

Practical MongoDB Questions

♦ Find / Query Operations

1. Find the names and CGPAs of all students from the "IT" department.
`db.students.find({department : "IT"}, {name:1, cgpa:1})`
 2. List all students whose CGPA is greater than or equal to 8.5. Show only their name, roll number, and department.
`db.students.find({cgpa: {$gte: 8.5}}, {name:1, roll_no:1, department:1})`
 3. Find students who are in either the "ECE" or "ME" department using \$in.
`db.students.find({department : {$in : ["ECE", "ME"]}})`
 4. Get the name and CGPA of students who are in the 4th year and have a CGPA greater than 8.0.
`db.students.find({year: 4, cgpa: {$gt: 8.0}}, {name:1, cgpa:1})`
 5. Find all students who are not in the "CSE" department and have a CGPA less than or equal to 7.5 using \$and and \$ne.
`db.students.find({$and: [{department: {$ne: "CSE"}}, {cgpa: {$lte: 7.5}}]})`
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♦ Sort / Pagination

6. Display the top 3 students with the highest CGPA across all departments.
`db.students.find({}).sort({cgpa: -1}).limit(3)`
 7. Show the next 3 students after skipping the top 3 based on CGPA (pagination).
`db.students.find({}).sort({cgpa: -1}).skip(3).limit(3)`
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♦ Update Operations

8. Increase the CGPA by 0.2 for all students in the "CSE" department.
`db.students.updateMany({department: "CSE"}, {$inc: {cgpa: 0.2}})`
 9. Set the department to "Probation" for all students with CGPA less than 7.0.
`db.students.updateMany({cgpa: {$lt: 7.0}}, {$set: {department: "Probation"}})`
 10. Remove the email field from all students in the "ME" department.
`db.students.updateMany({department: "ME"}, {$unset: {email: ""}})`
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Bonus (Advanced)

11. Rename the field cgpa to gpa for all students.
`db.students.updateMany({}, {$rename: {cgpa: "gpa"}})`
12. Replace the entire document of a student with roll number "CSE2104" with a new record containing updated values.
`db.students.updateOne({roll_no: 'CSE2104'},
{$set: {
 _id: ObjectId('684eb12a76e97785dca0f56d'), roll_no: 'CSE2104', name: 'Simran Kaur',
 year: 3, department: 'CSE', cgpa: 9.6, email: 'simran.cse@univ.edu'
}})`

DataSet:

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db.students.insertMany([
    { roll_no: "CSE2101", name: "Aarav Sharma", year: 2, department: "CSE", cgpa: 8.5,
      email: "aarav.cse@univ.edu" },
    { roll_no: "ECE2102", name: "Priya Verma", year: 2, department: "ECE", cgpa: 8.2,
      email: "priya.ece@univ.edu" },
    { roll_no: "ME2103", name: "Rahul Singh", year: 2, department: "ME", cgpa: 7.8,
      email: "rahul.me@univ.edu" },
    { roll_no: "CSE2104", name: "Simran Kaur", year: 2, department: "CSE", cgpa: 9.0,
      email: "simran.cse@univ.edu" },
    { roll_no: "IT2105", name: "Aditya Patel", year: 2, department: "IT", cgpa: 8.7,
      email: "aditya.it@univ.edu" },
    { roll_no: "CSE2201", name: "Neha Jain", year: 3, department: "CSE", cgpa: 9.1,
      email: "neha.cse@univ.edu" },
    { roll_no: "ECE2202", name: "Rohan Mehta", year: 3, department: "ECE", cgpa: 8.3,
      email: "rohan.ece@univ.edu" },
    { roll_no: "ME2203", name: "Sneha Reddy", year: 3, department: "ME", cgpa: 7.6,
      email: "sneha.me@univ.edu" },
    { roll_no: "IT2204", name: "Vikas Nair", year: 3, department: "IT", cgpa: 8.4, email:
      "vikas.it@univ.edu" },
    { roll_no: "CSE2301", name: "Meera Joshi", year: 4, department: "CSE", cgpa: 9.3,
      email: "meera.cse@univ.edu" },
    { roll_no: "ECE2302", name: "Ankit Bansal", year: 4, department: "ECE", cgpa: 8.1,
      email: "ankit.ece@univ.edu" },
    { roll_no: "ME2303", name: "Pooja Yadav", year: 4, department: "ME", cgpa: 7.5,
      email: "pooja.me@univ.edu" },
    { roll_no: "IT2304", name: "Karan Gupta", year: 4, department: "IT", cgpa: 8.9,
      email: "karan.it@univ.edu" },
    { roll_no: "CSE2401", name: "Riya Malhotra", year: 1, department: "CSE", cgpa: 8.0,
      email: "riya.cse@univ.edu" },
    { roll_no: "ECE2402", name: "Aman Khan", year: 1, department: "ECE", cgpa: 7.9,
      email: "aman.ece@univ.edu" },
    { roll_no: "ME2403", name: "Ishita Desai", year: 1, department: "ME", cgpa: 8.1,
      email: "ishita.me@univ.edu" },
    { roll_no: "IT2404", name: "Dev Mishra", year: 1, department: "IT", cgpa: 8.6, email:
      "dev.it@univ.edu" },
    { roll_no: "CSE2405", name: "Tanya Roy", year: 1, department: "CSE", cgpa: 8.7,
      email: "tanya.cse@univ.edu" },
    { roll_no: "ECE2406", name: "Nikhil Rao", year: 1, department: "ECE", cgpa: 7.8,
      email: "nikhil.ece@univ.edu" },
    { roll_no: "ME2407", name: "Shreya Pandey", year: 1, department: "ME", cgpa: 8.2,
      email: "shreya.me@univ.edu" }
]);
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