**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