db.patient.insertMany([

{ patient\_id: "p1", name: "Alice", age: 45, gender: "Female", contact\_info: "alice@example.com", diagnosis\_date: ISODate("2022-03-01") },

{ patient\_id: "p2", name: "Bob", age: 60, gender: "Male", contact\_info: "bob@example.com", diagnosis\_date: ISODate("2022-05-15") },

{ patient\_id: "p3", name: "Carol", age: 52, gender: "Female", contact\_info: "carol@example.com", diagnosis\_date: ISODate("2022-08-10") },

{ patient\_id: "p4", name: "David", age: 38, gender: "Male", contact\_info: "david@example.com", diagnosis\_date: ISODate("2022-04-12") },

{ patient\_id: "p5", name: "Eva", age: 49, gender: "Female", contact\_info: "eva@example.com", diagnosis\_date: ISODate("2022-01-30") },

{ patient\_id: "p6", name: "Frank", age: 66, gender: "Male", contact\_info: "frank@example.com", diagnosis\_date: ISODate("2022-06-14") },

{ patient\_id: "p7", name: "Grace", age: 58, gender: "Female", contact\_info: "grace@example.com", diagnosis\_date: ISODate("2022-02-21") },

{ patient\_id: "p8", name: "Henry", age: 43, gender: "Male", contact\_info: "henry@example.com", diagnosis\_date: ISODate("2022-07-08") },

{ patient\_id: "p9", name: "Ivy", age: 61, gender: "Female", contact\_info: "ivy@example.com", diagnosis\_date: ISODate("2022-09-09") },

{ patient\_id: "p10", name: "Jack", age: 50, gender: "Male", contact\_info: "jack@example.com", diagnosis\_date: ISODate("2022-10-10") }

]);

db.treatment.insertMany([

{ treatment\_id: "t1", patient\_id: "p1", start\_date: ISODate("2022-03-10"), end\_date: ISODate("2022-04-10"), status: "Completed" },

{ treatment\_id: "t2", patient\_id: "p2", start\_date: ISODate("2022-06-01"), end\_date: ISODate("2022-07-01"), status: "Ongoing" },

{ treatment\_id: "t3", patient\_id: "p3", start\_date: ISODate("2022-09-01"), end\_date: ISODate("2022-09-30"), status: "Completed" },

{ treatment\_id: "t4", patient\_id: "p4", start\_date: ISODate("2022-05-01"), end\_date: ISODate("2022-05-30"), status: "Failed" },

{ treatment\_id: "t5", patient\_id: "p5", start\_date: ISODate("2022-01-15"), end\_date: ISODate("2022-02-15"), status: "Completed" },

{ treatment\_id: "t6", patient\_id: "p6", start\_date: ISODate("2022-06-15"), end\_date: ISODate("2022-07-15"), status: "Ongoing" },

{ treatment\_id: "t7", patient\_id: "p7", start\_date: ISODate("2022-03-20"), end\_date: ISODate("2022-04-20"), status: "Completed" },

{ treatment\_id: "t8", patient\_id: "p8", start\_date: ISODate("2022-08-10"), end\_date: ISODate("2022-09-10"), status: "Failed" },

{ treatment\_id: "t9", patient\_id: "p9", start\_date: ISODate("2022-10-01"), end\_date: ISODate("2022-10-30"), status: "Ongoing" },

{ treatment\_id: "t10", patient\_id: "p10", start\_date: ISODate("2022-07-05"), end\_date: ISODate("2022-08-05"), status: "Completed" }

]);

db.oncologist.insertMany([

{ oncologist\_id: "o1", name: "Dr. Smith", specialization: "Breast Cancer", hospital\_affiliation: "City Hospital" },

{ oncologist\_id: "o2", name: "Dr. Jones", specialization: "Lung Cancer", hospital\_affiliation: "Metro Medical" },

{ oncologist\_id: "o3", name: "Dr. White", specialization: "Colon Cancer", hospital\_affiliation: "Regional Care" },

{ oncologist\_id: "o4", name: "Dr. Brown", specialization: "Leukemia", hospital\_affiliation: "Wellness Center" },

{ oncologist\_id: "o5", name: "Dr. Green", specialization: "Melanoma", hospital\_affiliation: "Sunshine Clinic" },

{ oncologist\_id: "o6", name: "Dr. Adams", specialization: "Brain Tumor", hospital\_affiliation: "Neuro Center" },

{ oncologist\_id: "o7", name: "Dr. Carter", specialization: "Liver Cancer", hospital\_affiliation: "General Hospital" },

{ oncologist\_id: "o8", name: "Dr. Evans", specialization: "Pancreatic Cancer", hospital\_affiliation: "National Health" },

{ oncologist\_id: "o9", name: "Dr. Lewis", specialization: "Skin Cancer", hospital\_affiliation: "Cosmo Care" },

{ oncologist\_id: "o10", name: "Dr. Taylor", specialization: "Thyroid Cancer", hospital\_affiliation: "Endocrine Institute" }

]);

db.clinical\_trials.insertMany([

{ trial\_id: "ct1", name: "Trial A", phase: "Phase I", eligibility\_criteria: "Age > 18" },

{ trial\_id: "ct2", name: "Trial B", phase: "Phase II", eligibility\_criteria: "Cancer Stage II" },

{ trial\_id: "ct3", name: "Trial C", phase: "Phase III", eligibility\_criteria: "Non-smoker" },

{ trial\_id: "ct4", name: "Trial D", phase: "Phase I", eligibility\_criteria: "Female only" },

{ trial\_id: "ct5", name: "Trial E", phase: "Phase II", eligibility\_criteria: "Stage I or II" },

{ trial\_id: "ct6", name: "Trial F", phase: "Phase III", eligibility\_criteria: "Genetic marker X" },

{ trial\_id: "ct7", name: "Trial G", phase: "Phase I", eligibility\_criteria: "Age 40-60" },

{ trial\_id: "ct8", name: "Trial H", phase: "Phase II", eligibility\_criteria: "Male only" },

{ trial\_id: "ct9", name: "Trial I", phase: "Phase III", eligibility\_criteria: "No previous treatment" },

{ trial\_id: "ct10", name: "Trial J", phase: "Phase I", eligibility\_criteria: "Any cancer type" }

]);

db.outcome.insertMany([

{ outcome\_id: "o1", treatment\_id: "t1", trial\_id: "ct1", survival\_rate: 85.2, side\_effects: "Fatigue", effectiveness: "High" },

{ outcome\_id: "o2", treatment\_id: "t2", trial\_id: "ct2", survival\_rate: 70.0, side\_effects: "Nausea", effectiveness: "Moderate" },

{ outcome\_id: "o3", treatment\_id: "t3", trial\_id: "ct3", survival\_rate: 60.5, side\_effects: "Headache", effectiveness: "Low" },

{ outcome\_id: "o4", treatment\_id: "t4", trial\_id: "ct4", survival\_rate: 90.0, side\_effects: "None", effectiveness: "High" },

{ outcome\_id: "o5", treatment\_id: "t5", trial\_id: "ct5", survival\_rate: 76.8, side\_effects: "Dizziness", effectiveness: "Moderate" },

{ outcome\_id: "o6", treatment\_id: "t6", trial\_id: "ct6", survival\_rate: 55.3, side\_effects: "Fever", effectiveness: "Low" },

{ outcome\_id: "o7", treatment\_id: "t7", trial\_id: "ct7", survival\_rate: 68.9, side\_effects: "Fatigue", effectiveness: "Moderate" },

{ outcome\_id: "o8", treatment\_id: "t8", trial\_id: "ct8", survival\_rate: 80.4, side\_effects: "None", effectiveness: "High" },

{ outcome\_id: "o9", treatment\_id: "t9", trial\_id: "ct9", survival\_rate: 65.0, side\_effects: "Nausea", effectiveness: "Low" },

{ outcome\_id: "o10", treatment\_id: "t10", trial\_id: "ct10", survival\_rate: 72.5, side\_effects: "Headache", effectiveness: "Moderate" }

]);

* **MongoDB Query to Get All Records**

db.<collection\_name>.find({})

* Get all patients:

db.patient.find({})

db.treatment.find({})

db.oncologist.find({})

db.clinical\_trials.find({})

db.outcome.find({})

// 1. Simple Query

**//Retrieves all patient records where the gender is "Female".**  
This filters the patient collection to show only female patients.

db.patient.find({ gender: "Female" });

// 2. Complex Query

//Retrieves treatment records that are marked as "Completed" and belong to patients with IDs p1, p3, p5, p7, or p10.  
//It uses multiple conditions: status and a list of specific patient IDs.

db.treatment.find({ status: "Completed", patient\_id: { $in: ["p1", "p3", "p5", "p7", "p10"] } });

// 3. Aggregate Query

//Groups treatment records by their status (e.g., "Completed", "Ongoing", "Failed") and counts how many records exist for each status.

db.treatment.aggregate([

{ $group: { \_id: "$status", total: { $sum: 1 } } }

]);