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TE:A   Roll.no. :- 71

MongoDB – Aggregation and Indexing:

Design and Develop MongoDB Queries using aggregation and indexing with suitable example using MongoDB

visgal@patil-HP-ProOne-600-G1-AiO:~$ mongosh

Current Mongosh Log ID: 636717679eb9f4eedc26e088

Connecting to: mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.6.0

Using MongoDB: 6.0.2

Using Mongosh: 1.6.0

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

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   The server generated these startup warnings when booting

   2022-11-06T07:34:40.208+05:30: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem

   2022-11-06T07:34:45.641+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted

   2022-11-06T07:34:45.642+05:30: vm.max\_map\_count is too low

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test> use MongoDB02

switched to db MongoDB02

MongoDB02> db.createCollection("student")

MongoDB02> db.student.insertMany([{roll:1,name:"navin",subject:"OOP",marks:78},{roll:2,name:"anusha",subject:"dsa",marks:75}])

{

  acknowledged: true,

  insertedIds: {

    '0': ObjectId("63672096b980ceb88cde46a4"),

    '1': ObjectId("63672096b980ceb88cde46a5")

  }

}

MongoDB02> db.student.find().pretty()

[

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'OOP',

    marks: 78

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  }

]

MongoDB02> db.student.insertOne({roll:3,name:"ravi",subject:"dsa",marks:69})

{

  acknowledged: true,

  insertedId: ObjectId("63672163b980ceb88cde46a6")

}

MongoDB02> db.student.updateOne({name:"navin"},{$set:{subject:"oop"}})

{

  acknowledged: true,

  insertedId: null,

  matchedCount: 1,

  modifiedCount: 1,

  upsertedCount: 0

}

MongoDB02> db.student.find().pretty()

[

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  },

  {

  },

  {

    \_id: ObjectId("63672188b980ceb88cde46a7"),

    roll: 4,

    name: 'veena',

    subject: 'oop',

    marks: 70

  }

]

MongoDB02> db.student.insertOne({roll:5,name:"pravin",subject:"cn",marks:80})

{

  acknowledged: true,

  insertedId: ObjectId("636721fdb980ceb88cde46a8")

}

MongoDB02> db.student.find().pretty()

[

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  },

  {

    \_id: ObjectId("63672163b980ceb88cde46a6"),

    roll: 3,

    name: 'ravi',

    subject: 'dsa',

    marks: 69

  },

  {

    \_id: ObjectId("63672188b980ceb88cde46a7"),

    roll: 4,

    name: 'veena',

    subject: 'oop',

    marks: 70

  },

  {

    \_id: ObjectId("636721fdb980ceb88cde46a8"),

    roll: 5,

    name: 'pravin',

    subject: 'cn',

    marks: 80

  },

  {

    \_id: ObjectId("6367220fb980ceb88cde46a9"),

    roll: 6,

    name: 'geeta',

    subject: 'cn',

    marks: 90

  }

]

MongoDB02> db.student.find().sort({name:1})          **//sort name in ascending order**

[

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  },

  {

    \_id: ObjectId("6367220fb980ceb88cde46a9"),

    roll: 6,

    name: 'geeta',

    subject: 'cn',

    marks: 90

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  },

  {

    \_id: ObjectId("636721fdb980ceb88cde46a8"),

    roll: 5,

    name: 'pravin',

    subject: 'cn',

    marks: 80

  },

  {

    \_id: ObjectId("63672163b980ceb88cde46a6"),

    roll: 3,

    name: 'ravi',

    subject: 'dsa',

    marks: 69

  },

  {

    \_id: ObjectId("63672188b980ceb88cde46a7"),

    roll: 4,

    name: 'veena',

    subject: 'oop',

    marks: 70

  }

]

MongoDB02> db.student.find().sort({name:-1})       **//sort name in descending order**

[

  {

    \_id: ObjectId("63672188b980ceb88cde46a7"),

    roll: 4,

    name: 'veena',

    subject: 'oop',

    marks: 70

  },

  {

    \_id: ObjectId("63672163b980ceb88cde46a6"),

    roll: 3,

    name: 'ravi',

    subject: 'dsa',

    marks: 69

  },

  {

    \_id: ObjectId("636721fdb980ceb88cde46a8"),

    roll: 5,

    name: 'pravin',

    subject: 'cn',

    marks: 80

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  },

  {

    \_id: ObjectId("6367220fb980ceb88cde46a9"),

    roll: 6,

    name: 'geeta',

    subject: 'cn',

    marks: 90

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  }

]

MongoDB02> db.student.ensureIndex({roll:1},{unique:true})          **//rollNo as primary key**

[ 'roll\_1' ]

MongoDB02> db.student.getIndexes()                   **//show indexes**

[

  { v: 2, key: { \_id: 1 }, name: '\_id\_' },

  { v: 2, key: { name: 1 }, name: 'name\_1' },

  { v: 2, key: { roll: 1 }, name: 'roll\_1', unique: true }

]

MongoDB02> db.student.find().sort({roll:-1})    **// sort rollNo in descending order**

[

  {

    \_id: ObjectId("6367220fb980ceb88cde46a9"),

    roll: 6,

    name: 'geeta',

    subject: 'cn',

    marks: 90

  },

  {

    \_id: ObjectId("63672163b980ceb88cde46a6"),

    roll: 3,

    name: 'ravi',

    subject: 'dsa',

    marks: 69

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  }

]

MongoDB02> db.student.find().sort({roll:1})   **// sort rollNo in ascending order**

[

  {

    \_id: ObjectId("63672096b980ceb88cde46a4"),

    roll: 1,

    name: 'navin',

    subject: 'oop',

    marks: 78

  },

  {

    \_id: ObjectId("63672096b980ceb88cde46a5"),

    roll: 2,

    name: 'anusha',

    subject: 'dsa',

    marks: 75

  },

{    \_id: ObjectId("636721fdb980ceb88cde46a8"),

    roll: 5,

    name: 'pravin',

    subject: 'cn',

    marks: 80

  },

  {

    \_id: ObjectId("6367220fb980ceb88cde46a9"),

    roll: 6,

    name: 'geeta',

    subject: 'cn',

    marks: 90

  }

]

MongoDB02> db.student.insertOne({roll:6,name:"geeta",subject:"cn",marks:90})

MongoServerError: E11000 duplicate key error collection: MongoDB02.student index: roll\_1 dup key: { roll: 6 }

MongoDB02>          **//aggregate functions**

MongoDB02> db.student.aggregate([{$group:{\_id:"$subject",marks:{$min:"$marks"}}}])

[

  { \_id: 'cn', marks: 80 },                                  **//min**

  { \_id: 'dsa', marks: 69 },

  { \_id: 'oop', marks: 70 }

]

MongoDB02> db.student.aggregate([{$group:{\_id:"$subject",marks:{$max:"$marks"}}}])

[

  { \_id: 'oop', marks: 78 },                          **//max**

  { \_id: 'dsa', marks: 75 },

  { \_id: 'cn', marks: 90 }

]

MongoDB02> db.student.aggregate([{$group:{\_id:"$subject",count:{$sum:1}}}])

[

  { \_id: 'cn', count: 2 },            **//count**

  { \_id: 'oop', count: 2 },

  { \_id: 'dsa', count: 2 }

]

MongoDB02> exit

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