1.Find the total revenue (price × quantity) for each item, sorted from highest to lowest.

Query:

db.sales.aggregate([

{

$project: {

item: 1,

revenue: { $multiply: ["$price", "$quantity"] }

}

},

{

$group: {

\_id: "$item",

totalRevenue: { $sum: "$revenue" }

}

},

{

$sort: { totalRevenue: -1 }

}

]);

2. Calculate the total quantity sold per month in 2022.

Query:

db.sales.aggregate([

{

$match: {

date: {

$gte: ISODate("2022-01-01T00:00:00Z"),

$lt: ISODate("2023-01-01T00:00:00Z")

}

}

},

{

$group: {

\_id: { month: { $month: "$date" } },

totalQuantity: { $sum: "$quantity" }

}

},

{

$sort: { "\_id.month": 1 }

}

]);

3. . Find all items where price is greater than 10 and size is not 'Short'.

Query:

db.sales.find({

price: { $gt: 10 },

size: { $ne: "Short" }

});

4. Get all Cappuccino sales with quantity between 10 and 20.

Query:

db.sales.find({

item: "Cappuccino",

quantity: { $gte: 10, $lte: 20 }

});

5. Query to find items where the item name starts with "A".

Query:

db.sales.find({

item: { $regex: /^A/, $options: "i" }

});

6. Find all records that do not have the field size.

Query:

db.sales.find({

size: { $exists: false }

});

7. List all items sold in February 2022.

Query:

db.sales.find(

{

date: {

$gte: ISODate("2022-02-01T00:00:00Z"),

$lt: ISODate("2022-03-01T00:00:00Z")

}

},

{

item: 1,

\_id: 0

}

);

8. Find all sales that are either "Grande" or "Tall" but not "Americanos".

Query:

db.sales.find({

size: { $in: ["Grande", "Tall"] },

item: { $ne: "Americanos" }

});

9. Find sales where the quantity is more than twice the price.

Query:

db.sales.find({

$expr: {

$gt: ["$quantity", { $multiply: [2, "$price"] }]

}

});

10. . Find all sales where the price is greater than the average price of their respective size.

Query:

db.sales.aggregate([

{

$group: {

\_id: "$size",

avgPrice: { $avg: "$price" }

}

},

{

$lookup: {

from: "sales",

localField: "\_id",

foreignField: "size",

as: "salesBySize"

}

},

{ $unwind: "$salesBySize" },

{

$match: {

$expr: {

$gt: ["$salesBySize.price", "$avgPrice"]

}

}

},

{

$replaceRoot: { newRoot: "$salesBySize" }

}

]);

11. Find Sales Where the Day of Week Matches Quantity's Last Digit [Filter sales where the day of the week (0=Sunday, 1=Monday, etc.) matches the last digit of quantity]

Query:

db.sales.aggregate([

{

$addFields: {

*dayOfWeek: { $dayOfWeek: "$date" },*

lastDigit: { $mod: ["$quantity", 10] }

}

},

{

$match: {

$expr: {

$eq: ["$dayOfWeek", { $add: ["$lastDigit", 1] }] }

}

}

]);

12. Find Sales Where the Month is Prime and Quantity is Odd [Filter sales where the month (1-12) is a prime number (2,3,5,7,11) AND quantity is odd]

Query:

db.sales.aggregate([

{

$addFields: {

saleMonth: { $month: "$date" }

}

},

{

$match: {

$expr: {

$and: [

{ $in: ["$saleMonth", [2, 3, 5, 7, 11]] },

{ $eq: [{ $mod: ["$quantity", 2] }, 1] }

]

}

}

}

]);

13. Find Sales with "Suspicious Quantities" (Divisible by 5 or 7) [Filter sales where quantity is divisible by 5 or 7]

Query:

db.sales.find({

$expr: {

$or: [

{ $eq: [{ $mod: ["$quantity", 5] }, 0] },

{ $eq: [{ $mod: ["$quantity", 7] }, 0] }

]

}

});