Day 3 task

1.create 3 tables named student,department,year :-

-- Create the students table

```
CREATE TABLE students (
    student_id INT PRIMARY KEY,
    student_name VARCHAR(50),
    department_id INT,
    year_id INT,
    FOREIGN KEY (department_id) REFERENCES department(department_id),
    FOREIGN KEY (year_id) REFERENCES year(year_id)
);


-- Insert values into the students table
INSERT INTO students (student_id, student_name, department_id, year_id)
VALUES
(1, 'John Doe', 1, 1),
(2, 'Jane Smith', 2, 1),
(3, 'Bob Johnson', 1, 2),
(4, 'Alice Williams', 3, 2),
(5, 'Emily Brown', 2, 3);


-- Display the inserted data
SELECT * FROM students;
```

Student_id	Student_name	Department_id	Year_id
1	John doe	1	1
2	Jane smith	2	1
3	Bob johnson	1	2
4	Alica williams	3	2
5	Emily brown	2	3

-- Create the department table

```
CREATE TABLE department (
    department_id INT PRIMARY KEY,
```

```
    department_name VARCHAR(50)
);
-- Insert values into the department table
INSERT INTO department (department_id, department_name)
VALUES
(1, 'Computer Science'),
(2, 'Electrical Engineering'),
(3, 'Mechanical Engineering');
-- Display the inserted data in tabular form
SELECT * FROM department;
```

Department_id	Department_name
1	Computer science engineering
2	Electrical engineering
3	Mechanical engineering

-- Create the year table

```
CREATE TABLE year (
    year_id INT PRIMARY KEY,
    year_name VARCHAR(10)
);
-- Insert values into the year table
INSERT INTO year (year_id, year_name)
VALUES
(1, 'Freshman'),
(2, 'Sophomore'),
(3, 'Junior'),
(4, 'Senior');
-- Display the inserted data in tabular form
SELECT * FROM year;
```

Year_id	Year_name
1	freshman
2	sophomore
3	Junior
4	senior

2. To convert the provided SQL code into MongoDB, which is a NoSQL database, you'll need to translate the SQL schema and operations into MongoDB's document-based structure and query language. MongoDB uses collections to store documents (equivalent to tables in SQL)

SQL commands into MongoDB:

1. **Create the students collection**:

```
// Create the students collection

db.createCollection("students");


// Insert documents into the students collection

db.students.insertMany([

  { student_id: 1, student_name: "John Doe", department_id: 1, year_id: 1 },

  { student_id: 2, student_name: "Jane Smith", department_id: 2, year_id: 1 },

  { student_id: 3, student_name: "Bob Johnson", department_id: 1, year_id: 2 },

  { student_id: 4, student_name: "Alice Williams", department_id: 3, year_id: 2 },

  { student_id: 5, student_name: "Emily Brown", department_id: 2, year_id: 3 }

]);


// Display the inserted documents

db.students.find();
```

1. **Create the department collection**:

```
// Create the department collection

db.createCollection("department");


// Insert documents into the department collection

db.department.insertMany([

  { department_id: 1, department_name: "Computer Science" },

  { department_id: 2, department_name: "Electrical Engineering" },

  { department_id: 3, department_name: "Mechanical Engineering" }

]);


// Display the inserted documents
```

```
db.department.find();
```

1. **Create the year collection**:

```
// Create the year collection

db.createCollection("year");


// Insert documents into the year collection

db.year.insertMany([

  { year_id: 1, year_name: "Freshman" },

  { year_id: 2, year_name: "Sophomore" },

  { year_id: 3, year_name: "Junior" },

  { year_id: 4, year_name: "Senior" }

]);


// Display the inserted documents

db.year.find();
```

query:-

5.write a query to display student from cse department?

SELECT * FROM students WHERE department = 'CSE';

Student_id	Student_name	Department_id	Year_id
1	John doe	1	1
3	Bob johnson	1	2

6.write a query to display only department name using student table

CREATE TABLE department_names AS

SELECT DISTINCT department

FROM students;

Student_id	Student_name	Department_name	
1	John doe	Computer science engineering	
2	Jane smith	Electrical engineering	
3	Bob johnson	Computer science engineering	
4	Alica williams	Mechanical engineering	
5	Emily brown	Electrical engineering	

7.write a query to display students sorted by departments

SELECT *

FROM students

ORDER BY department;

Student_id	Student_name	Department_name
1	John doe	Computer science engineering
3	Bob johnson	Computer science engineering
2	Jane smith	Electrical engineering
5	Emily brown	Electrical engineering
4	Alica williams	Mechanical engineering

7.1.write a query to display students sorted by student name

SELECT *

FROM students

ORDER BY name;

Student_id	Student_name	Department_id	Year_id
4	Alica williams	3	2
3	Bob johnson	1	2
5	Emily brown	2	3
1	John doe	1	1
1	John doe	1	1