# TASK-3

## A. Basic Selection and Filtering

**-- Top 5 most expensive products**
SELECT ProductName, Category, Price
FROM ecommerce
ORDER BY Price DESC
LIMIT 5**;**

```
+------------+------------------------------+---------+
| ProductName | Category                    | Price   |
+------------+------------------------------+---------+
| Canvas      | Art and crafting materials  | 499.74  |
| Cleanser    | Skin care                   | 499.71  |
| Earbuds     | Mobile phone accessories    | 499.68  |
| Spark Plugs | Motor vehicle parts         | 498.86  |
| Thongs      | Underwear                   |  496.7  |
+------------+------------------------------+---------+
```

## B. Group and Aggregate

**-- Average price and total sales per category**

SELECT Category, AVG(Price) AS AvgPrice, SUM(Sales) AS TotalSales

FROM ecommerce

GROUP BY Category;

```
+-------------------------------+-------------------------+-------------+
| Category                      | AvgPrice                | TotalSales  |
+-------------------------------+-------------------------+-------------+
| Electronics                   | 276.14925000000017      |       42844 |
| Clothing                      |                265.254  |       37672 |
| Home & Kitchen                |             257.94075   |       35777 |
| Books                         |              275.4535   |       41215 |
| Toys & Games                  |       269.9744999999999 |       42295 |
| Vitamins and supplements      | 219.96124999999998      |       44402 |
| Skin care                     | 282.06850000000003      |       40889 |
| Makeup                        | 259.43825000000004      |       42337 |
| Coats and jackets             | 274.68049999999994      |       35640 |
| Bicycles                      | 252.60550000000003      |       42750 |
| Art and crafting materials    | 211.28625000000002      |       45912 |
| Drinkware                     | 258.92449999999997      |       39870 |
| Perfume and cologne           | 264.89473684210526      |       32751 |
| Wine                          |                201.1835 |       36352 |
| Socks                         |                287.1225 |       41812 |
| Bedsheets                     | 272.97574999999995      |       46631 |
| Posters and artwork           | 217.95550000000003      |       36588 |
| Candles                       | 235.02800000000002      |       34204 |
| Bath and body                 | 238.12625000000003      |       42454 |
| Cookware                      |       282.7967499999999 |       40268 |
| Nail care                     | 253.71099999999996      |       41545 |
| Underwear                     | 265.86049999999994      |       34384 |
| Motor vehicle parts           | 241.38950000000006      |       45116 |
| Mobile phone accessories      |               262.49975 |       43660 |
| Blankets                      | 225.20375000000004      |       40480 |
+-------------------------------+-------------------------+-------------+
```

## C.Use of JOINS

-- **Example: Join with a hypothetical `categories` table**

SELECT e.ProductName, e.Category, c.Description

FROM ecommerce e

INNER JOIN categories c ON e.Category = c.CategoryName;

```
+------------------+-------------+-------------------------+
| ProductName      | Category    | Description             |
+------------------+-------------+-------------------------+
| Laptop           | Electronics | Devices and gadgets     |
| Smartphone       | Electronics | Devices and gadgets     |
| Desk             | Furniture   | Home and office items   |
| Chair            | Furniture   | Home and office items   |
+------------------+-------------+-------------------------+
```

## D.Subquery

**-- Products with above-average sales**

SELECT ProductName, Sales

FROM ecommerce

WHERE Sales > (

   SELECT AVG(Sales) FROM ecommerce

);

```
+------------------+-------+
| ProductName      | Sales |
+------------------+-------+
| Headphones       | 1332  |
| Smartphone       | 1806  |
| Laptop           | 1508  |
| Laptop           | 1966  |
| Laptop           | 1795  |
| Laptop           | 1064  |
| Headphones       | 1513  |
| Smartwatch       | 1762  |
| Headphones       | 1020  |
| Headphones       | 1976  |
| Smartwatch       | 1371  |
| Laptop           | 1768  |
| Headphones       | 1257  |
```

```
| Weighted Blanket |   1544 |
| Throw Blanket    |   1196 |
| Weighted Blanket |   1218 |
| Throw Blanket    |   1172 |
| Fleece Blanket   |   1452 |
| Fleece Blanket   |   1340 |
| Throw Blanket    |   1346 |
| Throw Blanket    |   1969 |
| Throw Blanket    |   1328 |
| Electric Blanket |   1564 |
| Fleece Blanket   |   1546 |
| Throw Blanket    |   1295 |
| Weighted Blanket |   1962 |
| Throw Blanket    |   1089 |
+------------------+--------+
494 rows in set (0.01 sec)
```
e.

## E.Aggregate Functions

**-- Get product with the highest number of reviews**
SELECT ProductName, NumReviews
FROM ecommerce
ORDER BY NumReviews DESC
LIMIT 1;

```
+------------------+------------+
| ProductName      | NumReviews |
+------------------+------------+
| Electric Blanket |       4994 |
+------------------+------------+
1 row in set (0.00 sec)
```

## F. Views and Indexes

### -- Create a view for discounted electronics
CREATE VIEW DiscountedElectronics AS
SELECT *
FROM ecommerce
WHERE Category = 'Electronics' AND Discount > 0.2;

```
mysql> select * from  DiscountedElectronics;
+-----------+-------------+-------------+--------+--------+------------+----------------+----------+-------+------------+
| ProductID | ProductName | Category    | Price  | Rating | NumReviews | Stock Quantity | Discount | Sales | DateAddedl |
+-----------+-------------+-------------+--------+--------+------------+----------------+----------+-------+------------+
|         2 | Headphones  | Electronics | 235.03 |    2.3 |       2919 |            663 |     0.33 |  1332 | 2023-09-26 |
|         3 | Smartwatch  | Electronics |  417.9 |    1.8 |       1184 |            459 |     0.31 |   252 | 2023-10-18 |
|         4 | Smartphone  | Electronics |  152.7 |    3.4 |       2047 |            475 |     0.49 |  1806 | 2023-12-03 |
|         5 | Laptop      | Electronics | 394.74 |    1.8 |       1267 |            831 |     0.23 |  1508 | 2023-08-08 |
|         6 | Headphones  | Electronics |  93.56 |    1.3 |       2435 |            600 |     0.48 |   241 | 2023-09-19 |
|         7 | Laptop      | Electronics |  57.86 |    3.7 |       1478 |            427 |     0.25 |  1966 | 2024-05-06 |
|         9 | Smartphone  | Electronics |  485.1 |    4.1 |        161 |            201 |     0.45 |   269 | 2023-06-25 |
|        11 | Laptop      | Electronics | 274.45 |    3.3 |       4859 |            187 |     0.27 |  1064 | 2024-01-05 |
|        13 | Headphones  | Electronics | 107.43 |    3.8 |       4514 |            288 |      0.3 |  1513 | 2023-10-23 |
|        15 | Smartwatch  | Electronics |  336.3 |    3.4 |       2773 |            986 |     0.28 |  1762 | 2024-03-01 |
|        17 | Headphones  | Electronics |  64.34 |    2.8 |        863 |            742 |     0.24 |  1020 | 2024-03-06 |
|        19 | Headphones  | Electronics | 151.98 |    1.6 |       2625 |            681 |      0.4 |  1976 | 2024-01-28 |
|        21 | Laptop      | Electronics |  63.93 |    1.9 |       4029 |            632 |     0.41 |  1768 | 2023-09-25 |
|        22 | Headphones  | Electronics |  90.68 |    3.1 |       4413 |            676 |     0.35 |  1257 | 2023-12-21 |
|        24 | Smartwatch  | Electronics | 133.37 |      3 |       1636 |            624 |      0.5 |   698 | 2024-02-18 |
|        27 | Laptop      | Electronics | 190.21 |    3.5 |        197 |            981 |     0.27 |   751 | 2024-01-18 |
|        28 | Smartphone  | Electronics |  83.85 |      3 |       2511 |            348 |     0.43 |   763 | 2023-06-30 |
|        29 | Headphones  | Electronics | 406.66 |    2.4 |       1734 |            819 |     0.47 |  1959 | 2024-02-03 |
|        31 | Laptop      | Electronics | 491.26 |    3.1 |       4976 |              1 |      0.5 |   253 | 2024-01-22 |
|        33 | Headphones  | Electronics |  429.6 |    2.6 |       1696 |            919 |     0.43 |  1648 | 2024-02-27 |
|        37 | Laptop      | Electronics | 299.04 |    4.9 |        562 |            437 |     0.45 |    26 | 2023-10-28 |
|        39 | Headphones  | Electronics | 290.28 |    4.1 |         16 |            171 |     0.47 |   476 | 2024-04-25 |
+-----------+-------------+-------------+--------+--------+------------+----------------+----------+-------+------------+
22 rows in set (0.01 sec)
```

### -- Create index to optimize price-based queries

CREATE INDEX idx_price ON ecommerce(Price);

```
mysql> CREATE INDEX idx_price ON ecommerce(Price);
Query OK, 0 rows affected (0.07 sec)
Records: 0  Duplicates: 0  Warnings: 0
```