

4: Hospital Patient Records System

Context:

A hospital wants to store and analyze basic patient treatment information.

Collection: patients

Sample Document

```
{
  "patient_id": "P1001",
  "name": "Rohan Kulkarni",
  "age": 45,
  "department": "Cardiology",
  "treatments": [
    { "treatment": "ECG", "cost": 1200 },
    { "treatment": "Angiography", "cost": 15000 }
  ]
}
```

Tasks:

1. Insert 4-5 patient documents with multiple treatments.
2. Retrieve all patients from "Cardiology".
3. Add a new treatment for patient "P1001".
4. Delete records of patients older than 80 years.
5. Use aggregation to compute the total treatment cost per patient.

```
-- Step 1: Create / Use the Database
use hospital
```

```
-- Step 2: Create the patients Collection (Automatically created on insert)
db.createCollection("patients")
```

```
-- Step 3: Insert 4-5 Patient Documents with Multiple Treatments
```

```
db.patients.insertMany([
  {
    patient_id: "P1001",
    name: "Rohan Kulkarni",
    age: 45,
    department: "Cardiology",
    treatments: [
      { treatment: "ECG", cost: 1200 },
      { treatment: "Angiography", cost: 15000 }
    ]
  },
  {
    patient_id: "P1002",
```

```

    name: "Suman Reddy",
    age: 60,
    department: "Orthopedics",
    treatments: [
      { treatment: "X-ray", cost: 800 },
      { treatment: "Hip Replacement", cost: 30000 }
    ]
  },
  {
    patient_id: "P1003",
    name: "Ajay Sharma",
    age: 35,
    department: "Cardiology",
    treatments: [
      { treatment: "ECG", cost: 1200 },
      { treatment: "Stress Test", cost: 5000 }
    ]
  },
  {
    patient_id: "P1004",
    name: "Priya Singh",
    age: 55,
    department: "Neurology",
    treatments: [
      { treatment: "MRI Scan", cost: 4000 },
      { treatment: "EEG", cost: 2500 }
    ]
  },
  {
    patient_id: "P1005",
    name: "Vikram Gupta",
    age: 85,
    department: "Cardiology",
    treatments: [
      { treatment: "ECG", cost: 1200 },
      { treatment: "Angioplasty", cost: 25000 }
    ]
  }
]
)

```

```

-- Step 4: Retrieve All Patients from "Cardiology"
db.patients.find({ department: "Cardiology" })

```

```

-- Step 5: Add a New Treatment for Patient "P1001"
db.patients.updateOne(
  { patient_id: "P1001" },
  { $push: { treatments: { treatment: "Heart Surgery", cost: 50000 } } }
)

```

```
-- Step 6: Delete Records of Patients Older Than 80 Years
db.patients.deleteMany({ age: { $gt: 80 } })
```

```
-- Step 7: Use Aggregation to Compute the Total Treatment Cost per Patient
db.patients.aggregate([
  {
    $project: {
      patient_id: 1,
      total_treatment_cost: { $sum: "$treatments.cost" }
    }
  }
])
```