

## ● ARRAYS IN MONGODB (COMPLETE MASTER GUIDE)

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

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### ◆ 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]  
})
```

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### ◆ 3. Read documents with arrays

**Find all students**

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

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### ◆ 4. Match array element (MOST IMPORTANT)

**Situation:**

👉 “Students who know MongoDB”

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

🧠 MongoDB automatically searches inside the array.

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### ◆ 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**

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◆ **8. Arrays of numbers**

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

✓ Checks if **any element** satisfies condition

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◆ **9. Update arrays (VERY IMPORTANT)**

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► **Add element to array (\$push)**

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

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

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#### ► Add multiple elements (\$each)

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

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#### ► Avoid duplicates (\$addToSet) ★

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

✓ Adds only if not already present

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### ◆ 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.

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◆ **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
```

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### ◆ 15. Delete array completely

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

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### ARRAY GOLDEN RULES (MEMORIZE)

Array search → direct value

Add value → \$push / \$addToSet

Remove value → \$pull

Array of objects → \$elemMatch

Index starts at 0