
▮ MongoDB Schema & Relationships Exercise Set

▮ Section 1: Working with Schemas & Data Types

1▮ Create a database named `trainingdb` 2▮ Create a collection `employees` with documents that include:

- `name` (string)
- `age` (number)
- `isManager` (boolean)
- `skills` (array of strings)
- `joiningDate` (date)
- `profile` (sub-document with `linkedin` and `portfolio`)

3▮ Insert 4 employees with varying skill sets and joining dates

4▮ Query all employees who:

- Have more than 2 skills
- Joined after a specific date

5▮ Add a new field `rating` (float) to one employee 6▮ Find all employees with `rating` field of type double 7▮ Exclude the `_id` field in a query result and show only `name` and `skills`

▮ Section 2: One-to-One (Embedded)

1▮ Create a database `schooldb` 2▮ In the `students` collection, insert 3 student documents with:

- Embedded `guardian` sub-document (`name` , `phone` , `relation`)

3▮ Query students where the guardian is their "Mother"

4▮ Update the guardian's phone number for a specific student

▮ Section 3: One-to-Many (Embedded)

1▮ In the same `schooldb` , create a `teachers` collection 2▮ Insert documents where each teacher has an embedded array of `classes` they teach (e.g., `["Math", "Physics"]`)

3▮ Query teachers who teach "Physics"

4▮ Add a new class "Robotics" to a specific teacher's `classes` array

5▮ Remove "Math" from one teacher's class list

▮ Section 4: One-to-Many (Referenced)

1▮ Create a database `academia` 2▮ Insert documents into `courses` with fields:

- `_id`
- `title`
- `credits`

3▮ Insert documents into `students` with fields:

- `name`
- `enrolledCourse` (store `ObjectId` reference to a course)

4▯ Query students who are enrolled in a specific course (by `ObjectId`)

5▯ Query the course details separately using the referenced `_id`

▯ **Section 5: \$lookup (Join in Aggregation)**

1▯ Use the `academia` database 2▯ Use `$lookup` to join `students` with `courses` based on `enrolledCourse`

3▯ Show only `student name` , and `course title` in the output using `$project`

4▯ Add a `$match` after `$lookup` to get only students enrolled in "Machine Learning" course
