TASK3

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**1.Create the students table with relationships to both department and year**

**&**

**2)student should contain relationship to both department and year**

CREATE TABLE students (

s\_id INT AUTO\_INCREMENT PRIMARY KEY,

s\_name VARCHAR(50),

d\_name VARCHAR(50),

y\_id INT,

FOREIGN KEY (d\_name) REFERENCES department(d\_name),

FOREIGN KEY (y\_id) REFERENCES year(y\_id)

);

CREATE TABLE department (

d\_name VARCHAR(50) PRIMARY KEY,

d\_id INT

);

CREATE TABLE year (

y\_id INT AUTO\_INCREMENT PRIMARY KEY,

y\_name VARCHAR(20)

);

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**4)store 5 students for each department:**

INSERT INTO students (s\_id, s\_name, d\_name, y\_id)

VALUES

(1, 'John Doe', 'cse', 1),

(2, 'Jane Smith', 'cse', 1),

(3, 'Michael Johnson', 'cse', 2),

(4, 'Emily Davis', 'cse', 2),

(5, 'David Brown', 'cse', 3);

INSERT INTO students (s\_id, s\_name, d\_name, y\_id)

VALUES

(6, 'Sarah Wilson', 'Ece', 1),

(7, 'Daniel Martinez', 'Ece', 1),

(8, 'Jessica Anderson', 'Ece', 2),

(9, 'Christopher Taylor', 'Ece', 2),

(10, 'Ashley Thomas', 'Ece', 3);

select \*from students;

INSERT INTO students (s\_id, s\_name, d\_name, y\_id)

VALUES

(11, 'Matthew Lee', 'Civil', 1),

(12, 'Amanda White', 'Civil', 1),

(13, 'Ryan Garcia', 'Civil', 2),

(14, 'Brittany Hall', "Civil", 2),

(15, 'Olivia Clark', 'Civil', 3);

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INSERT INTO students (s\_id, s\_name, d\_name, y\_id)

VALUES

(16, 'Nicholas Perez', 'Mech', 1),

(17, 'Kayla Hernandez', 'Mech', 1),

(18, 'Justin Young', 'Mech', 2),

(19, 'Lauren King', 'Mech', 2),

(20, 'Brandon Wright', 'Mech', 3);

**5)write a query to display students from CSE department**

SELECT \*

FROM students

WHERE d\_name='cse';

**6)write a query to display only deptname using student table:**

SELECT DISTINCT d.dept\_name FROM students s JOIN department d ON s.dept\_id = d.dept\_id;

**7)Display students sorted by department and first name:**

SELECT s.first\_name, s.last\_name, d.dept\_name FROM students s JOIN department d ON s.dept\_id = d.dept\_id ORDER BY d.dept\_name, s.first\_name;

**MongoDB**

// Collection for students

db.createCollection("students", {

validator: {

$jsonSchema: {

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bsonType: "object",

required: ["s\_name", "d\_name", "y\_id"],

properties: {

s\_id: {

bsonType: "int"

},

s\_name: {

bsonType: "string"

},

d\_name: {

bsonType: "string"

},

y\_id: {

bsonType: "int"

}

}

}

}

})

// Collection for departments

db.createCollection("departments", {

validator: {

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$jsonSchema: {

bsonType: "object",

required: ["d\_name"],

properties: {

d\_name: {

bsonType: "string"

},

d\_id: {

bsonType: "int"

}

}

}

}

})

// Collection for years

db.createCollection("years", {

validator: {

$jsonSchema: {

bsonType: "object",

required: ["y\_name"],

properties: {

y\_id: {

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bsonType: "int"

},

y\_name: {

bsonType: "string"

}

}

}

}

})

Data Insertion:

// Inserting data into students collection

db.students.insertMany([

{ s\_id: 1, s\_name: "John Doe", d\_name: "cse", y\_id: 1 },

{ s\_id: 2, s\_name: "Jane Smith", d\_name: "cse", y\_id: 1 },

// Insert data for other departments similarly

]);

// Inserting data into departments collection

db.departments.insertMany([

{ d\_name: "cse", d\_id: 1 },

// Insert data for other departments similarly

]);

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// Inserting data into years collection

db.years.insertMany([

{ y\_id: 1, y\_name: "First Year" },

// Insert data for other years similarly

]);

Query

// Query to find students in the 'cse' department

db.students.find({ d\_name: "cse" });

// Query to display only deptname using student table

db.students.aggregate([

{

$lookup: {

from: "departments",

localField: "d\_name",

foreignField: "d\_name",

as: "department"

}

},

{

$unwind: "$department"

},

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{

$group: {

\_id: "$department.d\_name"

}

}

]);

// Display students sorted by department and first name:

db.students.aggregate([

{

$lookup: {

from: "departments",

localField: "d\_name",

foreignField: "d\_name",

as: "department"

}

},

{

$unwind: "$department"

},

{

$sort: {

"department.d\_name": 1,

"s\_name": 1

}

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},

{

$project: {

"first\_name": "$s\_name",

"last\_name": "$s\_last\_name",

"dept\_name": "$department.d\_name",

"\_id": 0

}

}

]);