

```
db.users.find().pretty()

// project
db.users.find(
  {},
  {"courses.courseName":1,_id:0}
)

// project single element from array
// $elemMatch
db.users.find(
  {},
  { courses: { $elemMatch: { completed: true } }, _id: 0 }
)

db.users.find({
  courses: {
    $elemMatch: {
      courseName: "MongoDB",
      completed: true
    }
  }
});

// $elemMatch is used to match elements in array

// if we want subfield in array
// ex: "address.coordinates.0"

// in $and and $or we can use any number of conditions
db.users.find({
  isActive: true,
  $or: [
    { cgpa: { $gt: 9 } },
    { "extraInfo.scholarship": true },
    { age: { $lt: 20 } }
  ]
});

// $in --> matches any one
db.users.find({
  coCurricular: { $in: ["sports", "ncc", "coding"] }
})

db.users.find({
  "address.city": { $in: ["Bangalore", "Mysore", "Delhi"] }
})

// $nin
db.users.find({
  "address.city": { $nin: ["Bangalore", "Mysore"] }
})
```

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  })

  // $exists
  // finds document where scholarship field exists
  db.users.find({
    "extraInfo.scholarship": { $exists: true }
  })

  // coCurricular: ["sports", "ncc", "coding", "music"]

  // courses: [
  //   { courseId: "C101", courseName: "MongoDB", completed: true, score: 90 },
  //   { courseId: "C102", courseName: "Python", completed: false, score: 85 }
  // ]

  // $all --> means must contain everything
  db.users.find({
    coCurricular: { $all: ["sports", "coding"] } // order doesnt matter, extra
    elements allowed
  })

  // array
  // $push
  // add element(duplicates allowed)
  db.users.updateOne(
    { userId: "U1001" },
    { $push: { coCurricular: "dance" } }
  ) // adds at end

  // we can add multiple values using $each
  db.users.updateOne(
    { userId: "U1001" },
    { $push: { coCurricular: { $each: ["art", "sleep"] } } }
  );

  // $addToSet --> same as push but add only if not present
  // { multiple values
  // $addToSet: {
  //   coCurricular: { $each: ["sports", "dance"] }
  // }
  // }

  // $pop : remove by position
  //remove last element
  { $pop: { coCurricular: 1 } }
  // remove first element
  { $pop: { coCurricular: -1 } }

  // $pull --> remove by value (or remove by condition)
  { $pull: { coCurricular: "ncc" } }

  // remove multiple values
  { $pull: { coCurricular: { $in: ["sports", "music"] } } }
```

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// $pullAll --> remove exact list
{ $pullAll: { coCurricular: ["sports", "music"] } }

// $elemMatch
// used to ensure same object
db.users.find({
  courses: {
    $elemMatch: {
      courseName: "MongoDB",
      completed: true
    }
  }
})

// updateOne , we can update multiple fields with one updateOne
db.users.updateOne(
  { userId: "U1001" },
  {
    $set: {
      cgpa: 9.1,
      isActive: false,
      age: 22
    }
  }
)

// update a sub-sub field inside array object
// courses: [
//   { courseName: "MongoDB", completed: false, score: 90 }
// ]

// update first matched element -- positional $
db.users.updateOne(
  { "courses.courseName": "MongoDB" },
  { $set: { "courses.$.completed": true } }
)

// update element at start of array
// $push +$position
db.users.updateOne(
  { userId: "U1001" },
  {
    $push: { // push is for default end , $position is for index
      coCurricular: {
        $each: ["yoga"], // we can multiple also here
        $position: 0
      }
    }
  }
)

// upsert -- update+insert
// If document exists → update
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```
// If document does NOT exist → insert new document
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```
// regex
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```
{  
  $or: [  
    { name: { $regex: "^A" } },  
    { name: { $regex: "^T" } }  
  ]  
}
```

```
// name doesnot start with T
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```
db.users.find(  
  name: { $not: { $regex: "^T" } }  
)
```