

● ARRAYS IN MONGODB (COMPLETE MASTER GUIDE)

Arrays are one of the **biggest strengths** of MongoDB.

◆ 1. What is an Array in MongoDB?

An array stores **multiple values in a single field**.

```
skills: ["Java", "MongoDB", "Python"]
```

✓ No extra table

✓ No joins

✓ Faster reads

◆ 2. Insert document with array

```
db.students.insertOne({  
  name: "Ganesh",  
  skills: ["Java", "MongoDB"],  
  marks: [80, 85, 90]  
})
```

◆ 3. Read documents with arrays

Find all students

```
db.students.find()
```

◆ 4. Match array element (MOST IMPORTANT)

Situation:

👉 “Students who know MongoDB”

```
db.students.find({ skills: "MongoDB" })
```

💡 MongoDB automatically searches inside the array.

◆ 5. Match multiple array values (\$all)

Situation:

👉 “Students who know BOTH Java AND MongoDB”

```
db.students.find({
  skills: { $all: ["Java", "MongoDB"] }
})
```

◆ 6. Match any one value (\$in)

```
db.students.find({
  skills: { $in: ["Python", "C++"] }
})
```

◆ 7. Array length (\$size)

Situation:

👉 “Students with exactly 2 skills”

```
db.students.find({
  skills: { $size: 2 }
})
```

⚠️ \$size works **only with exact number**

◆ 8. Arrays of numbers

```
db.students.find({
  marks: { $gt: 85 }
})
```

✓ Checks if **any element** satisfies condition

◆ 9. Update arrays (VERY IMPORTANT)

➤ **Add element to array (\$push)**

```
db.students.updateOne(
  { name: "Ganesh" },
```

```
{ $push: { skills: "NodeJS" } }  
)
```

➤ Add multiple elements (\$each)

```
db.students.updateOne(  
  { name: "Ganesh" },  
  { $push: { skills: { $each: ["React", "Express"] } } }  
)
```

➤ Avoid duplicates (\$addToSet) ★

```
db.students.updateOne(  
  { name: "Ganesh" },  
  { $addToSet: { skills: "MongoDB" } }  
)
```

✓ Adds only if not already present

◆ 10. Remove array elements

➤ Remove specific value (\$pull)

```
db.students.updateOne(  
  { name: "Ganesh" },  
  { $pull: { skills: "React" } }  
)
```

➤ Remove all matching condition

```
db.students.updateMany(  
  {},  
  { $pull: { marks: { $lt: 80 } } }  
)
```

◆ 11. Update by array index

```
db.students.updateOne(  
  { name: "Ganesh" },  
  { $set: { "skills.0": "Core Java" } }  
)
```

Index starts from 0.

◆ 12. Array of objects (REAL WORLD 🔥)

```
db.students.insertOne({  
  name: "Tarun",  
  courses: [  
    { name: "MongoDB", duration: 30 },  
    { name: "NodeJS", duration: 25 }  
  ]  
})
```

◆ 13. Query array of objects (\$elemMatch) ★

Situation:

👉 “Students who have MongoDB course with duration > 20”

```
db.students.find({  
  courses: {  
    $elemMatch: {  
      name: "MongoDB",  
      duration: { $gt: 20 }  
    }  
  }  
})
```

◆ 14. Update array of objects

Increase duration of MongoDB course

```
db.students.updateOne(  
  { "courses.name": "MongoDB" },  
  { $inc: { "courses.$.duration": 5 } }  
)
```

\$ = matched array element

◆ 15. Delete array completely

```
db.students.updateOne(  
  { name: "Ganesh" },  
  { $unset: { skills: "" } }  
)
```

ARRAY GOLDEN RULES (MEMORIZE)

Array search → direct value

Add value → \$push / \$addToSet

Remove value → \$pull

Array of objects → \$elemMatch

Index starts at 0