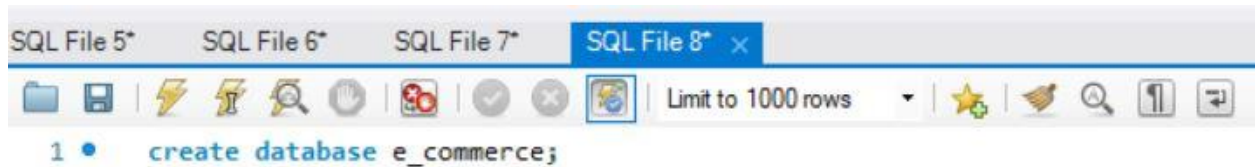


Basic SQL Training Questions

Note: Create a document in which you add all the screenshots of the results of the queries.

1.Create Database 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)

```
2 • create table Customers(customer_id int auto_increment primary key, name varchar(50),email varchar(50),mobile varchar(15));
3 • create table Products(id int primary key,name varchar(50) not null,description varchar(200),price decimal(10,2) not null,
4   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

```
5 • alter table Customers modify name varchar(50) not null, modify email varchar(50) not null;
6 • alter table Customers add unique(email);
7 • alter table Customers add age int;
8 • alter table Products change column id product_id int;
9 • alter table Products modify product_id int not null;
10 • alter table products drop primary key;
11 • alter table products modify product_id int not null auto_increment primary key;
12 • 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

```
13 • create table Order_s(order_id INT AUTO_INCREMENT PRIMARY KEY, customer_id INT, product_id INT, quantity INT NOT NULL, order_date DATE NOT NULL,
14   status ENUM('Pending', 'Success', 'Cancel'), payment_method ENUM('Credit', 'Debit', 'UPI'), total_amount DECIMAL(10, 2) NOT NULL,
15   FOREIGN KEY (customer_id) REFERENCES Customers(customer_id), FOREIGN KEY (product_id) REFERENCES Products(product_id)
16 );
```

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

```
17 • RENAME TABLE Order_s TO Orders;
18 • alter table Orders alter column status set default 'pending';
19 • alter table Orders modify payment_method enum('Credit', 'Debit', 'UPI', 'cod');
20 • alter table Orders add foreign key(product_id) references Products(product_id);
```

6.Insert 20 sample records in all the tables.

Customers:

```
21 • insert into Customers (name, email, mobile, age) VALUES ('vaishnavi goyal', 'vaishnavig8989@gmail.com', '1234567890', 25),
22 ('lucky', 'lucky@gmail.com', '8989838535', 2),('Priya Sharma', 'priyasharma@gmail.com', '9123456780', 28),
23 ('Amit Singh', 'amitsingh@gmail.com', '9988776655', 35),('Neha Patel', 'nehapatel@gmail.com', '9876501234', 26),
24 ('Vikram Reddy', 'vikramreddy@gmail.com', '9123004567', 32),('Anjali Gupta', 'anjali Gupta@gmail.com', '9876123450', 29),
25 ('Suresh Iyer', 'sureshiyer@gmail.com', '9123456700', 45),('Sunita Nair', 'sunitanair@gmail.com', '9876543201', 40),
26 ('Arjun Mehta', 'arjunmehta@gmail.com', '9123456789', 27),('Pooja Desai', 'poojadesai@gmail.com', '9876543211', 31),
27 ('Rahul Chandra', 'rahulchandra@gmail.com', '9123456790', 33),('Kavita Joshi', 'kavitajoshi@gmail.com', '9876543222', 30),
28 ('Ayesha Khan', 'ayeshakhan@gmail.com', '9123456711', 28),('Manish Reddy', 'manishreddy@gmail.com', '9876543233', 36),
29 ('Sneha Varma', 'snehavarma@gmail.com', '9123456722', 24),('Deepak Rao', 'deepakrao@gmail.com', '9876543244', 38),
30 ('Ritu Aggarwal', 'rituaggarwal@gmail.com', '9123456733', 29),('Vijay Kapoor', 'vijaykapoor@gmail.com', '9876543255', 34),
31 ('Nisha Malhotra', 'nishamalhotra@gmail.com', '9123456744', 27);
```

Products:

```
32 • insert into Products (name, description, price, category) VALUES
33 ('Smartphone', 'Latest smartphone with AI features', 299.99, 'Electronics'),
34 ('Laptop', 'High performance laptop for professionals', 799.99, 'Electronics'),
35 ('Bluetooth Speaker', 'Portable Bluetooth speaker with high quality sound', 49.99, 'Electronics'),
36 ('Headphones', 'Over-ear noise-cancelling headphones', 199.99, 'Electronics'),
37 ('Smartwatch', 'Fitness tracking smartwatch with heart rate monitor', 149.99, 'Electronics'),
38 ('Tablet', 'Lightweight tablet with a 10-inch display', 249.99, 'Electronics'),
39 ('Camera', 'Digital SLR camera with a 24MP sensor', 499.99, 'Electronics'),
40 ('Printer', 'Wireless all-in-one printer', 89.99, 'Electronics'),
41 ('Router', 'High-speed Wi-Fi router', 59.99, 'Electronics'),
42 ('USB Flash Drive', '64GB USB 3.0 flash drive', 19.99, 'Electronics'),
43 ('Refrigerator', 'Double-door refrigerator with inverter technology', 999.99, 'Appliances'),
44 ('Washing Machine', 'Front load washing machine with smart features', 799.99, 'Appliances'),
45 ('Air Conditioner', 'Split AC with energy-efficient cooling', 699.99, 'Appliances'),
46 ('Microwave Oven', 'Convection microwave oven with grill function', 199.99, 'Appliances'),
47 ('Television', '55-inch 4K Ultra HD Smart LED TV', 599.99, 'Electronics'),
48 ('Mixer Grinder', '3-in-1 mixer grinder with stainless steel jars', 49.99, 'Appliances'),
49 ('Vacuum Cleaner', 'Bagless vacuum cleaner with HEPA filter', 129.99, 'Appliances'),
50 ('Coffee Maker', 'Automatic coffee maker with grinder', 89.99, 'Appliances'),
51 ('Electric Kettle', 'Stainless steel electric kettle', 29.99, 'Appliances'),
52 ('Induction Cooktop', 'Portable induction cooktop with touch control', 69.99, 'Appliances');
```

Orders:

```
53 • insert into Orders (customer_id, product_id, quantity, order_date, status, payment_method, total_amount) values
54 (1, 1, 1, '2025-02-01', 'Pending', 'Credit', 299.99),
55 (2, 2, 2, '2025-02-02', 'Success', 'Debit', 1599.98),
56 (3, 3, 1, '2025-02-03', 'Success', 'UPI', 49.99),
57 (4, 4, 2, '2025-02-04', 'Cancel', 'COD', 399.98),
58 (5, 5, 1, '2025-02-05', 'Pending', 'Credit', 149.99),
59 (6, 6, 1, '2025-02-06', 'Success', 'Debit', 249.99),
60 (7, 7, 1, '2025-02-07', 'Success', 'UPI', 499.99),
61 (8, 8, 1, '2025-02-08', 'Pending', 'Credit', 89.99),
62 (9, 9, 3, '2025-02-09', 'Success', 'Debit', 179.97),
63 (10, 10, 2, '2025-02-10', 'Cancel', 'COD', 39.98),
64 (11, 11, 1, '2025-02-11', 'Success', 'Credit', 999.99),
65 (12, 12, 1, '2025-02-12', 'Success', 'Debit', 799.99),
66 (13, 13, 1, '2025-02-13', 'Pending', 'UPI', 699.99),
67 (14, 14, 2, '2025-02-14', 'Success', 'COD', 399.98),
68 (15, 15, 1, '2025-02-15', 'Success', 'Credit', 599.99),
69 (16, 16, 1, '2025-02-16', 'Pending', 'Debit', 49.99),
70 (17, 17, 1, '2025-02-17', 'Success', 'UPI', 129.99),
71 (18, 18, 1, '2025-02-18', 'Success', 'COD', 89.99),
72 (19, 19, 1, '2025-02-19', 'Pending', 'Credit', 29.99),
73 (20, 20, 1, '2025-02-20', 'Success', 'Debit', 69.99);
```

7.Perform following queries:

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

```
74 • select category, COUNT(*) AS product_count from Products GROUP BY category;
```

category	product_count
Electronics	11
Appliances	9

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

75 • `select * from Products WHERE category = 'Electronics' AND price BETWEEN 50 AND 500 AND name LIKE '%a%';`

product_id	name	description	price	category
1	Smartphone	Latest smartphone with AI features	299.99	Electronics
4	Headphones	Over-ear noise-cancelling headphones	199.99	Electronics
5	Smartwatch	Fitness tracking smartwatch with heart rate mo...	149.99	Electronics
6	Tablet	Lightweight tablet with a 10-inch display	249.99	Electronics
7	Camera	Digital SLR camera with a 24MP sensor	499.99	Electronics
NULL	NULL	NULL	NULL	NULL

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

76 • `SELECT * FROM Products WHERE category = 'Electronics' ORDER BY price DESC LIMIT 5 OFFSET 2;`

product_id	name	description	price	category
7	Camera	Digital SLR camera with a 24MP sensor	499.99	Electronics
1	Smartphone	Latest smartphone with AI features	299.99	Electronics
6	Tablet	Lightweight tablet with a 10-inch display	249.99	Electronics
4	Headphones	Over-ear noise-cancelling headphones	199.99	Electronics
5	Smartwatch	Fitness tracking smartwatch with heart rate mo...	149.99	Electronics
NULL	NULL	NULL	NULL	NULL

d. Retrieve customers who have not placed any orders.

77 • `SELECT * FROM Customers WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM Orders);`

customer_id	name	email	mobile	age
NULL	NULL	NULL	NULL	NULL

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

78 • `SELECT customer_id, AVG(total_amount) AS avg_spent FROM Orders GROUP BY customer_id;`

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

	customer_id	avg_spent
▶	1	299.990000
	2	1599.980000
	3	49.990000
	4	399.980000
	5	149.990000
	6	249.990000
	7	499.990000

Result 5 x

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

79 • `SELECT * FROM Products WHERE price < (SELECT AVG(price) FROM Products);`

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

	product_id	name	description	price	category
▶	1	Smartphone	Latest smartphone with AI features	299.99	Electronics
	3	Bluetooth Speaker	Portable Bluetooth speaker with high quality so...	49.99	Electronics
	4	Headphones	Over-ear noise-cancelling headphones	199.99	Electronics
	5	Smartwatch	Fitness tracking smartwatch with heart rate mo...	149.99	Electronics
	6	Tablet	Lightweight tablet with a 10-inch display	249.99	Electronics
	8	Printer	Wireless all-in-one printer	89.99	Electronics
	9	Router	High-speed Wi-Fi router	59.99	Electronics

Products 6 x

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

80 • `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	1
	4	2
	5	1
	6	1
	7	1

Result 7 x

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

82 FROM Orders O JOIN Customers C ON O.customer_id = C.customer_id JOIN Products P ON O.product_id = P.product_id;

Result Grid

	order_id	customer_name	product_name	quantity	order_date	status	payment_method	total_amount
▶	1	vaishnavi goyal	Smartphone	1	2025-02-01	Pending	Credit	299.99
	2	lucky	Laptop	2	2025-02-02	Success	Debit	1599.98
	3	Priya Sharma	Bluetooth Speaker	1	2025-02-03	Success	UPI	49.99
	4	Amit Singh	Headphones	2	2025-02-04	Cancel	cod	399.98
	5	Neha Patel	Smartwatch	1	2025-02-05	Pending	Credit	149.99
	6	Vikram Reddy	Tablet	1	2025-02-06	Success	Debit	249.99
	7	Anjali Gupta	Camera	1	2025-02-07	Success	UPI	499.99

Result 8 x

	order_id	customer_name	product_name	quantity	order_date	status	payment_method	total_amount
	8	Suresh Iyer	Printer	1	2025-02-08	Pending	Credit	89.99
	9	Sunita Nair	Router	3	2025-02-09	Success	Debit	179.97
	10	Arjun Mehta	USB Flash Drive	2	2025-02-10	Cancel	cod	39.98
	11	Pooja Desai	Refrigerator	1	2025-02-11	Success	Credit	999.99
	12	Rahul Chandra	Washing Machine	1	2025-02-12	Success	Debit	799.99
	13	Kavita Joshi	Air Conditioner	1	2025-02-13	Pending	UPI	699.99
▶	14	Ayesha Khan	Microwave Oven	2	2025-02-14	Success	cod	399.98

Result 8 x

	order_id	customer_name	product_name	quantity	order_date	status	payment_method	total_amount
▶	14	Ayesha Khan	Microwave Oven	2	2025-02-14	Success	cod	399.98
	15	Manish Reddy	Television	1	2025-02-15	Success	Credit	599.99
	16	Sneha Varma	Mixer Grinder	1	2025-02-16	Pending	Debit	49.99
	17	Deepak Rao	Vacuum Cleaner	1	2025-02-17	Success	UPI	129.99
	18	Ritu Aggarwal	Coffee Maker	1	2025-02-18	Success	cod	89.99
	19	Vijay Kapoor	Electric Kettle	1	2025-02-19	Pending	Credit	29.99
	20	Nisha Malhotra	Induction Cooktop	1	2025-02-20	Success	Debit	69.99

Result 8 x

i. Find products that have never been ordered.

83 • SELECT * FROM Products WHERE product_id NOT IN (SELECT DISTINCT product_id FROM Orders);

Result Grid

	product_id	name	description	price	category
*	NULL	NULL	NULL	NULL	NULL

Final Output:

Output				
Action Output				
#	Time	Action	Message	Duration / Fetch
✓ 1	00:30:24	create database e_commerce	1 row(s) affected	0.125 sec
✓ 2	00:30:46	create table Customers(customer_id int auto_increment primary key, name varchar(50), email varchar(50), mobile...	0 row(s) affected	0.938 sec
✓ 3	00:31:07	create table Products(id int primary key, name varchar(50) not null, description varchar(200), price decimal(10,2) ...	0 row(s) affected	0.390 sec
✓ 4	00:31:22	alter table Customers modify name varchar(50) not null, modify email varchar(50) not null	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.828 sec
✓ 5	00:31:45	alter table Customers add unique(email)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.234 sec
✓ 6	00:31:59	alter table Customers add age int	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.344 sec
✓ 7	00:32:26	alter table Products change column id product_id int	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.281 sec
✓ 8	00:32:50	alter table Products modify product_id int not null	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.078 sec
✗ 9	00:33:14	alter table products drop primary ke	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se...	0.000 sec
✓ 10	00:33:23	alter table products drop primary key	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.688 sec
✓ 11	00:33:58	alter table products modify product_id int not null auto_increment primary key	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.250 sec
✓ 12	00:34:22	alter table Products modify description text	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.079 sec
✗ 13	00:35:39	create table Order(order_id INT AUTO_INCREMENT PRIMARY KEY, customer_id INT, product_id INT, quantity...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se...	0.000 sec
✓ 14	00:38:12	create table Order_s(order_id INT AUTO_INCREMENT PRIMARY KEY, customer_id INT, product_id INT, quan...	0 row(s) affected	0.422 sec
✓ 15	00:39:40	RENAME TABLE Order_s TO Orders	0 row(s) affected	0.343 sec
✓ 16	00:41:02	alter table Orders alter column status set default 'pending'	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.109 sec
✓ 17	00:42:13	alter table Orders modify payment_method enum('Credit', 'Debit', 'UPI', 'cod')	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.125 sec
✓ 18	00:43:12	alter table Orders add foreign key(product_id) references Products(product_id)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	1.593 sec
✗ 19	00:57:47	insert into Customers (name, email, mobile, age) VALUES ((vaishnavi goyal', 'vaishnavig8989@gmail.com', '12...	Error Code: 1136. Column count doesn't match value count at row 1	0.093 sec
✓ 20	00:59:19	insert into Customers (name, email, mobile, age) VALUES (vaishnavi goyal', 'vaishnavig8989@gmail.com', '123...	20 row(s) affected Records: 20 Duplicates: 0 Warnings: 0	0.203 sec
✓ 21	01:01:44	insert into Products (name, description, price, category) VALUES ('Smartphone', 'Latest smartphone with AI feat...	20 row(s) affected Records: 20 Duplicates: 0 Warnings: 0	0.110 sec
✓ 22	01:04:58	insert into Orders (customer_id, product_id, quantity, order_date, status, payment_method, total_amount) value...	20 row(s) affected Records: 20 Duplicates: 0 Warnings: 0	0.157 sec
✓ 23	01:06:20	select category, COUNT(*) AS product_count from Products GROUP BY category LIMIT 0, 1000	2 row(s) returned	0.047 sec / 0.000 sec
✓ 24	01:08:51	select * from Products WHERE category = 'Electronics' AND price BETWEEN 50 AND 500 AND name LIKE '...	5 row(s) returned	0.031 sec / 0.000 sec
✓ 25	01:10:41	SELECT * FROM Products WHERE category = 'Electronics' ORDER BY price DESC LIMIT 5 OFFSET 2	5 row(s) returned	0.000 sec / 0.000 sec
✓ 26	01:12:59	SELECT * FROM Customers WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM Orders)	0 row(s) returned	0.063 sec / 0.000 sec

✓	26	01:12:59	SELECT * FROM Customers WHERE customer_id NOT IN (SELECT DISTINCT customer_id FROM Orders) LI...	0 row(s) returned	0.063 sec / 0.000 sec
✓	27	01:14:48	SELECT customer_id, AVG(total_amount) AS avg_spent FROM Orders GROUP BY customer_id LIMIT 0, 1000	20 row(s) returned	0.015 sec / 0.000 sec
✓	28	01:16:15	SELECT * FROM Products WHERE price < (SELECT AVG(price) FROM Products) LIMIT 0, 1000	14 row(s) returned	0.000 sec / 0.000 sec
✓	29	01:18:06	SELECT customer_id, SUM(quantity) AS total_quantity FROM Orders GROUP BY customer_id LIMIT 0, 1000	20 row(s) returned	0.000 sec / 0.000 sec
✗	30	01:19:25	SELECT O.order_id, C.name AS customer_name, P.name AS product_name, O.quantity, O.order_date, O.stat...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se...	0.015 sec
✓	31	01:19:53	SELECT O.order_id, C.name AS customer_name, P.name AS product_name, O.quantity, O.order_date, O.stat...	20 row(s) returned	0.000 sec / 0.000 sec
✓	32	01:24:09	SELECT * FROM Products WHERE product_id NOT IN (SELECT DISTINCT product_id FROM Orders) LIMIT...	0 row(s) returned	0.000 sec / 0.000 sec