**MONGO DB TEST**

**Name :** Umar Khan

**Reg No :** 22BCE0501

**Mail ID :** [umar.khan2022@vitstudent.ac.in](mailto:umar.khan2022@vitstudent.ac.in)

db.sales.insertMany([

{ "\_id": 1, "item": "Americanos", "price": 5, "size": "Short", "quantity": 22, "date": ISODate("2022-01-15T08:00:00Z") },

{ "\_id": 2, "item": "Cappuccino", "price": 6, "size": "Short", "quantity": 12, "date": ISODate("2022-01-16T09:00:00Z") },

{ "\_id": 3, "item": "Lattes", "price": 15, "size": "Grande", "quantity": 25, "date": ISODate("2022-01-16T09:05:00Z") },

{ "\_id": 4, "item": "Mochas", "price": 25, "size": "Tall", "quantity": 11, "date": ISODate("2022-02-17T08:00:00Z") },

{ "\_id": 5, "item": "Americanos", "price": 10, "size": "Grande", "quantity": 12, "date": ISODate("2022-02-18T21:06:00Z") },

{ "\_id": 6, "item": "Cappuccino", "price": 7, "size": "Tall", "quantity": 20, "date": ISODate("2022-02-20T10:07:00Z") },

{ "\_id": 7, "item": "Lattes", "price": 25, "size": "Tall", "quantity": 30, "date": ISODate("2022-02-21T10:08:00Z") },

{ "\_id": 8, "item": "Americanos", "price": 10, "size": "Grande", "quantity": 21, "date": ISODate("2022-02-22T14:09:00Z") },

{ "\_id": 9, "item": "Cappuccino", "price": 10, "size": "Grande", "quantity": 17, "date": ISODate("2022-02-23T14:09:00Z") },

{ "\_id": 10, "item": "Americanos", "price": 8, "size": "Tall", "quantity": 15, "date": ISODate("2022-02-25T14:09:00Z") }

]);

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

db.sales.aggregate([

{ $group: { \_id: "$item", totalRevenue: { $sum: { $multiply: ["$price", "$quantity"] } } } },

{ $sort: { totalRevenue: -1 } }

]);

QUESTION-2: Calculate the total quantity sold per month in 2022.

db.sales.aggregate([

{ $match: { date: { $gte: ISODate("2022-01-01T00:00:00Z"), $lt: ISODate("2023-01-01T00:00:00Z") } } },

{ $group: { \_id: { year: { $year: "$date" }, month: { $month: "$date" } }, totalQuantity: { $sum: "$quantity" } } },

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

]);

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

db.sales.find({ price: { $gt: 10 }, size: { $ne: "Short" } });

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

db.sales.find({ item: "Cappuccino", quantity: { $gte: 10, $lte: 20 } });

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

db.sales.find({ item: { $regex: /^A/ } });

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

db.sales.find({ size: { $exists: false } });

QUESTION-7: List all items sold in February 2022.

db.sales.find(

{ date: { $gte: ISODate("2022-02-01T00:00:00Z"), $lt: ISODate("2022-03-01T00:00:00Z") } },

{ item: 1, \_id: 0 }

);

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

db.sales.find({ size: { $in: ["Grande", "Tall"] }, item: { $ne: "Americanos" } });

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

db.sales.find({ $expr: { $gt: ["$quantity", { $multiply: [2, "$price"] }] } });

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

db.sales.aggregate([

{ $setWindowFields: { partitionBy: "$size", output: { avgPrice: { $avg: "$price" } } } },

{ $match: { $expr: { $gt: ["$price", "$avgPrice"] } } }

]);

QUESTION-11: Filter sales where the total revenue is even and exceeds 100.

db.sales.find({

$where: function() {

const total = this.price \* this.quantity;

return total > 100 && total % 2 === 0;

}

});

QUESTION-12: Find Sales Where the Day of Week Matches Quantity's Last Digit.

db.sales.find({

$expr: {

$eq: [

{ $dayOfWeek: "$date" },

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

]

}

});

QUESTION-13: Find Sales Where the Month is Prime and Quantity is Odd.

db.sales.aggregate([

{ $addFields: { month: { $month: "$date" } } },

{ $match: { $expr: {

$and: [

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

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

]

} } }

]);

QUESTION-14: Find Sales with "Suspicious Quantities" (Divisible by 5 or 7).

db.sales.find({

$expr: {

$or: [

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

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

]

}

});