

# Assignment-4

## DBMS LAB

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### Question1:

```
create table student(  
roll_no int,  
first_name varchar(255),  
grades varchar(5));
```

a) *Make roll no as primary key.*

```
alter table student  
add primary key (roll_no);
```

```
MySQL localhost:3306 ssl institute SQL > alter table student  
-> add primary key (roll_no);  
Query OK, 0 rows affected (0.0260 sec)  
  
Records: 0 Duplicates: 0 Warnings: 0  
MySQL localhost:3306 ssl institute SQL > describe student;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| roll_no    | int           | NO   | PRI | NULL    |      |  
| first_name | varchar(255)  | YES  |     | NULL    |      |  
| grades     | varchar(5)    | YES  |     | NULL    |      |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.0029 sec)
```

b) *Add column phone number.*

```
ALTER TABLE student  
ADD phone_number varchar(15)
```

```
MySQL localhost:3306 ssl institute SQL > alter table student
-> add phone_number varchar(15);
Query OK, 0 rows affected (0.0186 sec)
```

Records: 0 Duplicates: 0 Warnings: 0

```
MySQL localhost:3306 ssl institute SQL > describe student;
```

Field	Type	Null	Key	Default	Extra
roll_no	int	NO	PRI	NULL	
first_name	varchar(255)	YES		NULL	
grades	varchar(5)	YES		NULL	
phone_number	varchar(15)	YES		NULL	

4 rows in set (0.0009 sec)

c) Change primary key to phone\_number.

```
ALTER TABLE student
DROP PRIMARY KEY;
ALTER TABLE student
ADD PRIMARY KEY (phone_number);
```

```
MySQL localhost:3306 ssl institute SQL > alter table student
-> drop primary key;
Query OK, 0 rows affected (0.0370 sec)
```

Records: 0 Duplicates: 0 Warnings: 0

```
MySQL localhost:3306 ssl institute SQL > alter table student
-> add primary key (phone_number);
Query OK, 0 rows affected (0.0257 sec)
```

Records: 0 Duplicates: 0 Warnings: 0

```
MySQL localhost:3306 ssl institute SQL > describe student
-> ;
```

Field	Type	Null	Key	Default	Extra
roll_no	int	NO		NULL	
first_name	varchar(255)	YES		NULL	
grades	varchar(5)	YES		NULL	
phone_number	varchar(15)	NO	PRI	NULL	

4 rows in set (0.0025 sec)

d) Drop grades from Student

```
ALTER TABLE student
```

```
DROP grades;
```

```
MySQL localhost:3306 ssl institute SQL > alter table student  
-> drop grades;
```

```
Query OK, 0 rows affected (0.0228 sec)
```

```
Records: 0 Duplicates: 0 Warnings: 0
```

```
MySQL localhost:3306 ssl institute SQL > describe student;
```

Field	Type	Null	Key	Default	Extra
roll_no	int	NO		NULL	
first_name	varchar(255)	YES		NULL	
phone_number	varchar(15)	NO	PRI	NULL	

```
3 rows in set (0.0009 sec)
```

## Question 2.

a) *Select name of all instructors in Comp. Sci. or Physics department.*

METHOD 1

```
SELECT name  
FROM instructor  
WHERE dept_name IN ("Comp. Sci.", "Physics");
```

```

MySQL localhost:3306 ssl institute SQL > select name
-> from instructor
-> where dept_name in ("Comp. Sci.", "Physics");

+-----+
| name |
+-----+
| Einstein |
| Katz |
| Srinivasn |
| Brandt |
| Gold |
+-----+
5 rows in set (0.0005 sec)

MySQL localhost:3306 ssl institute SQL > select name
-> from instructor
-> where dept_name = "Comp. Sci." or dept_name = "Physics";

+-----+
| name |
+-----+
| Einstein |
| Katz |
| Srinivasn |
| Brandt |
| Gold |
+-----+

```

METHOD 2:

```

CREATE VIEW temp AS
SELECT name, dept_name
FROM instructor
WHERE dept_name IN ("Comp. Sci.", "Physics");
SELECT name FROM temp;
DROP VIEW temp;

```

```

MySQL localhost:3306 ssl institute SQL > create view temp as
    -> select name, dept_name
    -> from instructor
    -> where dept_name in ("Comp. Sci.", "Physics");
Query OK, 0 rows affected (0.0131 sec)
MySQL localhost:3306 ssl institute SQL > select * from temp;
+-----+-----+
| name   | dept_name |
+-----+-----+
| Einstein | Physics   |
| Katz     | Comp. Sci. |
| Srinivasn | Comp. Sci. |
| Brandt  | Comp. Sci. |
| Gold    | Physics   |
+-----+-----+
5 rows in set (0.0112 sec)
MySQL localhost:3306 ssl institute SQL > select name from temp;
+-----+
| name   |
+-----+
| Einstein |
| Katz     |
| Srinivasn |
| Brandt  |
| Gold    |
+-----+
5 rows in set (0.0005 sec)
MySQL localhost:3306 ssl institute SQL > drop view temp;
Query OK, 0 rows affected (0.0133 sec)

```

*b) Select distinct department from instructor*

```

SELECT DISTINCT dept_name
FROM department;

```

```

MySQL localhost:3306 ssl institute SQL > select distinct dept_name
    -> from department;
+-----+
| dept_name |
+-----+
| Comp. Sci |
| Biology   |
| Elec. Eng. |
| Music     |
| Finance   |
| History   |
| Physics   |
+-----+
7 rows in set (0.0497 sec)

```

c) Find name of all instructors in Comp. Sci. department with Salary greater than 70000.

```
SELECT name
FROM instructor
WHERE salary > 70000
AND dept_name = "Comp. Sci.";
```

```
MySQL localhost:3306 ssl institute SQL > select name
-> from instructor
-> where salary > 70000
-> and dept_name = "Comp. Sci.";

+-----+
| name |
+-----+
| Katz  |
| Brandt |
+-----+
2 rows in set (0.0006 sec)
```

d) Rename salary to monthly salary:

```
ALTER TABLE instructor
RENAME COLUMN
salary to monthly_sal;
```

```
MySQL localhost:3306 ssl institute SQL > alter table instructor
-> rename column
-> salary to monthly_sal;

Query OK, 0 rows affected (0.0222 sec)

Records: 0 Duplicates: 0 Warnings: 0

MySQL localhost:3306 ssl institute SQL > describe instructor;

+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id         | int           | YES  |     | NULL    |       |
| name       | varchar(100)  | YES  |     | NULL    |       |
| dept_name  | varchar(50)   | YES  |     | NULL    |       |
| monthly_sal | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0145 sec)
```

### Question 3.

a) Make course\_id as primary key in course table

```
ALTER TABLE course
```

```
ADD PRIMARY KEY (course_id);
```

```
MySQL localhost:3306 ssl institute SQL > alter table course
-> add primary key (course_id);
Query OK, 0 rows affected (0.0709 sec)

Records: 0 Duplicates: 0 Warnings: 0
MySQL localhost:3306 ssl institute SQL > describe course;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| course_id  | varchar(255)  | NO   | PRI | NULL    |       |
| title      | varchar(255)  | YES  |     | NULL    |       |
| dept_name  | varchar(255)  | YES  |     | NULL    |       |
| credits    | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0154 sec)
MySQL localhost:3306 ssl institute SQL >
```

b) *Make dept\_name as primary key in department table*

```
ALTER TABLE department
ADD PRIMARY KEY (dept_name);
```

```
MySQL localhost:3306 ssl institute SQL > describe department;
```

Field	Type	Null	Key	Default	Extra
dept_name	varchar(255)	YES		NULL	
building	varchar(255)	YES		NULL	
budget	int	YES		NULL	

```
3 rows in set (0.0113 sec)
MySQL localhost:3306 ssl institute SQL > alter table department
-> add primary key (dept_name);
Query OK, 0 rows affected (0.0646 sec)
Records: 0 Duplicates: 0 Warnings: 0
MySQL localhost:3306 ssl institute SQL > describe department;
```

Field	Type	Null	Key	Default	Extra
dept_name	varchar(255)	NO	PRI	NULL	
building	varchar(255)	YES		NULL	
budget	int	YES		NULL	

```
3 rows in set (0.0161 sec)
```

c) Create a foreign key (dept\_name) in course table referencing department(dept\_name)

```
ALTER TABLE course
ADD FOREIGN KEY (dept_name)
REFERENCES department (dept_name);
```

```
MySQL localhost:3306 ssl institute SQL > alter table course
-> add FOREIGN KEY (dept_name)
-> references department (dept_name);
Query OK, 13 rows affected (0.0759 sec)
Records: 13 Duplicates: 0 Warnings: 0
MySQL localhost:3306 ssl institute SQL > describe department;
```

Field	Type	Null	Key	Default	Extra
dept_name	varchar(255)	NO	PRI	NULL	
building	varchar(255)	YES		NULL	
budget	int	YES		NULL	

```
3 rows in set (0.0128 sec)
```

d) Add CHECK constraint in course table with condition (credits > 0).



```
ALTER TABLE course
ADD CONSTRAINT credits CHECK (credits > 0);
```

```
MySQL localhost:3306 ssl institute SQL > alter table course
                                     -> add constraint credits check (credits > 0);
Query OK, 13 rows affected (0.0677 sec)

Records: 13  Duplicates: 0  Warnings: 0
MySQL localhost:3306 ssl institute SQL > describe course;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| course_id | varchar(255)  | NO   | PRI | NULL    |       |
| title     | varchar(255)  | YES  |     | NULL    |       |
| dept_name | varchar(255)  | YES  | MUL | NULL    |       |
| credits   | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0125 sec)

MySQL localhost:3306 ssl institute SQL > 
```