A-1:

db.createCollection("orders")

db.orders.insertMany([

{

orderId: 1,

orderTotal: 149.99,

orderStatus: "shipped",

customerName: "John Smith",

orderDate: new Date("2024-01-15")

},

{

orderId: 2,

orderTotal: 89.99,

orderStatus: "shipped",

customerName: "Mary Johnson",

orderDate: new Date("2024-01-16")

},

{

orderId: 3,

orderTotal: 249.99,

orderStatus: "processing",

customerName: "Bob Wilson",

orderDate: new Date("2024-01-17")

},

{

orderId: 4,

orderTotal: 199.99,

orderStatus: "shipped",

customerName: "Sarah Davis",

orderDate: new Date("2024-01-18")

},

{

orderId: 5,

orderTotal: 75.99,

orderStatus: "shipped",

customerName: "Mike Brown",

orderDate: new Date("2024-01-19")

}

])

db.orders.find({

$and: [

{ orderTotal: { $gt: 100 } },

{ orderStatus: "shipped" }

]

})

A-2:

db.createCollection("sales")

db.sales.insertMany([

{

saleId: 1,

category: "Electronics",

productName: "Smartphone",

quantity: 3,

price: 699.99,

date: new Date("2024-01-15")

},

{

saleId: 2,

category: "Clothing",

productName: "T-Shirt",

quantity: 5,

price: 24.99,

date: new Date("2024-01-15")

},

{

saleId: 3,

category: "Electronics",

productName: "Laptop",

quantity: 2,

price: 1299.99,

date: new Date("2024-01-16")

},

{

saleId: 4,

category: "Books",

productName: "Programming Guide",

quantity: 4,

price: 49.99,

date: new Date("2024-01-16")

},

{

saleId: 5,

category: "Clothing",

productName: "Jeans",

quantity: 3,

price: 79.99,

date: new Date("2024-01-17")

}

])

db.sales.aggregate([

{

$group: {

\_id: "$category",

totalQuantity: { $sum: "$quantity" }

}

},

{

$project: {

category: "$\_id",

totalQuantity: 1,

\_id: 0

}

}

])

A-3:

db.createCollection("users")

db.createCollection("orders")

// Insert sample users data

db.users.insertMany([

{

userId: 1,

name: "John Smith",

email: "john@example.com",

location: "New York"

},

{

userId: 2,

name: "Emma Wilson",

email: "emma@example.com",

location: "Los Angeles"

},

{

userId: 3,

name: "Michael Brown",

email: "michael@example.com",

location: "Chicago"

}

])

// Insert sample orders data

db.orders.insertMany([

{

orderId: 1,

userId: 1,

product: "Laptop",

amount: 1299.99,

date: new Date("2024-01-15")

},

{

orderId: 2,

userId: 1,

product: "Phone",

amount: 799.99,

date: new Date("2024-01-16")

},

{

orderId: 3,

userId: 2,

product: "Headphones",

amount: 199.99,

date: new Date("2024-01-17")

}

])

// Perform lookup to join users with their orders

db.users.aggregate([

{

$lookup: {

from: "orders",

localField: "userId",

foreignField: "userId",

as: "userOrders"

}

},

{

$project: {

\_id: 0,

name: 1,

email: 1,

location: 1,

userOrders: 1

}

}

])