**MONGODB TEST**

**REGID : 22BCE8354**

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

**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.**

**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**

**}**

**}**

**]);**

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

**db.sales.find({**

**price: { $gt: 10 },**

**size: { $ne: "Short" }**

**});**

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

**db.sales.find({**

**item: "Cappuccino",**

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

**});**

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

**db.sales.find({**

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

**});**

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

**db.sales.find({**

**size: { $exists: false }**

**});**

**7) Find all sales that are either "Grande" or "Tall" but not "Americanos".**

**db.sales.find({**

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

**item: { $ne: "Americanos" }**

**})**

**8) 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")**

**}**

**})**

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

**db.sales.aggregate([**

**{**

**$match: {**

**$expr: {**

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

**}**

**}**

**}**

**])**

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

**db.sales.aggregate([**

**{**

**$group: {**

**\_id: "$size",**

**avgPrice: { $avg: "$price" }**

**}**

**},**

**{**

**$lookup: {**

**from: "sales",**

**localField: "\_id", // size from group (\_id)**

**foreignField: "size", // size in sales**

**as: "salesPerSize"**

**}**

**},**

**{**

**$unwind: "$salesPerSize"**

**},**

**{**

**$match: {**

**$expr: {**

**$gt: ["$salesPerSize.price", "$avgPrice"]**

**}**

**}**

**},**

**{**

**$project: {**

**\_id: "$salesPerSize.\_id",**

**item: "$salesPerSize.item",**

**size: "$salesPerSize.size",**

**price: "$salesPerSize.price",**

**avgPrice: "$avgPrice"**

**}**

**}**

**])**

**11)Filter sales where the total revenue is even and exceeds 100**

**db.sales.find({**

**$where: function() {**

**var totalRevenue = this.price \* this.quantity;**

**return totalRevenue > 100 && totalRevenue % 2 === 0;**

**}**

**})**

**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].**

**db.sales.aggregate([**

**{**

**$addFields: {**

**dayOfWeek: { $mod: [ { $add: [ { $dayOfWeek: "$date" }, 6 ] }, 7 ] },**

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

**}**

**},**

**{**

**$match: {**

**$expr: {**

**$eq: ["$dayOfWeek", "$lastDigit"]**

**}**

**}**

**},**

**{**

**$project: {**

**\_id: 1,**

**item: 1,**

**size: 1,**

**quantity: 1,**

**dayOfWeek: 1, lastDigit: 1, date: 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]**

**db.sales.aggregate([**

**{**

**$addFields: {**

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

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

**}**

**},**

**{**

**$match: {**

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

**isOddQuantity: true**

**}**

**},**

**{**

**$project: {**

**\_id: 1,**

**item: 1,**

**size: 1,**

**quantity: 1,**

**month: 1,**

**date: 1**

**}**

**}**

**])**

**13) Find Sales with "Suspicious Quantities" (Divisible by 5 or 7)**

**[Filter sales where quantity is divisible by 5 or 7]**

**db.sales.find({**

**$expr: {**

**$or: [**

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

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

**]**

**}**

**})**

**14)**