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Mongo DB Relationship

MongoDB can model various types of data relationships. The two main approaches are embedding (store related data inside the same document) and referencing (store references to related data in different documents). Here’s how you can implement one-to-one, one-to-many, many-to-one, and many-to-many relationships using both strategies.

1. One-to-One Relationships

A one-to-one relationship means each document in one collection is related to one document in another collection.

a. Embedding

{

\_id: ObjectId("..."),

username: "johndoe",

profile: {

bio: "Developer",

birthday: "1990-01-01"

}

}

b. Referencing

{

\_id: ObjectId("userId123"),

username: "johndoe",

profile\_id: ObjectId("profileId456")

}

{

\_id: ObjectId("profileId456"),

bio: "Developer",

birthday: "1990-01-01"

}

2. One-to-Many Relationships

One-to-many means one document relates to multiple documents in another collection.

a. Embedding

{

\_id: ObjectId("postId1"),

title: "Post Title",

comments: [

{ author: "Alice", text: "Great post!" },

{ author: "Bob", text: "Thanks for sharing." }

]

}

b. Referencing

{

\_id: ObjectId("postId1"),

title: "Post Title",

*// Array of comment IDs*

comment\_ids: [ObjectId("cmtId1"), ObjectId("cmtId2")]

}

{ \_id: ObjectId("cmtId1"), post\_id: ObjectId("postId1"), author: "Alice", text: "Great post!" }

{ \_id: ObjectId("cmtId2"), post\_id: ObjectId("postId1"), author: "Bob", text: "Thanks for sharing." }

3. Many-to-One Relationships

This is essentially the reverse of one-to-many: Many documents point to one document.

**Referencing Example (Common Pattern):**

{

\_id: ObjectId("orderId1"),

item: "Book",

customer\_id: ObjectId("custId1")

}

{

\_id: ObjectId("orderId2"),

item: "Pen",

customer\_id: ObjectId("custId1")

}

{

\_id: ObjectId("custId1"),

name: "Jane Doe"

}

4. Many-to-Many Relationships

Each document in one collection relates to multiple documents in another—used in scenarios like students and courses.

a. Referencing (Using Arrays of IDs)

javascript

{

\_id: ObjectId("studentId1"),

name: "Alice",

courses: [ObjectId("courseId1"), ObjectId("courseId2")]

}

{

\_id: ObjectId("courseId1"),

name: "Math",

students: [ObjectId("studentId1"), ObjectId("studentId3")]

}

b. Embedding (Less Common)

For very small related sets, you might embed:

{

\_id: ObjectId("courseId1"),

name: "Math",

students: [

{ student\_id: ObjectId("studentId1"), name: "Alice" },

{ student\_id: ObjectId("studentId3"), name: "Eve" }

]

}