# DAY -03 DBMS QUERIES AND MANGODB ASSIGNMENT:

**TABLE CREATIONS:**

**DEPARTMENT TABLE:**

mysql> create table department (dept_ id int auto_ increment primary key,dept_name varchar(30) NOT NULL);

```
mysql> desc department;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| dept_id   | int         | NO   | PRI | NULL    | auto_increment |
| dept_name | varchar(30) | NO   |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
2 rows in set (0.02 sec)
```

**YEAR TABLE:** mysql> create table year(std_id int auto_increment primary key,year

varchar(10) NOT NULL);

```
mysql> desc year;
+--------+-------------+------+-----+---------+----------------+
| Field  | Type        | Null | Key | Default | Extra          |
+--------+-------------+------+-----+---------+----------------+
| std_id | int         | NO   | PRI | NULL    | auto_increment |
| year   | varchar(10) | NO   |     | NULL    |                |
+--------+-------------+------+-----+---------+----------------+
2 rows in set (0.01 sec)
```

**STUDENT TABLE:**

mysql> create table student(std_id int auto_increment primary key,f_name varchar(30) NOT NULL,l_name varchar(30) NOT NULL,dept_id int,year int, FOREIGN KEY (dept_id) references department (dept_id) );

```
mysql> desc student;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| std_id  | int         | NO   | PRI | NULL    | auto_increment |
| f_name  | varchar(30) | NO   |     | NULL    |                |
| l_name  | varchar(30) | NO   |     | NULL    |                |
| dept_id | int         | YES  | MUL | NULL    |                |
| year    | int         | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
5 rows in set (0.01 sec)
```

**INSERTING VALUES TO DEPARTMENT TABLE:**

mysql> insert into department(dept_name)values ('CSE'),('IT'),('ECE'),('CE'),('ME');

```
mysql> select *from department;
+---------+-----------+
| dept_id | dept_name |
+---------+-----------+
|       1 | CSE       |
|       2 | IT        |
|       3 | ECE       |
|       4 | CE        |
|       5 | ME        |
+---------+-----------+
5 rows in set (0.01 sec)
```

**INSERTING VALUES TO YEAR TABLE:**

mysql> insert into year (year) values ('first'),('second'),('third'),('fourth');

```
mysql> select *from year;
+--------+--------+
| std_id | year   |
+--------+--------+
|      1 | first  |
|      2 | second |
|      3 | third  |
|      4 | fourth |
+--------+--------+
4 rows in set (0.00 sec)
```

**INSERTING VALUES TO STUDENTTABLE:**

mysql> insert into student (f_name, l_name, dept_id, year)
VALUES('shaik','siraj',1,1),('palakurla','sujith',1,2),('rapaka','anish',1,3),('pittala','saichandra',1,4),('motu','hemanth',2,1),('ch','akshith',2,2),('nanam','pranay',2,3),('raavi','sadvik',2,4),('megha','satya',3,1),('duddu','anil',3,2),('pisati','prathuysha',3,3),('sri','gayatri',3,4),('n','preethika',4,1),('kushi','verma',4,2),('k','ruchitha',4,3),('sri','vyshnavi',4,4),('andhe','vishnu',5,1),('s','nikitha',5,2),('t','manusha',5,3),('t','sravan',5,4);

```
mysql> select * from student;
+--------+-----------+------------+---------+------+
| std_id | f_name    | l_name     | dept_id | year |
+--------+-----------+------------+---------+------+
|      1 | shaik     | siraj      |       1 |    1 |
|      2 | palakurla | sujith     |       1 |    2 |
|      3 | rapaka    | anish      |       1 |    3 |
|      4 | pittala   | saichandra |       1 |    4 |
|      5 | motu      | hemanth    |       2 |    1 |
|      6 | ch        | akshith    |       2 |    2 |
|      7 | nanam     | pranay     |       2 |    3 |
|      8 | raavi     | sadvik     |       2 |    4 |
|      9 | megha     | satya      |       3 |    1 |
|     10 | duddu     | anil       |       3 |    2 |
|     11 | pisati    | prathuysha |       3 |    3 |
|     12 | sri       | gayatri    |       3 |    4 |
|     13 | n         | preethika  |       4 |    1 |
|     14 | kushi     | verma      |       4 |    2 |
|     15 | k         | ruchitha   |       4 |    3 |
|     16 | sri       | vyshnavi   |       4 |    4 |
|     17 | andhe     | vishnu     |       5 |    1 |
|     18 | s         | nikitha    |       5 |    2 |
|     19 | t         | manusha    |       5 |    3 |
|     20 | t         | sravan     |       5 |    4 |
+--------+-----------+------------+---------+------+
20 rows in set (0.00 sec)
```

# QUERIES:

**Display students from the CSE department:**

mysql> SELECT * FROM student WHERE dept_id = (SELECT dept_id FROM department WHERE dept_name='CSE');

```
mysql> SELECT * FROM student WHERE dept_id = (SELECT dept_id FROM department WHERE dept_name='CSE');
+--------+-----------+------------+---------+------+
| std_id | f_name    | l_name     | dept_id | year |
+--------+-----------+------------+---------+------+
|      1 | shaik     | siraj      |       1 |    1 |
|      2 | palakurla | sujith     |       1 |    2 |
|      3 | rapaka    | anish      |       1 |    3 |
|      4 | pittala   | saichandra |       1 |    4 |
+--------+-----------+------------+---------+------+
4 rows in set (0.01 sec)
```

**Display only dept_name using the students table:** mysql> SELECT DISTINCT d.dept_name from student s JOIN department d ON s.dept_id=d.dept_id;

```
mysql> SELECT DISTINCT d.dept_name from student s JOIN department d ON s.dept_id=d.dept_id;
+-----------+
| dept_name |
+-----------+
| CSE       |
| IT        |
| ECE       |
| CE        |
| ME        |
+-----------+
```

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

mysql> select s.f_name,s.l_name,d.dept_name from student s join department d on s.dept_id=d.dept_id order by d.dept_name,s.f_name;

```
mysql> select s.f_name,s.l_name,d.dept_name from student s join department d on s.dept_id=d.dept_id order by d.dept_name,s.f_name;
+-----------+------------+-----------+
| f_name    | l_name     | dept_name |
+-----------+------------+-----------+
| k         | ruchitha   | CE        |
| kushi     | verma      | CE        |
| n         | preethika  | CE        |
| sri       | vyshnavi   | CE        |
| palakurla | sujith     | CSE       |
| pittala   | saichandra | CSE       |
| rapaka    | anish      | CSE       |
| shaik     | siraj      | CSE       |
| duddu     | anil       | ECE       |
| megha     | satya      | ECE       |
| pisati    | prathuysha | ECE       |
| sri       | gayatri    | ECE       |
| ch        | akshith    | IT        |
| motu      | hemanth    | IT        |
| nanam     | pranay     | IT        |
| raavi     | sadvik     | IT        |
| andhe     | vishnu     | ME        |
| s         | nikitha    | ME        |
| t         | manusha    | ME        |
| t         | sravan     | ME        |
+-----------+------------+-----------+
20 rows in set (0.01 sec)
```

- # Translating MySQL to MongoDB
- CREATE TABLE department ( dept_id INT AUTO_INCREMENT PRIMARY KEY, dept_name VARCHAR(50) NOT NULL );
- CREATE TABLE year ( year_id INT AUTO_INCREMENT PRIMARY KEY, year_name VARCHAR(10) NOT NULL );
- CREATE TABLE students ( student_id INT AUTO_INCREMENT PRIMARY KEY, f irst_name VARCHAR(50) NOT NULL, last_name VARCHAR(50) NOT NULL, dept_id INT, year_id INT, FOREIGN KEY (dept_id) REFERENCES department(dept_id), FOREIGN KEY (year_id) REFERENCES year(year_id) );

To create a similar structure in MongoDB, you can embed the related documents or use references.

**1.Using Embedding (not the best for normalized data but can be simpler):**

{ "_id": ObjectId(),

"first_name": "Shaik",

"last_name": "siraj",

"department": {

"dept_id": 1,

"dept_name": "CSE"

},

"year": {

"year_id": 1,

"year_name": "First"

} }

**2.Using References (more similar to normalized SQL structure):**

Department Collection { "_id": ObjectId(),

"dept_id": 1,

"dept_name": "CSE"

}

Year Collection {

"_id": ObjectId(),

"year_id": 1,

"year_name": "First"

}

Students Collection {

"_id": ObjectId(),

"first_name": "shaik",

"last_name": "siraj",

"dept_id": 1,

"year_id": 1

}

**Insert 5 Students for Each Department**

This can be done similarly by inserting documents into the students collection with references to dept_id and year_id.

**MongoDB Queries**

**1.Display students from the CSE department:** db.students.find({ dept_id:

db.department.findOne({ dept_name: "CSE" }).dept_id });

**2.Display only dept_name using students table** db.students.aggregate([

{

$lookup: { from:

"department",

localField: "dept_id",

foreignField: "dept_id", as:

"department"

}

},

{ $unwind: "$department"

},

{

$group:

{ _id: "$department.dept_name"

}

},

{

$project: {

_id: 0,

dept_name: "$_id"

} } ]);

**3.Display students sorted by department and first name:**

```
db.students.aggregate([
{
 $lookup: {  from:
"department",
 localField: "dept_id",
foreignField: "dept_id",
as: "department"
 } },
 {
 $unwind: "$department"
},
{
 $sort: {
"department.dept_name": 1,
"first_name": 1
} },
 {
 $project: {
 _id: 0,
first_name: 1,
last_name: 1,
 dept_name: "$department.dept_name"
} } ]);
```