```
mysql> use school;
Database changed
mysql> show tables;
+------------------+
| Tables_in_school |
+------------------+
| class            |
| subject          |
| teacher          |
| timetable        |
+------------------+
4 rows in set (0.02 sec)

mysql> desc class;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| class_id   | int         | NO   | PRI | NUL     |       |
| class_name | varchar(50) | YES  |     | NULL    |       |
| room_no    | varchar(10) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> desc subject;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| subject_id | int          | NO   | PRI | NULL    |       |
| name       | varchar(100) | NO   |     | NULL    |       |
| teacher_id | int          | YES  | MUL | NULL    |       |
+------------+--------------+------+-----+---------+-------+
```

```
3 rows in set (0.00 sec)

mysql> desc teacher;
+------------------+--------------+------+-----+---------+-------+
| Field            | Type         | Null | Key | Default | Extra |
+------------------+--------------+------+-----+---------+-------+
| teacher_id       | int          | NO   | PRI | NULL    |       |
| name             | varchar(100) | NO   |     | NULL    |       |
| qualification    | varchar(100) | YES  |     | NULL    |       |
| experience_years | int          | YES  |     | NULL    |       |
| contact          | varchar(15)  | YES  |     | NULL    |       |
+------------------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> desc timetable;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| timetable_id | int         | NO   | PRI | NULL    |       |
| class_id     | int         | YES  | MUL | NULL    |       |
| subject_id   | int         | YES  | MUL | NULL    |       |
| day_of_week  | varchar(10) | YES  |     | NULL    |       |
| start_time   | time        | YES  |     | NULL    |       |
| end_time     | time        | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

```
mysql> select * from class;
+----------+------------+---------+
| class_id | class_name | room_no |
+----------+------------+---------+
|      807 | 10A        | Room-17 |
|      809 | 8B         | Room-9  |
|      814 | 6C         | Room-11 |
|      819 | 11A        | Room-16 |
|      820 | 8A         | Room-7  |
|      823 | 7B         | Room-13 |
|      826 | 8C         | Room-12 |
|      829 | 7A         | Room-19 |
|      834 | 7C         | Room-8  |
|      837 | 12B        | Room-2  |
|      857 | 12A        | Room-3  |
|      861 | 11B        | Room-18 |
|      865 | 9C         | Room-4  |
|      875 | 9B         | Room-15 |
|      882 | 10B        | Room-5  |
|      885 | 9A         | Room-14 |
|      888 | 11C        | Room-10 |
|      890 | 12C        | Room-20 |
|      892 | 10C        | Room-6  |
|      899 | 6A         | Room-1  |
+----------+------------+---------+
20 rows in set (0.00 sec)
```

```
mysql> select * from subject;
+------------+--------------------+------------+
| subject_id | name               | teacher_id |
+------------+--------------------+------------+
|       4063 | Physics            |       2105 |
|       4075 | Physical Education |       2864 |
|       4255 | Chemistry          |       2681 |
|       4288 | Mathematics        |       2144 |
|       4382 | Computer Science   |       2955 |
|       4407 | Hindi              |       2551 |
|       4419 | Economics          |       2009 |
|       4491 | Geography          |       2360 |
|       4533 | Sanskrit           |       2736 |
|       4566 | Arts               |       2433 |
|       4602 | History            |       2942 |
|       4643 | Biology            |       2440 |
|       4699 | Physics            |       2632 |
|       4745 | Computer Science   |       2711 |
|       4826 | Civics             |       2819 |
|       4921 | Mathematics        |       2044 |
|       4937 | English            |       2988 |
|       4948 | Marathi            |       2900 |
|       4967 | Biology            |       2208 |
|       4985 | English            |       2277 |
+------------+--------------------+------------+
20 rows in set (0.00 sec)
```

```
mysql> select * from teacher;
+------------+---------------------+---------------+------------------+----------------+
| teacher_id | name                | qualification | experience_years | contact        |
+------------+---------------------+---------------+------------------+----------------+
|       2009 | Aadhya Mehra        | M.A           |               19 | 09027896544    |
|       2044 | Saanvi Rathod       | M.Sc          |               11 | +919198844201  |
|       2105 | Ishaan Mistry       | B.Ed          |                7 | 05178891144    |
|       2144 | Rohan Sharma        | M.Ed          |               17 | +918074884222  |
|       2208 | Vivaan Menon        | Ph.D          |               26 | +918673919230  |
|       2277 | Reyansh Desai       | Ph.D          |               30 | 04624399327    |
|       2360 | Anika Chopra        | M.Sc          |                3 | +919487991234  |
|       2433 | Tanmay Dubey        | B.Ed          |               14 | +918255391288  |
|       2440 | Aarohi Sehgal       | M.Ed          |               12 | 02920577816    |
|       2551 | Devika Jaiswal      | M.Ed          |                9 | 02861133489    |
|       2632 | Priyansh Jain       | B.Ed          |                4 | 03714729856    |
|       2681 | Kriti Joshi         | M.Sc          |                6 | 03162284904    |
|       2711 | Krishna Bhargava    | Ph.D          |               28 | +918870175499  |
|       2736 | Anvi Pandey         | M.A           |                8 | +918869380122  |
|       2819 | Diya Sinha          | B.Ed          |               13 | 08337297085    |
|       2864 | Kabir Khatri        | M.Sc          |               21 | +919209887145  |
|       2900 | Yash Verma          | M.Ed          |               10 | 04020328934    |
|       2942 | Meera Bhattacharya  | M.A           |               18 | 07830504897    |
|       2955 | Avni Malhotra       | M.Sc          |               15 | +917670010998  |
|       2988 | Aarav Nayar         | Ph.D          |               22 | +919234251006  |
+------------+---------------------+---------------+------------------+----------------+
20 rows in set (0.00 sec)
```

```
mysql> select * from timetable;
+-------------+----------+------------+-------------+------------+----------+
| timetable_id | class_id | subject_id | day_of_week | start_time | end_time |
+-------------+----------+------------+-------------+------------+----------+
|       10040 |      829 |       4643 | Friday      | 10:00:00   | 10:45:00 |
|       10076 |      865 |       4491 | Tuesday     | 09:00:00   | 09:45:00 |
|       10088 |      826 |       4255 | Monday      | 09:30:00   | 10:15:00 |
|       10185 |      857 |       4967 | Tuesday     | 10:45:00   | 11:30:00 |
|       10209 |      834 |       4288 | Thursday    | 10:00:00   | 10:45:00 |
|       10385 |      809 |       4382 | Thursday    | 11:30:00   | 12:15:00 |
|       10394 |      861 |       4699 | Tuesday     | 12:00:00   | 12:45:00 |
|       10431 |      892 |       4419 | Thursday    | 08:30:00   | 09:15:00 |
|       10467 |      820 |       4602 | Thursday    | 13:00:00   | 13:45:00 |
|       10571 |      890 |       4985 | Wednesday   | 09:30:00   | 10:15:00 |
|       10677 |      819 |       4566 | Wednesday   | 11:00:00   | 11:45:00 |
|       10685 |      885 |       4937 | Tuesday     | 11:30:00   | 12:15:00 |
|       10723 |      882 |       4921 | Monday      | 10:00:00   | 10:45:00 |
|       10779 |      837 |       4407 | Friday      | 08:30:00   | 09:15:00 |
|       10806 |      823 |       4745 | Monday      | 10:45:00   | 11:30:00 |
|       10810 |      875 |       4533 | Friday      | 11:00:00   | 11:45:00 |
|       10887 |      899 |       4948 | Friday      | 13:00:00   | 13:45:00 |
|       10918 |      888 |       4063 | Wednesday   | 09:30:00   | 10:15:00 |
|       10933 |      814 |       4826 | Wednesday   | 13:30:00   | 14:15:00 |
|       10997 |      807 |       4075 | Monday      | 08:30:00   | 09:15:00 |
+-------------+----------+------------+-------------+------------+----------+
20 rows in set (0.00 sec)
```

```
mysql> select s.name as Subject, t.name as teacher
    -> from subject s
    -> join teacher t on s.teacher_id=t.teacher_id;
+---------------------+--------------------+
| Subject             | teacher            |
+---------------------+--------------------+
| Physics             | Ishaan Mistry      |
| Physical Education  | Kabir Khatri       |
| Chemistry           | Kriti Joshi        |
| Mathematics         | Rohan Sharma       |
| Computer Science    | Avni Malhotra      |
| Hindi               | Devika Jaiswal     |
| Economics           | Aadhya Mehra       |
| Geography           | Anika Chopra       |
| Sanskrit            | Anvi Pandey        |
| Arts                | Tanmay Dubey       |
| History             | Meera Bhattacharya |
| Biology             | Aarohi Sehgal      |
| Physics             | Priyansh Jain      |
| Computer Science    | Krishna Bhargava   |
| Civics              | Diya Sinha         |
| Mathematics         | Saanvi Rathod      |
| English             | Aarav Nayar        |
| Marathi             | Yash Verma         |
| Biology             | Vivaan Menon       |
| English             | Reyansh Desai      |
+---------------------+--------------------+
20 rows in set (0.00 sec)
```

```
mysql> select c.class_name, sub.name as subject
    -> from timetable tt
    -> join class c on tt.class_id=c.class_id
    -> join subject sub  on tt.subject_id=sub.subject_id;
+------------+--------------------+
| class_name | subject            |
+------------+--------------------+
| 7A         | Biology            |
| 9C         | Geography          |
| 8C         | Chemistry          |
| 12A        | Biology            |
| 7C         | Mathematics        |
| 8B         | Computer Science   |
| 11B        | Physics            |
| 10C        | Economics          |
| 8A         | History            |
| 12C        | English            |
| 11A        | Arts               |
| 9A         | English            |
| 10B        | Mathematics        |
| 12B        | Hindi              |
| 7B         | Computer Science   |
| 9B         | Sanskrit           |
| 6A         | Marathi            |
| 11C        | Physics            |
| 6C         | Civics             |
| 10A        | Physical Education |
+------------+--------------------+
20 rows in set (0.00 sec)
```

```
mysql> SELECT  c.class_name,  s.name  AS  subject,  t.name  AS  teacher,  tt.day_of_week,  tt.start_time,
tt.end_time
    -> FROM timetable tt
    -> JOIN class c ON tt.class_id = c.class_id
    -> JOIN subject s ON tt.subject_id = s.subject_id
    -> JOIN teacher t ON s.teacher_id = t.teacher_id;
+------------+--------------------+--------------------+-------------+------------+----------+
| class_name | subject            | teacher            | day_of_week | start_time | end_time |
+------------+--------------------+--------------------+-------------+------------+----------+
| 7A         | Biology            | Aarohi Sehgal      | Friday      | 10:00:00   | 10:45:00 |
| 9C         | Geography          | Anika Chopra       | Tuesday     | 09:00:00   | 09:45:00 |
| 8C         | Chemistry          | Kriti Joshi        | Monday      | 09:30:00   | 10:15:00 |
| 12A        | Biology            | Vivaan Menon       | Tuesday     | 10:45:00   | 11:30:00 |
| 7C         | Mathematics        | Rohan Sharma       | Thursday    | 10:00:00   | 10:45:00 |
| 8B         | Computer Science   | Avni Malhotra      | Thursday    | 11:30:00   | 12:15:00 |
| 11B        | Physics            | Priyansh Jain      | Tuesday     | 12:00:00   | 12:45:00 |
| 10C        | Economics          | Aadhya Mehra       | Thursday    | 08:30:00   | 09:15:00 |
| 8A         | History            | Meera Bhattacharya | Thursday    | 13:00:00   | 13:45:00 |
| 12C        | English            | Reyansh Desai      | Wednesday   | 09:30:00   | 10:15:00 |
| 11A        | Arts               | Tanmay Dubey       | Wednesday   | 11:00:00   | 11:45:00 |
| 9A         | English            | Aarav Nayar        | Tuesday     | 11:30:00   | 12:15:00 |
| 10B        | Mathematics        | Saanvi Rathod      | Monday      | 10:00:00   | 10:45:00 |
| 12B        | Hindi              | Devika Jaiswal     | Friday      | 08:30:00   | 09:15:00 |
| 7B         | Computer Science   | Krishna Bhargava   | Monday      | 10:45:00   | 11:30:00 |
| 9B         | Sanskrit           | Anvi Pandey        | Friday      | 11:00:00   | 11:45:00 |
| 6A         | Marathi            | Yash Verma         | Friday      | 13:00:00   | 13:45:00 |
| 11C        | Physics            | Ishaan Mistry      | Wednesday   | 09:30:00   | 10:15:00 |
| 6C         | Civics             | Diya Sinha         | Wednesday   | 13:30:00   | 14:15:00 |
| 10A        | Physical Education | Kabir Khatri       | Monday      | 08:30:00   | 09:15:00 |
+------------+--------------------+--------------------+-------------+------------+----------+
20 rows in set (0.00 sec)
```

```
mysql> SELECT DISTINCT c.class_name
    -> FROM timetable tt
    -> JOIN class c ON tt.class_id = c.class_id
    -> JOIN subject s ON tt.subject_id = s.subject_id
    -> WHERE s.name = 'Mathematics';
+------------+
| class_name |
+------------+
| 7C         |
| 10B        |
+------------+
2 rows in set (0.00 sec)

mysql> SELECT c.class_name, s.name AS subject, t.name AS teacher
    -> FROM timetable tt
    -> JOIN class c ON tt.class_id = c.class_id
    -> JOIN subject s ON tt.subject_id = s.subject_id
    -> JOIN teacher t ON s.teacher_id = t.teacher_id
    -> WHERE tt.day_of_week = 'Monday';
+------------+------------------+------------------+
| class_name | subject          | teacher          |
+------------+------------------+------------------+
| 8C         | Chemistry        | Kriti Joshi      |
| 10B        | Mathematics      | Saanvi Rathod    |
| 7B         | Computer Science | Krishna Bhargava |
| 10A        | Physical Education | Kabir Khatri   |
+------------+------------------+------------------+
4 rows in set (0.01 sec)
```

```
mysql> SELECT t.name, COUNT(tt.timetable_id) AS total_periods
    -> FROM teacher t
    -> JOIN subject s ON t.teacher_id = s.teacher_id
    -> JOIN timetable tt ON s.subject_id = tt.subject_id
    -> GROUP BY t.teacher_id;
+--------------------+---------------+
| name               | total_periods |
+--------------------+---------------+
| Aadhya Mehra       | 1             |
| Saanvi Rathod      | 1             |
| Ishaan Mistry      | 1             |
| Rohan Sharma       | 1             |
| Vivaan Menon       | 1             |
| Reyansh Desai      | 1             |
| Anika Chopra       | 1             |
| Tanmay Dubey       | 1             |
| Aarohi Sehgal      | 1             |
| Devika Jaiswal     | 1             |
| Priyansh Jain      | 1             |
| Kriti Joshi        | 1             |
| Krishna Bhargava   | 1             |
| Anvi Pandey        | 1             |
| Diya Sinha         | 1             |
| Kabir Khatri       | 1             |
| Yash Verma         | 1             |
| Meera Bhattacharya | 1             |
| Avni Malhotra      | 1             |
| Aarav Nayar        | 1             |
+--------------------+---------------+
20 rows in set (0.00 sec)
```

```
mysql> SELECT s.name AS subject, t.name AS teacher, tt.day_of_week, tt.start_time
    -> FROM timetable tt
    -> JOIN class c ON tt.class_id = c.class_id
    -> JOIN subject s ON tt.subject_id = s.subject_id
    -> JOIN teacher t ON s.teacher_id = t.teacher_id
    -> WHERE c.class_name = '8A';
+---------+--------------------+-------------+------------+
| subject | teacher            | day_of_week | start_time |
+---------+--------------------+-------------+------------+
| History | Meera Bhattacharya | Thursday    | 13:00:00   |
+---------+--------------------+-------------+------------+
1 row in set (0.00 sec)

mysql> SELECT s.name AS subject, t.name AS teacher, tt.day_of_week, tt.start_time
    -> FROM timetable tt
    -> JOIN class c ON tt.class_id = c.class_id
    -> JOIN subject s ON tt.subject_id = s.subject_id
    -> JOIN teacher t ON s.teacher_id = t.teacher_id
    -> WHERE c.class_name = '8A';
+---------+--------------------+-------------+------------+
| subject | teacher            | day_of_week | start_time |
+---------+--------------------+-------------+------------+
| History | Meera Bhattacharya | Thursday    | 13:00:00   |
+---------+--------------------+-------------+------------+
1 row in set (0.00 sec)

mysql> SELECT s.name
    -> FROM subject s
    -> LEFT JOIN timetable tt ON s.subject_id = tt.subject_id
    -> WHERE tt.timetable_id IS NULL;
Empty set (0.00 sec)
```

```
mysql> select t.name
    -> from teacher t
    -> left join subject s on t.teacher_id=s.teacher_id
    -> left join timetable tt on s.subject_id = tt.subject_id
    -> where tt.timetable_id IS NULL;
Empty set (0.00 sec)

mysql> select distinct c.class_name from timetable tt
    -> join class c on tt.class_id=c.class_id
    -> where tt.day_of_week='Friday';
+------------+
| class_name |
+------------+
| 7A         |
| 12B        |
| 9B         |
| 6A         |
+------------+
4 rows in set (0.00 sec)

mysql> select s.name, count(distinct tt.class_id) as class_count
    -> from subject s
    -> join timetable tt on s.subject_id=tt.subject_id
    -> group by s.subject_id
    -> having count(distinct tt.class_id) >1;
Empty set (0.00 sec)
```

```
mysql> select s.name as subject, t.name as teacher, c.class_name
    -> from timetable tt
    -> join subject s on tt.subject_id=s.subject_id
    -> join teacher t on s.teacher_id=t.teacher_id
    -> join class c on tt.class_id=c.class_id;
+------------------+--------------------+------------+
| subject          | teacher            | class_name |
+------------------+--------------------+------------+
| Biology          | Aarohi Sehgal      | 7A         |
| Geography        | Anika Chopra       | 9C         |
| Chemistry        | Kriti Joshi        | 8C         |
| Biology          | Vivaan Menon       | 12A        |
| Mathematics      | Rohan Sharma       | 7C         |
| Computer Science | Avni Malhotra      | 8B         |
| Physics          | Priyansh Jain      | 11B        |
| Economics        | Aadhya Mehra       | 10C        |
| History          | Meera Bhattacharya | 8A         |
| English          | Reyansh Desai      | 12C        |
| Arts             | Tanmay Dubey       | 11A        |
| English          | Aarav Nayar        | 9A         |
| Mathematics      | Saanvi Rathod      | 10B        |
| Hindi            | Devika Jaiswal     | 12B        |
| Computer Science | Krishna Bhargava   | 7B         |
| Sanskrit         | Anvi Pandey        | 9B         |
| Marathi          | Yash Verma         | 6A         |
| Physics          | Ishaan Mistry      | 11C        |
| Civics           | Diya Sinha         | 6C         |
| Physical Education | Kabir Khatri     | 10A        |
+------------------+--------------------+------------+
20 rows in set (0.00 sec)
```

```
mysql> select c.class_name, min(tt.start_time )as first_period
    -> from timetable tt
    -> join class c on tt.class_id=c.class_id
    -> group by c.class_id;
+------------+--------------+
| class_name | first_period |
+------------+--------------+
| 7A         | 10:00:00     |
| 9C         | 09:00:00     |
| 8C         | 09:30:00     |
| 12A        | 10:45:00     |
| 7C         | 10:00:00     |
| 8B         | 11:30:00     |
| 11B        | 12:00:00     |
| 10C        | 08:30:00     |
| 8A         | 13:00:00     |
| 12C        | 09:30:00     |
| 11A        | 11:00:00     |
| 9A         | 11:30:00     |
| 10B        | 10:00:00     |
| 12B        | 08:30:00     |
| 7B         | 10:45:00     |
| 9B         | 11:00:00     |
| 6A         | 13:00:00     |
| 11C        | 09:30:00     |
| 6C         | 13:30:00     |
| 10A        | 08:30:00     |
+------------+--------------+
20 rows in set (0.00 sec)
```

```
mysql> select distinct t.name
    -> from subject s
    -> join teacher t on s.teacher_id=t.teacher_id
    -> where s.name='computer science'
    -> ;
+------------------+
| name             |
+------------------+
| Avni Malhotra    |
| Krishna Bhargava |
+------------------+
2 rows in set (0.00 sec)
```

```
mysql> select s.name as subject, tt.day_of_week, tt.start_time, tt.end_time
    -> from timetable tt
    -> join subject s on tt.subject_id=s.subject_id
    -> order by s.name, tt.day_of_week;
+--------------------+------------+------------+----------+
| subject            | day_of_week | start_time | end_time |
+--------------------+------------+------------+----------+
| Arts               | Wednesday  | 11:00:00   | 11:45:00 |
| Biology            | Friday     | 10:00:00   | 10:45:00 |
| Biology            | Tuesday    | 10:45:00   | 11:30:00 |
| Chemistry          | Monday     | 09:30:00   | 10:15:00 |
| Civics             | Wednesday  | 13:30:00   | 14:15:00 |
| Computer Science   | Monday     | 10:45:00   | 11:30:00 |
| Computer Science   | Thursday   | 11:30:00   | 12:15:00 |
| Economics          | Thursday   | 08:30:00   | 09:15:00 |
| English            | Tuesday    | 11:30:00   | 12:15:00 |
| English            | Wednesday  | 09:30:00   | 10:15:00 |
| Geography          | Tuesday    | 09:00:00   | 09:45:00 |
| Hindi              | Friday     | 08:30:00   | 09:15:00 |
| History            | Thursday   | 13:00:00   | 13:45:00 |
| Marathi            | Friday     | 13:00:00   | 13:45:00 |
| Mathematics        | Monday     | 10:00:00   | 10:45:00 |
| Mathematics        | Thursday   | 10:00:00   | 10:45:00 |
| Physical Education | Monday     | 08:30:00   | 09:15:00 |
| Physics            | Tuesday    | 12:00:00   | 12:45:00 |
| Physics            | Wednesday  | 09:30:00   | 10:15:00 |
| Sanskrit           | Friday     | 11:00:00   | 11:45:00 |
+--------------------+------------+------------+----------+
```