 SELECT customer_id, AVG(total_amount) AS avg_spent FROM Orders ... 0 row(s) returned
8 00:16:32 SELECT * FROM Products WHERE price < (SELECT AVG(price) FROM ... 12 row(s) returned
9 00:17:15 SELECT customer_id, SUM(quantity) AS total_quantity FROM Orders G... 0 row(s) returned
10 00:18:04 SELECT Orders.order_id, Customers.name AS customer_name, Products.... 0 row(s) returned
11 00:19:18 SELECT Orders.order_id, Customers.name AS customer_name, Products.... 0 row(s) returned
12 00:20:15 SELECT * FROM Products WHERE product_id NOT IN (SELECT DISTI... 20 row(s) returned
Query Completed