**Products Table**

**The Products table contains details about products, including their names, categories, and unit prices. It provides reference data for linking product information to sales transactions.**

**Query:**

```
-- Create Products table

CREATE TABLE Products (
   product_id INT PRIMARY KEY,
   product_name VARCHAR(100),
   category VARCHAR(50),
   unit_price DECIMAL(10, 2)
);

-- Insert sample data into Products table

INSERT INTO Products (product_id, product_name, category, unit_price) VALUES
(101, 'Laptop', 'Electronics', 500.00),
(102, 'Smartphone', 'Electronics', 300.00),
(103, 'Headphones', 'Electronics', 30.00),
(104, 'Keyboard', 'Electronics', 20.00),
(105, 'Mouse', 'Electronics', 15.00);
```

**1. Retrieve all columns from the product table.**

```
mysql> select * from products;
+------------+--------------+-------------+------------+
| product_id | product_name | category    | unit_price |
+------------+--------------+-------------+------------+
|        101 | Laptop       | Electronics |     500.00 |
|        102 | Smartphone   | Electronics |     300.00 |
|        103 | Headphones   | Electronics |      30.00 |
|        104 | Keyboard     | Electronics |      20.00 |
|        105 | Mouse        | Electronics |      15.00 |
+------------+--------------+-------------+------------+
```

**2. Retrieve the product_name and unit_price from the Products table.**

```
mysql> SELECT product_name, unit_price FROM Products;
+--------------+------------+
| product_name | unit_price |
+--------------+------------+
| Laptop       |     500.00 |
| Smartphone   |     300.00 |
```

| Headphones | 30.00 |

| Keyboard | 20.00 |

| Mouse | 15.00 |

**3. Filter the Products table to show only products in the 'Electronics' category.**

```
mysql> select * from products where category ='electronics';
+------------+--------------+-------------+------------+
| product_id | product_name | category    | unit_price |
+------------+--------------+-------------+------------+
|        101 | Laptop       | Electronics |     500.00 |
|        102 | Smartphone   | Electronics |     300.00 |
|        103 | Headphones   | Electronics |      30.00 |
|        104 | Keyboard     | Electronics |      20.00 |
|        105 | Mouse        | Electronics |      15.00 |
+------------+--------------+-------------+------------+
```

**4. Retrieve the product_id and product_name from the Products table for products with a unit_price greater than $100.**

```
mysql> SELECT product_id, product_name
    -> FROM Products
    -> WHERE unit_price > 100;
+------------+--------------+
| product_id | product_name |
+------------+--------------+
|        101 | Laptop       |
|        102 | Smartphone   |
+------------+--------------+
```

5. **Calculate the average unit_price of products in the Products table.**

```
mysql> select avg(unit_price)from products;
+-----------------+
| avg(unit_price) |
+-----------------+
```

**| 173.000000 |**

**+----------------+**

6. **Retrieve product_name and unit_price from the Products table with the Highest Unit Price**

**mysql> select product_name,unit_price from products where unit_price>=500.00;**

**+--------------+------------+**

**| product_name | unit_price |**

**+--------------+------------+**

**| Laptop | 500.00 |**

**+--------------+------------+**

7. **Retrieve the product_name and unit_price from the Products table, ordering the results by unit_price in descending order.**

**mysql> select product_name,unit_price from products order by unit_price desc;**

**+--------------+------------+**

**| product_name | unit_price |**

**+--------------+------------+**

**| Laptop | 500.00 |**

**| Smartphone | 300.00 |**

**| Headphones | 30.00 |**

**| Keyboard | 20.00 |**

**| Mouse | 15.00 |**

**+--------------+------------+**

8. **Retrieve the product_name and unit_price from the Products table, filtering the unit_price to show only values between $20 and $600.**

**mysql> select product_name,unit_price from products where unit_price >20.00 and 600.00;**

**+--------------+------------+**

**| product_name | unit_price |**

**+--------------+------------+**

**| Laptop | 500.00 |**

**| Smartphone | 300.00 |**

**| Headphones | 30.00 |**

**+--------------+------------+**

9. **Retrieve the product_name and category from the Products table, ordering the results by category in ascending order.**

**mysql> select product_name,category from products order by category asc;**

```
+--------------+-------------+
| product_name | category    |
+--------------+-------------+
| Laptop       | Electronics |
| Smartphone   | Electronics |
| Headphones   | Electronics |
| Keyboard     | Electronics |
| Mouse        | Electronics |
+--------------+-------------+
```

**Sales Table**

**The Sales table records information about product sales, including the quantity sold, sale date, and total price for each sale. It serves as a transactional data source for analyzing sales trends.**

**Query:**

```
-- Create Sales table

CREATE TABLE Sales (
   sale_id INT PRIMARY KEY,
   product_id INT,
   quantity_sold INT,
   sale_date DATE,
   total_price DECIMAL(10, 2)
   FOREIGN KEY (product_id) REFERENCES Products(product_id)
);

-- Insert sample data into Sales table

INSERT INTO Sales (sale_id, product_id, quantity_sold, sale_date, total_price) VALUES
(1, 101, 5, '2024-01-01', 2500.00),
(2, 102, 3, '2024-01-02', 900.00),
```

(3, 103, 2, '2024-01-02', 60.00),
(4, 104, 4, '2024-01-03', 80.00),
(5, 105, 6, '2024-01-03', 90.00);

1. Retrieve all columns from the Sales table.
   mysql> select * from sales;

```
+---------+------------+---------------+------------+-------------+
| sale_id | product_id | quantity_sold | sale_date  | total_price |
+---------+------------+---------------+------------+-------------+
|       1 |        101 |             5 | 2024-01-01 |     2500.00 |
|       2 |        102 |             3 | 2024-01-02 |      900.00 |
|       3 |        103 |             2 | 2024-01-02 |       60.00 |
|       4 |        104 |             4 | 2024-01-03 |       80.00 |
|       5 |        105 |             6 | 2024-01-03 |       90.00 |
+---------+------------+---------------+------------+-------------+
```

2. Retrieve the sale_id and sale_date from the Sales table.
   mysql> select sale_id,sale_date from sales;

```
+---------+------------+
| sale_id | sale_date  |
+---------+------------+
|       1 | 2024-01-01 |
|       2 | 2024-01-02 |
|       3 | 2024-01-02 |
|       4 | 2024-01-03 |
|       5 | 2024-01-03 |
+---------+------------+
```

3. Filter the Sales table to show only sales with a total_price greater than $100.
   mysql> select * from sales where total_price>100;

```
+---------+------------+---------------+------------+-------------+
| sale_id | product_id | quantity_sold | sale_date  | total_price |
+---------+------------+---------------+------------+-------------+
|       1 |        101 |             5 | 2024-01-01 |     2500.00 |
|       2 |        102 |             3 | 2024-01-02 |      900.00 |
+---------+------------+---------------+------------+-------------+
```

4. Retrieve the sale_id and total_price from the Sales table for sales made on January 3, 2024.
   mysql> select sale_id,total_price from sales where sale_date="2024-01-03";

```
+---------+-------------+
| sale_id | total_price |
+---------+-------------+
|       4 |       80.00 |
|       5 |       90.00 |
+---------+-------------+
```

5. Calculate the total revenue generated from all sales in the Sales table.

mysql> select sum(total_price)from sales;

```
+------------------+
| sum(total_price) |
+------------------+
|         3630.00 |
+------------------+
```

6. Calculate the total quantity_sold from the Sales table.

```
mysql> select count(*)from sales;
+----------+
| count(*) |
+----------+
|       5 |
+----------+
```

7. Retrieve the sale_id, product_id, and total_price from the Sales table for sales with a quantity_sold greater than 4.

```
mysql> select sale_id,product_id,total_price from sales where quantity_sold>4;
+---------+------------+-------------+
| sale_id | product_id | total_price |
+---------+------------+-------------+
|       1 |        101 |     2500.00 |
|       5 |        105 |       90.00 |
```

8. Calculate the average total_price of sales in the Sales table.

```
mysql> select avg(total_price)from sales;
+------------------+
| avg(total_price) |
+------------------+
|      726.000000 |
+------------------+
```