MongoDB Aggregation Queries for LifeLink Project

# Collection: users

## Count Users by Blood Group

db.users.aggregate([  
 { $group: { \_id: "$bloodGroup", totalUsers: { $sum: 1 } } },  
 { $sort: { totalUsers: -1 } }  
])

Purpose: To find out how many donors are available for each blood group.

## Users by City

db.users.aggregate([  
 { $group: { \_id: "$location.city", total: { $sum: 1 } } },  
 { $sort: { total: -1 } }  
])

Purpose: To identify cities with most registered users.

# Collection: healthRecords

## Eligible Donors Count

db.healthRecords.aggregate([  
 { $match: { eligible: true } },  
 { $count: "eligibleDonors" }  
])

Purpose: Total number of currently eligible donors.

## Group Eligible Donors by BP Range

db.healthRecords.aggregate([  
 { $match: { eligible: true } },  
 {  
 $project: {  
 systolic: { $toInt: { $arrayElemAt: [{ $split: ["$bp", "/"] }, 0] } },  
 diastolic: { $toInt: { $arrayElemAt: [{ $split: ["$bp", "/"] }, 1] } }  
 }  
 },  
 {  
 $group: {  
 \_id: {  
 systolicRange: {  
 $cond: [  
 { $lte: ["$systolic", 110] }, "Low",  
 { $cond: [{ $lte: ["$systolic", 130] }, "Normal", "High"] }  
 ]  
 }  
 },  
 count: { $sum: 1 }  
 }  
 }  
])

Purpose: Categorize eligible donors by blood pressure.

# Collection: appointments

## Count Appointments by Status

db.appointments.aggregate([  
 { $group: { \_id: "$status", total: { $sum: 1 } } }  
])

Purpose: To see scheduled, completed, and cancelled appointment counts.

## Upcoming Appointments Within 7 Days

db.appointments.aggregate([  
 {  
 $match: {  
 date: {  
 $gte: new Date(),  
 $lte: { $dateAdd: { startDate: "$$NOW", unit: "day", amount: 7 } }  
 }  
 }  
 },  
 { $project: { userId: 1, date: 1, location: 1 } }  
])

Purpose: To notify users of upcoming appointments.

# Collection: hospitals

## Group Hospitals by City

db.hospitals.aggregate([  
 { $group: { \_id: "$address.city", totalHospitals: { $sum: 1 } } },  
 { $sort: { totalHospitals: -1 } }  
])

Purpose: To identify which cities have more hospitals integrated.

## Recently Registered Hospitals

db.hospitals.aggregate([  
 { $match: {  
 createdAt: {  
 $gte: { $dateSubtract: { startDate: "$$NOW", unit: "day", amount: 30 } }  
 }  
 } },  
 { $project: { name: 1, contactEmail: 1, createdAt: 1 } }  
])

Purpose: To check hospitals onboarded in the last 30 days.

# Collection: requests

## Total Requests Count

db.requests.aggregate([  
 { $count: "totalRequests" }  
])

Purpose: Overall count of blood and organ donation requests.

## High Urgency Requests by Status

db.requests.aggregate([  
 { $match: { urgency: "high" } },  
 { $group: { \_id: "$status", count: { $sum: 1 } } }  
])

Purpose: To manage high urgency request follow-ups.

# Collection: alerts

## Alert Status Distribution

db.alerts.aggregate([  
 { $group: { \_id: "$status", alertCount: { $sum: 1 } } }  
])

Purpose: To see how many alerts are sent vs pending.

## Recent Alerts

db.alerts.aggregate([  
 { $match: {  
 sentAt: {  
 $gte: { $dateSubtract: { startDate: "$$NOW", unit: "day", amount: 7 } }  
 }  
 } },  
 { $project: { requestId: 1, message: 1, sentAt: 1 } }  
])

Purpose: To monitor emergency alerts sent in the past week.

# Collection: forumPosts

## Count Posts per User

db.forumPosts.aggregate([  
 { $group: { \_id: "$userId", totalPosts: { $sum: 1 } } },  
 { $sort: { totalPosts: -1 } }  
])

Purpose: To encourage community participation and track active users.

## Recent Forum Posts

db.forumPosts.aggregate([  
 { $sort: { createdAt: -1 } },  
 { $limit: 5 },  
 { $project: { userId: 1, title: 1, createdAt: 1 } }  
])

Purpose: To showcase latest posts on the platform.

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Project: LifeLink - Blood and Organ Donation Platform

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