Today's task:

1)Create 3 tables named students,department,year

2)student should contain relationship to both department and year

3)use chatgpt and ask like "this is my table in mysql how can i create same in mongodb"

4)store 5 students for each department

5)write a query to display students from CSE department

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

7)write a query to display students sorted by dept and firstname

Solution:

mysql> create database College

   -> ;

Query OK, 1 row affected (0.01 sec)

mysql> show databases;

+--------------------+

| Database |

+--------------------+

| college |

| information_schema |

| mysql |

| performance_schema |

| sys |

| usha |

+--------------------+

6 rows in set (0.00 sec)

mysql> use college;

Database changed

mysql> create table year(yearid int primary key AUTO_INCREMENT,yearname varchar(33) not null);

Query OK, 0 rows affected (0.02 sec)

mysql> desc year;

```
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| yearid   | int         | NO   | PRI | NULL    | auto_increment |
| yearname | varchar(33) | NO   |     | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
```

2 rows in set (0.00 sec)

mysql> create table department(department_id int primary key auto_increment,department_name varcahr(22) not null);

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'varcahr(22) not null)' at line 1

mysql> create table department(department_id int primary key auto_increment,department_name varchar(22) not null);

Query OK, 0 rows affected (0.01 sec)

mysql> desc department;

```
+-----------------+-------------+------+-----+---------+----------------+
| Field           | Type        | Null | Key | Default | Extra          |
+-----------------+-------------+------+-----+---------+----------------+
| department_id   | int         | NO   | PRI | NULL    | auto_increment |
| department_name | varchar(22) | NO   |     | NULL    |                |
```

```
+----------------+------------+------+-----+---------+---------------+
```
2 rows in set (0.00 sec)

mysql>   create   table   student(student_id   int   primary   key auto_increment,student_name varchar(100) not null,department_id int,yearid int,foreign key(department_id) references department(department_id),foreign key (yearid) references year(yearid);

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '' at line 1

mysql> CREATE TABLE students (

    ->   student_id INT PRIMARY KEY AUTO_INCREMENT,

    ->   student_name VARCHAR(255) NOT NULL,

    ->   department_id INT,

    ->   yearid INT,

    ->   FOREIGN   KEY   (department_id)   REFERENCES department(department_id),

    ->   FOREIGN KEY (yearid) REFERENCES year(yearid)

    ->);
Query OK, 0 rows affected (0.02 sec)

mysql> show tables;
```
+-------------------+
```
| Tables_in_college |
```
+-------------------+
```
| department |
| students |
| year |
```
+-------------------+
```

3 rows in set (0.00 sec)

mysql> desc students;

Field	Type	Null	Key	Default	Extra
student_id	int	NO	PRI	NULL	auto_increment
student_name	varchar(255)	NO		NULL	
department_id	int	YES	MUL	NULL	
yearid	int	YES	MUL	NULL	

4 rows in set (0.00 sec)

mysql> INSERT INTO students (student_name, department_id, year_id) VALUES

    -> (101,'Alice', 1, 1),

    -> (102,'Bob', 1, 2),

    -> (103,'Charlie', 1, 3),

    -> (104,'David', 1, 4),

    -> (105,'Eve', 1, 1);

ERROR 1054 (42S22): Unknown column 'year_id' in 'field list'

mysql> INSERT INTO students (student_id,student_name, department_id, yearid) VALUES

    -> (101,'Alice', 1, 1),

    -> (102,'Bob', 1, 2),

    -> (103,'Charlie', 1, 3),

    -> (104,'David', 1, 4),

    -> (105,'Eve', 1, 1);

Query OK, 5 rows affected (0.01 sec)

Records: 5 Duplicates: 0 Warnings: 0

mysql> select * from students;

+------------+--------------+---------------+--------+
| student_id | student_name | department_id | yearid |
+------------+--------------+---------------+--------+
101	Alice	1	1
102	Bob	1	2
103	Charlie	1	3
104	David	1	4
105	Eve	1	1
+------------+--------------+---------------+--------+
5 rows in set (0.00 sec)

mysql> INSERT INTO students (student_id,student_name, department_id, yearid) VALUES
    -> (106,'Frank', 2, 2),
    -> (107,'Grace', 2, 3),
    -> (108,'Heidi', 2, 4),
    -> (109,'Ivan', 2, 1),
    -> (110,'Judy', 2, 2);
Query OK, 5 rows affected (0.00 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> select * from students;

+------------+--------------+---------------+--------+
| student_id | student_name | department_id | yearid |
+------------+--------------+---------------+--------+

101	Alice	1	1
102	Bob	1	2
103	Charlie	1	3
104	David	1	4
105	Eve	1	1
106	Frank	2	2
107	Grace	2	3
108	Heidi	2	4
109	Ivan	2	1
110	Judy	2	2
+------------+--------------+---------------+--------+

10 rows in set (0.00 sec)

mysql> INSERT INTO students (student_id,student_name, department_id, yearid) VALUES

    -> (111,'Mallory', 3, 3),

    -> (112,'Niaj', 3, 4),

    -> (113,'Oscar', 3, 1),

    -> (114,'Peggy', 3, 2),

    -> (115,'Sybil', 3, 3);

Query OK, 5 rows affected (0.00 sec)

Records: 5 Duplicates: 0 Warnings: 0

mysql> select * from students;

+------------+--------------+---------------+--------+

| student_id | student_name | department_id | yearid |

+------------+--------------+---------------+--------+

| 101 | Alice | 1 | 1 |

102	Bob	1	2
103	Charlie	1	3
104	David	1	4
105	Eve	1	1
106	Frank	2	2
107	Grace	2	3
108	Heidi	2	4
109	Ivan	2	1
110	Judy	2	2
111	Mallory	3	3
112	Niaj	3	4
113	Oscar	3	1
114	Peggy	3	2
115	Sybil	3	3
+------------+--------------+---------------+--------+
15 rows in set (0.00 sec)

mysql> desc department;
+-----------------+-------------+------+-----+---------+----------------+
| Field | Type | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+----------------+
| department_id | int | NO | PRI | NULL | auto_increment |
| department_name | varchar(22) | NO | | NULL | |
+-----------------+-------------+------+-----+---------+----------------+
2 rows in set (0.00 sec)

mysql> INSERT INTO department VALUES

```
    -> (1,'Computer Science'),
    -> (2,'Mathematics'),
    -> (3,'Physics');
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0


mysql> select * from department;
+---------------+-----------------+
| department_id | department_name |
+---------------+-----------------+
|             1 | Computer Science |
|             2 | Mathematics     |
|             3 | Physics         |
+---------------+-----------------+
3 rows in set (0.00 sec)


mysql> desc year;
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| yearid   | int         | NO   | PRI | NULL    | auto_increment |
| yearname | varchar(33) | NO   |     | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
2 rows in set (0.00 sec)


mysql> INSERT INTO year VALUES
    -> (1,'Freshman'),
```

```
    -> (2,'Second year'),
    -> (3,'third year'),
    -> (4,'fianl year');
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0
mysql> desc students;
+---------------+--------------+------+-----+---------+----------------+
| Field         | Type         | Null | Key | Default | Extra          |
+---------------+--------------+------+-----+---------+----------------+
| student_id    | int          | NO   | PRI | NULL    | auto_increment |
| student_name  | varchar(255) | NO   |     | NULL    |                |
| department_id | int          | YES  | MUL | NULL    |                |
| yearid        | int          | YES  | MUL | NULL    |                |
+---------------+--------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
mysql> SELECT s.student_id, s.student_name, d.department_name
    -> FROM students s
    -> JOIN department d ON s.department_id = d.department_id
    -> WHERE d.department_name = 'Computer Science';
+------------+--------------+------------------+
| student_id | student_name | department_name  |
+------------+--------------+------------------+
|        101 | Alice        | Computer Science |
|        102 | Bob          | Computer Science |
|        103 | Charlie      | Computer Science |
|        104 | David        | Computer Science |
|        105 | Eve          | Computer Science |
```

```
+------------+-------------+-----------------+
```
5 rows in set (0.00 sec)

mysql> SELECT DISTINCT d.department_name
    -> FROM students s
    -> JOIN department d ON s.department_id = d.department_id;
```
+-----------------+
| department_name |
+-----------------+
| Computer Science |
| Mathematics      |
| Physics          |
+-----------------+
```
3 rows in set (0.00 sec)

mysql> ALTER TABLE students
    -> ADD COLUMN firstname VARCHAR(255);
Query OK, 15 rows affected (0.04 sec)
Records: 15 Duplicates: 0 Warnings: 0
mysql> desc students;
```
+---------------+--------------+------+-----+---------+----------------+
| Field         | Type         | Null | Key | Default | Extra          |
+---------------+--------------+------+-----+---------+----------------+
| student_id    | int          | NO   | PRI | NULL    | auto_increment |
| student_name  | varchar(255) | NO   |     | NULL    |                |
| department_id | int          | YES  | MUL | NULL    |                |
| yearid        | int          | YES  | MUL | NULL    |                |
```

| firstname | varchar(255) | YES | | NULL | |

+--------------+--------------+------+-----+---------+---------------+

5 rows in set (0.00 sec)

mysql> UPDATE students

   -> SET firstname='aaa'

   -> WHERE student_id = 101;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE students

   -> SET firstname='bbb'

   -> WHERE student_id = 102;

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE students

   -> SET firstname='ccc'

   -> WHERE student_id = 103;

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE students

   -> SET firstname='ddd'

   -> WHERE student_id = 104;

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> select * from students;
+------------+--------------+---------------+--------+-----------+
| student_id | student_name | department_id | yearid | firstname |
+------------+--------------+---------------+--------+-----------+
|        101 | Alice        |             1 |      1 | aaa       |
|        102 | Bob          |             1 |      2 | bbb       |
|        103 | Charlie      |             1 |      3 | ccc       |
|        104 | David        |             1 |      4 | ddd       |
|        105 | Eve          |             1 |      1 | NULL      |
|        106 | Frank        |             2 |      2 | NULL      |
|        107 | Grace        |             2 |      3 | NULL      |
|        108 | Heidi        |             2 |      4 | NULL      |
|        109 | Ivan         |             2 |      1 | NULL      |
|        110 | Judy         |             2 |      2 | NULL      |
|        111 | Mallory      |             3 |      3 | NULL      |
|        112 | Niaj         |             3 |      4 | NULL      |
|        113 | Oscar        |             3 |      1 | NULL      |
|        114 | Peggy        |             3 |      2 | NULL      |
|        115 | Sybil        |             3 |      3 | NULL      |
+------------+--------------+---------------+--------+-----------+
15 rows in set (0.00 sec)
mysql> SELECT s.student_id, s.student_name, d.department_name, y.yearname
    -> FROM students s
    -> JOIN department d ON s.department_id = d.department_id
    -> JOIN year y ON s.yearid = y.yearid
    -> ORDER BY d.department_name, s.student_name;
```

```
+------------+--------------+-----------------+-------------+
| student_id | student_name | department_name | yearname    |
+------------+--------------+-----------------+-------------+
|        101 | Alice        | Computer Science | Freshman    |
|        102 | Bob          | Computer Science | Second year |
|        103 | Charlie      | Computer Science | third year  |
|        104 | David        | Computer Science | fianl year  |
|        105 | Eve          | Computer Science | Freshman    |
|        106 | Frank        | Mathematics     | Second year |
|        107 | Grace        | Mathematics     | third year  |
|        108 | Heidi        | Mathematics     | fianl year  |
|        109 | Ivan         | Mathematics     | Freshman    |
|        110 | Judy         | Mathematics     | Second year |
|        111 | Mallory      | Physics         | third year  |
|        112 | Niaj         | Physics         | fianl year  |
|        113 | Oscar        | Physics         | Freshman    |
|        114 | Peggy        | Physics         | Second year |
|        115 | Sybil        | Physics         | third year  |
+------------+--------------+-----------------+-------------+
15 rows in set (0.01 sec)
```