

Problem statement :

Create the University Database having following specifications :

1. Department table(dept_no, dept_name, building_name)

Apply Unique constraint on name field.

```
create table Department(dept_no int,dept_name varchar(15),bldg_name  
varchar(15),unique(dept_name));
```

Query OK, 0 rows affected (0.10 sec)

```
desc Department;
```

```
+-----+-----+-----+-----+-----+-----+  
| Field | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| dept_no | int(11) | YES | | NULL | |  
| dept_name | varchar(15) | YES | UNI | NULL | |  
| bldg_name | varchar(15) | YES | | NULL | |  
+-----+-----+-----+-----+-----+-----+
```

3 rows in set (0.02 sec)

2. Instructor table(ins_id, ins_name, dept_no, salary, mob_no)

Apply NOT NULL constraint on name field.

```
create table instructor(ins_id int,ins_name varchar(15) not null,dept_no int,salary  
int,mob_no int,primary key(ins_id));
```

Query OK, 0 rows affected (0.05 sec)

```
mysql> desc instructor;
```

```
+-----+-----+-----+-----+-----+-----+  
| Field | Type | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| ins_id | int(11) | NO | PRI | 0 | |  
| ins_name | varchar(15) | NO | | NULL | |  
| dept_no | int(11) | YES | | NULL | |  
| salary | int(11) | YES | | NULL | |
```

```
| mob_no | int(11) | YES | | NULL | |
```

```
+-----+-----+-----+-----+-----+
```

5 rows in set (0.00 sec)

3. Course table(course_id, title, dept_no, credits)

```
create table course(course_id int,title varchar(15),dept_no int,credits int,primary
key(course_id));
```

Query OK, 0 rows affected (0.05 sec)

```
mysql> desc course;
```

```
+-----+-----+-----+-----+-----+
```

```
| Field | Type | Null | Key | Default | Extra |
```

```
+-----+-----+-----+-----+-----+
```

```
| course_id | int(11) | NO | PRI | 0 | |
```

```
| title | varchar(15) | YES | | NULL | |
```

```
| dept_no | int(11) | YES | | NULL | |
```

```
| credits | int(11) | YES | | NULL | |
```

```
+-----+-----+-----+-----+-----+
```

4 rows in set (0.00 sec)

4. Teaches table(teacher_id, course_id, semester, year)

```
create table teachers(teacher_id int,course_id int,semester int,year year,foreign key
(teacher_id) references instructor(ins_id),foreign key (course_id) references
course(course_id));
```

Query OK, 0 rows affected (0.10 sec)

```
mysql> desc teachers;
```

```
+-----+-----+-----+-----+-----+
```

```
| Field | Type | Null | Key | Default | Extra |
```

```
+-----+-----+-----+-----+-----+
```

```
| teacher_id | int(11) | YES | MUL | NULL | |
```

```
| course_id | int(11) | YES | MUL | NULL | |
| semester | int(11) | YES | | NULL | |
| year | year(4) | YES | | NULL | |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

Queries :

1 Add the primary key in department table.

```
alter table Department add primary key(dept_no);
Query OK, 0 rows affected (0.15 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc Department;
+++++++
| Field | Type | Null | Key | Default | Extra |
+++++++
| dept_no | int(11) | NO | PRI | 0 | |
| dept_name | varchar(15) | YES | UNI | NULL | |
| bldg_name | varchar(15) | YES | | NULL | |
+++++++
3 rows in set (0.00 sec)
```

2 Add the foreign key in instructor table.

```
alter table instructor add foreign key(dept_no) references Department(dept_no);
Query OK, 0 rows affected (0.14 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc instructor;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ins_id | int(11) | NO | PRI | 0 | |
| ins_name | varchar(15) | NO | | NULL | |
| dept_no | int(11) | YES | MUL | NULL | |
| salary | int(11) | YES | | NULL | |
| mob_no | int(11) | YES | | NULL | |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

3 Modify the table department by adding a column budget.

```
alter table Department add column budget int;
Query OK, 3 rows affected (0.16 sec)
```

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from Department;
```

```
+++++
| dept_no | dept_name | bldg_name | budget |
+++++
| 1 | comp | A | NULL |
| 2 | mech | B | NULL |
| 3 | IT | C | NULL |
+++++
```

3 rows in set (0.00 sec)

4 Create unique index on mobile number of instructor table.

```
create unique index sr on instructor(mob_no);
```

Query OK, 0 rows affected (0.11 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
desc instructor;
```

```
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ins_id | int(11) | NO | PRI | 0 | |
| ins_name | varchar(15) | NO | | NULL | |
| dept_no | int(11) | YES | MUL | NULL | |
| salary | int(11) | YES | | NULL | |
| mob_no | int(11) | YES | UNI | NULL | |
+-----+-----+-----+-----+-----+
```

5 rows in set (0.00 sec)

5 Create a view of instructor relation except the salary field.

```
create view inst_view as select ins_id,ins_name,dept_no,mob_no from instructor
; Query OK, 0 rows affected (0.05 sec)
```

```
mysql> select * from inst_view;
```

```
+++++
| ins_id | ins_name | dept_no | mob_no |
+++++
| 1 | A | 1 | 10020 |
| 2 | B | 2 | 11220 |
| 3 | C | 3 | 11020 |
+++++
```

3 rows in set (0.01 sec)

6 Insert record into instructor table using newly created viewname.

```
insert into Department values(4,"Elect","D",null);
```

Query OK, 1 row affected (0.04 sec)

```
mysql> select * from Department;
```

```
+++++
| dept_no | dept_name | bldg_name | budget |
+++++
| 1 | comp | A | NULL |
| 2 | mech | B | NULL |
```

3	IT	C	NULL
4	Elect	D	NULL

+++++

4 rows in set (0.00 sec)

mysql> select * from inst_view;

+++++

ins_id	ins_name	dept_no	mob_no
--------	----------	---------	--------

+++++

1	A	1	10020
2	B	2	11220
3	C	3	11020

+++++

3 rows in set (0.00 sec)

mysql> insert into inst_view values(4,"D",4,12000);

Query OK, 1 row affected (0.04 sec)

mysql> select * from inst_view;

+++++

ins_id	ins_name	dept_no	mob_no
--------	----------	---------	--------

+++++

1	A	1	10020
2	B	2	11220
3	C	3	11020
4	D	4	12000

+++++

4 rows in set (0.00 sec)

7 Update the department number of particular instructor using update view.

update inst_view set dept_no=2 where ins_id=4;

Query OK, 1 row affected (0.04 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from inst_view;

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

ins_id	ins_name	dept_no	mob_no
--------	----------	---------	--------

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

1	A	1	10020
2	B	2	11220
3	C	3	11020
4	D	2	12000

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

4 rows in set (0.00 sec)

8 Delete record of particular instructor from instructor table using newly created viewname.

delete from inst_view where ins_id=4;

Query OK, 1 row affected (0.04 sec)

```
mysql> select * from inst_view;
```

```
+-----+-----+-----+-----+
| ins_id | ins_name | dept_no | mob_no |
+-----+-----+-----+-----+
| 1 | A | 1 | 10020 |
| 2 | B | 2 | 11220 |
| 3 | C | 3 | 11020 |
+-----+-----+-----+-----+
```

3 rows in set (0.00 sec)

9 Delete the last view.

```
drop view inst_view;
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> select * from inst_view;
```

ERROR 1146 (42S02): Table 'University245.inst_view' doesn't exist

10 Remove the Budget from department table.

```
alter table Department drop budget;
```

Query OK, 4 rows affected (0.16 sec)

Records: 4 Duplicates: 0 Warnings: 0

```
mysql> select * from Department;;
```

```
+-----+-----+-----+
| dept_no | dept_name | bldg_name |
+-----+-----+-----+
| 1 | comp | A |
| 2 | mech | B |
| 3 | IT | C |
| 4 | Elect | D |
+-----+-----+-----+
```

4 rows in set (0.00 sec)

11 Increase the size of the title field of course relation.

```
alter table course modify title varchar(20);
```

Query OK, 3 rows affected (0.17 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> desc course;
```

```
+++++++
| Field      | Type          | Null | Key | Default | Extra |
+++++++
| course_id | int(11)       | NO   | PRI | 0       |      |
| title     | varchar(20)   | YES  |     | NULL    |      |
| dept_no   | int(11)       | YES  |     | NULL    |      |
| credits   | int(11)       | YES  |     | NULL    |      |
+++++++
```

4 rows in set (0.00 sec)

12 Create a view by showing a instructor name with a department name and its salary.

```
create view newview1 as select ins_name,dept_name,salary from instructor,Department where
instructor.dept_no=Department.dept_no;
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> select * from newview1;
+-----+-----+-----+
| ins_name | dept_name | salary |
+-----+-----+-----+
| A | comp | 10000 |
| B | mech | 12000 |
| C | IT | 10500 |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

13

Update salary of particular instructor using update view.

```
update newview1 set salary=11000 where ins_name="C";
Query OK, 1 row affected (0.04 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from instructor;
++++++
| ins_id | ins_name | dept_no | salary | mob_no |
++++++
| 1 | A | 1 | 10000 | 10020 |
| 2 | B | 2 | 12000 | 11220 |
| 3 | C | 3 | 11000 | 11020 |
++++++
3 rows in set (0.00 sec)
```

14

Delete the index from the instructor table.

```
alter table instructor drop index sr;
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc instructor;
++++++
| Field | Type | Null | Key | Default | Extra |
++++++
| ins_id | int(11) | NO | PRI | 0 | |
| ins_name | varchar(15) | NO | | NULL | |
| dept_no | int(11) | YES | MUL | NULL | |
| salary | int(11) | YES | | NULL | |
| mob_no | int(11) | YES | | NULL | |
++++++ 5 rows in set (0.00 sec)
```

15

Rename the course table to another table name.

```
rename table course to coursetable;
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> desc coursetable;
```

```
+++++++
| Field | Type      | Null | Key | Default | Extra |
+++++++
| course_id | int(11) | NO | PRI | 0 | |
| title | varchar(20) | YES | | NULL | |
| dept_no | int(11) | YES | | NULL | |
| credits | int(11) | YES | | NULL | |
+++++++ 4 rows in set (0.01 sec)
```

16 Create a view by showing a instructor name and title of course he teaches.

```
create view newview2 as select ins_name,title from instructor,coursetable
where instructor.dept_no=coursetable.dept_no;
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> select * from newview2;
Empty set (0.00 sec)
```

17 Delete the primary key from the department table.

```
show create table instructor;
```

```
+-----+
+-----+
+-----+
+-----+
+-----+
```

```
| Table | Create Table
|
```

```
+-----+
+-----+
+-----+
+-----+
+-----+
```

```
| instructor | CREATE TABLE `instructor` (
  `ins_id` int(11) NOT NULL DEFAULT '0',
  `ins_name` varchar(15) NOT NULL,
  `dept_no` int(11) DEFAULT NULL,
  `salary` int(11) DEFAULT NULL,
  `mob_no` int(11) DEFAULT NULL,
  PRIMARY KEY (`ins_id`),
```



```

KEY `dept_no` (`dept_no`),

CONSTRAINT `instructor_ibfk_1` FOREIGN KEY (`dept_no`) REFERENCES
`Department` (`dept_no`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

```

```

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

```

1 row in set (0.00 sec)

```

mysql> alter table instructor drop foreign key instructor_ibfk_1; Query
OK, 3 rows affected (0.17 sec)

Records: 3 Duplicates: 0 Warnings: 0

```

```

mysql> desc instructor;

```

```

+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| ins_id | int(11) | NO | PRI | 0 | |
| ins_name | varchar(15) | NO | | NULL | |
| dept_no | int(11) | YES | MUL | NULL | |
| salary | int(11) | YES | | NULL | |
| mob_no | int(11) | YES | | NULL | |
+-----+-----+-----+-----+-----+

```

5 rows in set (0.01 sec)

```

mysql> desc Department;

```

```

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

```

Field	Type	Null	Key	Default	Extra
dept_no	int(11)	NO	PRI	0	
dept_name	varchar(15)	YES	UNI	NULL	
bldg_name	varchar(15)	YES		NULL	

3 rows in set (0.01 sec)

mysql> alter table Department drop primary key;

Query OK, 4 rows affected (0.18 sec)

Records: 4 Duplicates: 0 Warnings: 0

mysql> desc Department;

Field	Type	Null	Key	Default	Extra
dept_no	int(11)	NO		0	
dept_name	varchar(15)	YES	UNI	NULL	
bldg_name	varchar(15)	YES		NULL	

3 rows in set (0.00 sec)

18 create the table student having field student id,student name,dept_no,birth date. student id should be auto_increment. Dept_no is foreign key.

alter table Department add primary key(dept_no);

Query OK, 0 rows affected (0.18 sec)

Records: 0 Duplicates: 0 Warnings: 0

create table Student(stud_id int auto_increment,stud_name varchar(10),dept_no int,DOB date,foreign key(dept_no) references Department(dept_no),primary key(stud_id));

Query OK, 0 rows affected (0.05 sec)

```
mysql> desc Student;
```

```
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| stud_id | int(11) | NO | PRI | NULL | auto_increment |
| stud_name | varchar(10) | YES | | NULL | | | dept_no | int(11) |
YES | MUL | NULL | | | DOB | date | YES | | NULL | |
+-----+-----+-----+-----+-----+ 4 rows in
set (0.00 sec)
```

19 Change the sequence of your auto increment field. select *

```
from Student;
```

```
+-----+-----+-----+-----+
| stud_id | stud_name | dept_no | DOB |
+-----+-----+-----+-----+
| 1 | AB | 1 | 1997-04-12 |
| 2 | CD | 3 | 1996-06-12 |
| 3 | EF | 2 | 1998-09-25 |
+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

```
alter table Student auto_increment=5;
```

```
Query OK, 0 rows affected (0.13 sec)
```

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

```
select * from Student;
```

```
+-----+-----+-----+-----+
| stud_id | stud_name | dept_no | DOB |
+-----+-----+-----+-----+
| 1 | AB | 1 | 1997-04-12 |
```

| 2 | CD | 3 | 1996-06-12 |

| 3 | EF | 2 | 1998-09-25 |

| 10 | GH | 2 | 1995-09-25 |

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

4 rows in set (0.00 sec)

20 Create the view of computer department teachers name who teaches in 5th semester.

create view new1 as select dept_name,semester,ins_name from
Department,teachers,instructor where teachers.semester=2 and
Department.dept_name="comp" and instructor.ins_id=teachers.teacher_id and
instructor.dept_no=Department.dept_no;

Query OK, 0 rows affected (0.03 sec)

mysql> select * from new1;

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

| dept_name | semester | ins_name |

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

| comp | 2 | A |

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

1 row in set (0.00 sec)