```
mysql> create database sem_5;
Query OK, 1 row affected (0.02 sec)

mysql> use sem_5;
Database changed
mysql> create table doctor( docid int(3), docname varchar(30), specification varchar(20));
Query OK, 0 rows affected, 1 warning (0.07 sec)

mysql> create table patient( patient_key int(3), pname varchar(30), type varchar(20));
Query OK, 0 rows affected, 1 warning (0.02 sec)

mysql> alter table doctor add primary key(docid);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table doctor rename column docid to doc_key;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc doctor;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| doc_key       | int         | NO   | PRI | NULL    |       |
| docname       | varchar(30) | YES  |     | NULL    |       |
| specification | varchar(20) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
3 rows in set (0.03 sec)

mysql> alter table patient add primary key(patient_key);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc patient;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| patient_key | int         | NO   | PRI | NULL    |       |
| pname       | varchar(30) | YES  |     | NULL    |       |
| type        | varchar(20) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> create table time( t_key int(2), day int(2), month int(2), year int(4), primary
key(t_key));
Query OK, 0 rows affected, 4 warnings (0.02 sec)

mysql> desc time;
```

```
+-------+------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+-------+------+------+-----+---------+-------+
| t_key | int  | NO   | PRI | NULL    |       |
| day   | int  | YES  |     | NULL    |       |
| month | int  | YES  |     | NULL    |       |
| year  | int  | YES  |     | NULL    |       |
+-------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> create table hospital( foreign key(doc_key) references doctor(doc_key), foreign
key(doc_key) references doctor(doc_key)
mysql> create table hospital( doc_key int, foreign key(doc_key) references doctor(doc_key));
Query OK, 0 rows affected (0.03 sec)

mysql> drop table hospital;
Query OK, 0 rows affected (0.02 sec)

mysql> create table hospital( doc_key int, foreign key(doc_key) references doctor(doc_key),
    -> patient_key int, foreign key(patient_key) references patient(patient_key),
    -> t_key int, foreign key(t_key) references time(t_key),
    -> fees int(5) not null);
Query OK, 0 rows affected, 1 warning (0.04 sec)

mysql> desc hospital
    -> ;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| doc_key     | int  | YES  | MUL | NULL    |       |
| patient_key | int  | YES  | MUL | NULL    |       |
| t_key       | int  | YES  | MUL | NULL    |       |
| fees        | int  | NO   |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc doctor;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| doc_key       | int         | NO   | PRI | NULL    |       |
| docname       | varchar(30) | YES  |     | NULL    |       |
| specification | varchar(20) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> insert into doctor values(1, 'Devadutta', 'Cardiologist');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into doctor values(2, 'Vansh', 'Dermatologist');
Query OK, 1 row affected (0.01 sec)

mysql> insert into doctor values(3, 'Dr. Suyog Joshi', 'ENT');
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(4, 'Dr. Mayank Sagavekar', 'Dentist');
Query OK, 1 row affected (0.00 sec)
set docname= 'Dr. Devadutta'
where docname= 'Devadutta'' at line 1
mysql> update doctor set docname= 'Dr. Devadutta' where doc_key= 1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update doctor set docname= 'Dr. Vansh' where doc_key= 2;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update doctor set docname= 'Dr. Suyog' where doc_key= 3;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> update doctor set docname= 'Dr. Mayank' where doc_key= 4;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from doctor;
+---------+--------------+---------------+
| doc_key | docname      | specification |
+---------+--------------+---------------+
|       1 | Dr. Devadutta | Cardiologist  |
|       2 | Dr. Vansh    | Dermatologist |
|       3 | Dr. Suyog    | ENT           |
|       4 | Dr. Mayank   | Dentist       |
+---------+--------------+---------------+
4 rows in set (0.00 sec)

mysql> desc patient;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| patient_key | int         | NO   | PRI | NULL    |       |
| pname       | varchar(30) | YES  |     | NULL    |       |
| type        | varchar(20) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> insert into patient values(1, 'S. Binny', 'Casual');
Query OK, 1 row affected (0.00 sec)

mysql> insert into patient values(2, 'R. Joshi', 'Casual');
Query OK, 1 row affected (0.01 sec)

mysql> insert into patient values(3, 'M. Prasad', 'Serious');
Query OK, 1 row affected (0.01 sec)

mysql> insert into patient values(4, 'H. Kelli', 'diabetic');
Query OK, 1 row affected (0.00 sec)

mysql> insert into patient values(5, 'T. Patil', 'cardiac');
Query OK, 1 row affected (0.01 sec)

mysql> select * from patient;;
+-------------+-----------+----------+
| patient_key | pname     | type     |
+-------------+-----------+----------+
|           1 | S. Binny  | Casual   |
|           2 | R. Joshi  | Casual   |
|           3 | M. Prasad | Serious  |
|           4 | H. Kelli  | diabetic |
|           5 | T. Patil  | cardiac  |
+-------------+-----------+----------+
5 rows in set (0.00 sec)

mysql> desc time;
+-------+------+------+-----+---------+-------+
| Field | Type | Null | Key | Default | Extra |
+-------+------+------+-----+---------+-------+
| t_key | int  | NO   | PRI | NULL    |       |
| day   | int  | YES  |     | NULL    |       |
| month | int  | YES  |     | NULL    |       |
| year  | int  | YES  |     | NULL    |       |
+-------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> insert into time values( 1, 10, 03, 2015);
Query OK, 1 row affected (0.01 sec)

mysql> insert into time values( 2, 11, 03, 2023);
Query OK, 1 row affected (0.00 sec)

mysql> insert into time values( 3, 12, 03, 2023);
Query OK, 1 row affected (0.01 sec)

mysql> insert into time values( 4, 14, 03, 2023);
```

Query OK, 1 row affected (0.01 sec)

mysql> select * from doctor;
```
+---------+--------------+---------------+
| doc_key | docname      | specification |
+---------+--------------+---------------+
|       1 | Dr. Devadutta | Cardiologist  |
|       2 | Dr. Vansh     | Dermatologist |
|       3 | Dr. Suyog     | ENT           |
|       4 | Dr. Mayank    | Dentist       |
+---------+--------------+---------------+
```
4 rows in set (0.00 sec)

mysql> select * from patient;
```
+-------------+-----------+----------+
| patient_key | pname     | type     |
+-------------+-----------+----------+
|           1 | S. Binny  | Casual   |
|           2 | R. Joshi  | Casual   |
|           3 | M. Prasad | Serious  |
|           4 | H. Kelli  | diabetic |
|           5 | T. Patil  | cardiac  |
+-------------+-----------+----------+
```
5 rows in set (0.00 sec)

mysql> select * from time;
```
+-------+------+-------+------+
| t_key | day  | month | year |
+-------+------+-------+------+
|     1 |   10 |     3 | 2015 |
|     2 |   11 |     3 | 2023 |
|     3 |   12 |     3 | 2023 |
|     4 |   14 |     3 | 2023 |
+-------+------+-------+------+
```
4 rows in set (0.00 sec)

mysql> desc hospital;
```
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| doc_key     | int  | YES  | MUL | NULL    |       |
| patient_key | int  | YES  | MUL | NULL    |       |
| t_key       | int  | YES  | MUL | NULL    |       |
| fees        | int  | NO   |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
```
4 rows in set (0.00 sec)

mysql> insert into hospital values(1, 2, 2, 100);

Query OK, 1 row affected (0.01 sec)

mysql> insert into hospital values(1, 5, 3, 5000);
Query OK, 1 row affected (0.01 sec)

mysql> update time set year=2023 where year=2015;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> update time set day=13 where day= 14;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> insert into hospital values(4, 1, 4, 300);
Query OK, 1 row affected (0.01 sec)

mysql> insert into hospital values(4, 4, 4, 300);
Query OK, 1 row affected (0.01 sec)

mysql> select * from hospital;
+---------+-------------+-------+------+
| doc_key | patient_key | t_key | fees |
+---------+-------------+-------+------+
1	2	2	100
1	5	3	5000
4	1	4	300
4	4	4	300
+---------+-------------+-------+------+
4 rows in set (0.00 sec)
mysql> update time set year=2022 where day>=13;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from time;
+-------+------+-------+------+
| t_key | day | month | year |
+-------+------+-------+------+
1	10	3	2023
2	11	3	2023
3	12	3	2023
4	13	3	2022
+-------+------+-------+------+
4 rows in set (0.00 sec)

mysql> update time set year=2022 where day<=13;
Query OK, 3 rows affected (0.01 sec)
Rows matched: 4 Changed: 3 Warnings: 0

```
mysql> select * from time;
+-------+------+-------+------+
| t_key | day  | month | year |
+-------+------+-------+------+
|     1 |   10 |     3 | 2022 |
|     2 |   11 |     3 | 2022 |
|     3 |   12 |     3 | 2022 |
|     4 |   13 |     3 | 2022 |
+-------+------+-------+------+
4 rows in set (0.00 sec)

mysql> update time set year=2023 where day=13;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select docname, sum(fees) from hospital natural join time natural join doctor where
year=2022 group by doc_key;
+---------------+-----------+
| docname       | sum(fees) |
+---------------+-----------+
| Dr. Devadutta |      5100 |
+---------------+-----------+
1 row in set (0.01 sec)

mysql> select * from doctor;
+---------+--------------+---------------+
| doc_key | docname      | specification |
+---------+--------------+---------------+
|       1 | Dr. Devadutta | Cardiologist  |
|       2 | Dr. Vansh     | Dermatologist |
|       3 | Dr. Suyog     | ENT           |
|       4 | Dr. Mayank    | Dentist       |
+---------+--------------+---------------+
4 rows in set (0.00 sec)

mysql> select * from time;
+-------+------+-------+------+
| t_key | day  | month | year |
+-------+------+-------+------+
|     1 |   10 |     3 | 2022 |
|     2 |   11 |     3 | 2022 |
|     3 |   12 |     3 | 2022 |
|     4 |   13 |     3 | 2023 |
+-------+------+-------+------+
4 rows in set (0.00 sec)

mysql> insert into hospital values(3, 2, 3, 150);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> insert into hospital values(4, 2, 3, 450);
Query OK, 1 row affected (0.01 sec)

mysql> select docname, sum(fees) from hospital natural join time natural join doctor where
year=2022 group by doc_key;
+---------------+-----------+
| docname       | sum(fees) |
+---------------+-----------+
| Dr. Devadutta |      5100 |
| Dr. Suyog     |       150 |
| Dr. Mayank    |       450 |
+---------------+-----------+
3 rows in set (0.00 sec)

mysql> commit;
Query OK, 0 rows affected (0.00 sec)
```