1. Add gender column for the student table. It holds two value (male or female).

Alter table student add gender enum (‘male’,’female’);

2. Add birth date column for the student table.

Alter table student add birth_date date

3. Delete the name column and replace it with two columns first name and last name.

Alter table student drop column f_name;
Alter table student add first_name varchar(200) , add last_name varchar(200);

5. Add foreign key constrains in Your Tables with options on delete cascaded .

Alter table exam
Add constraint fkey_exam_std
foreign key (std_id) references student (std_id) on delete cascade;

Alter table exam
Add constraint fkey_exam_sub
foreign key (sub_id) references subject (sub_id) on delete cascade;

Alter table std_phone
Add constraint fkey_std_phone
foreign key (std_id) references student (std_id) on delete cascade;

6. Update your information by changing data for (gender, birthdate, first name, last
name, contact info).

```
UPDATE student
   -> SET
   ->    gender = 'male',
   ->    birth_date = '1995-03-15',
```

```
    ->     first_name = 'Ali',
    ->     last_name = 'Hassan'
    -> WHERE std_id = 1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE student
    -> SET
    ->     gender = 'female',
    ->     birth_date = '1996-07-20',
    ->     first_name = 'Sara',
    ->     last_name = 'Ahmed'
    -> WHERE std_id = 2;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE student
    -> SET
    ->     gender = 'male',
    ->     birth_date = '1997-01-12',
    ->     first_name = 'Omar',
    ->     last_name = 'Khaled'
    -> WHERE std_id = 3;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE student
    -> SET
    ->     gender = 'female',
    ->     birth_date = '1998-06-25',
    ->     first_name = 'Laila',
    ->     last_name = 'Mahmoud'
    -> WHERE std_id = 4;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE student
    -> SET
    ->     gender = 'male',
    ->     birth_date = '1995-11-05',
    ->     first_name = 'Ahmed',
    ->     last_name = 'Ali'
    -> WHERE std_id = 5;
Query OK, 1 row affected (0.01 sec)
```

Rows matched: 1 Changed: 1 Warnings: 0

7. Display all students' information.

Select * from student;

```
mysql> select * from student;
+--------+-------------------+--------------+--------+------------+------------+-----------+
| std_id | email             | address      | gender | birth_date | first_name | last_name |
+--------+-------------------+--------------+--------+------------+------------+-----------+
|      1 | ali@example.com   | 123 Main St  | male   | 1995-03-15 | Ali        | Hassan    |
|      2 | sara@example.com  | 456 Elm St   | female | 1996-07-20 | Sara       | Ahmed     |
|      3 | omar@example.com  | 789 Oak St   | male   | 1997-01-12 | Omar       | Khaled    |
|      4 | laila@example.com | 321 Pine St  | female | 1998-06-25 | Laila      | Mahmoud   |
|      5 | ahmed@example.com | 654 Cedar St | male   | 1995-11-05 | Ahmed      | Ali       |
+--------+-------------------+--------------+--------+------------+------------+-----------+
5 rows in set (0.00 sec)
```

8. Display male students only.

Select * from student where gender='male';

```
mysql> Select * from student where gender='male';
+--------+-------------------+--------------+--------+------------+------------+-----------+
| std_id | email             | address      | gender | birth_date | first_name | last_name |
+--------+-------------------+--------------+--------+------------+------------+-----------+
|      1 | ali@example.com   | 123 Main St  | male   | 1995-03-15 | Ali        | Hassan    |
|      3 | omar@example.com  | 789 Oak St   | male   | 1997-01-12 | Omar       | Khaled    |
|      5 | ahmed@example.com | 654 Cedar St | male   | 1995-11-05 | Ahmed      | Ali       |
+--------+-------------------+--------------+--------+------------+------------+-----------+
3 rows in set (0.00 sec)
```

9. Display the number of female students.

Select count(*) as female_num from student where gender='female' ;

```
mysql> Select count(*) as female_num from student where gender='female' ;
+------------+
| female_num |
+------------+
|          2 |
+------------+
1 row in set (0.00 sec)
```

10. Display the students who are born before 1992-10-01.

Select * from student where birth_date <"1992-10-01" ;

```
mysql> Select * from student where birth_date < "1992-10-01" ;
Empty set (0.00 sec)
```

11. Display male students who are born before 1991-10-01.

Select * from student where birth_date < “1992-10-01” and gender=”male”;

```
mysql> Select * from student where birth_date < "1992-10-01" and gender="male";
Empty set (0.00 sec)
```

12. Display subjects and their max score sorted by max score.

Select sub_name,max_score
from subject
order by max_score;

```
mysql> Select sub_name,max_score
    -> from subject
    -> order by max_score;
+-------------+-----------+
| sub_name    | max_score |
+-------------+-----------+
| English     |        65 |
| Biology     |        70 |
| Mathematics |        80 |
| Chemistry   |        90 |
| Physics     |       100 |
+-------------+-----------+
5 rows in set (0.00 sec)
```

13. Display the subject with highest max score

Select sub_name,max_score from subject order by max_score desc limit 1;

```
mysql> Select sub_name,max_score from subject order by max_score desc limit 1;
+----------+-----------+
| sub_name | max_score |
+----------+-----------+
| Physics  |       100 |
+----------+-----------+
1 row in set (0.00 sec)
```

Or

Select sub_name,max_score from subject where max_score = (select max(max_score) from subject);

```
mysql> select sub_name,max_score from subject where max_score = (select max(max_score) from subject);
+----------+-----------+
| sub_name | max_score |
+----------+-----------+
| Physics  |       100 |
+----------+-----------+
1 row in set (0.00 sec)
```

14. Display students' names that begin with A.

Select concat(first_name ," ",last_name) as fullname from student where first_name like "A%";

```
mysql> Select concat(first_name," ",last_name) as fullname from student where first_name  like "A%";
+------------+
| fullname   |
+------------+
| Ali Hassan |
| Ahmed Ali  |
+------------+
2 rows in set (0.00 sec)
```

15. Display the number of students' their name is "Mohammed"

Select count(*) as count from student where first_name="Mohammed"

```
mysql> Select count(*) as count from student where first_name="Mohammed";
+-------+
| count |
+-------+
|     0 |
+-------+
1 row in set (0.00 sec)
```

16. Display the number of males and females.

Select count(*) as gender_count ,gender from student group by gender;

```
mysql> Select count(*) as gender_count ,gender from student group by gender;
+--------------+--------+
| gender_count | gender |
+--------------+--------+
|            3 | male   |
|            2 | female |
+--------------+--------+
2 rows in set (0.00 sec)
```

17. Display the repeated first names and their counts if higher than 2.

Select first_name, count(*) from student group by first_name having count(*) >= 2;

```
mysql> SELECT first_name, COUNT(*) AS count
    -> FROM student
    -> GROUP BY first_name
    -> HAVING COUNT(*) >= 2;
+------------+-------+
| first_name | count |
+------------+-------+
| Sara       |     2 |
+------------+-------+
1 row in set (0.00 sec)
```

18. Display students' names, their score and subject name.

Select concat(std.first_name ," ",std.last_name) as fullname , ex.std_score, sub.sub_name
from student std , subject sub , exam ex
where std.std_id=ex.std_id and ex.sub_id=sub.sub_id;

```
mysql> Select concat(std.first_name ," ",std.last_name) as fullname , ex.std_score, sub.sub_name from student std , subj
ect sub , exam ex where std.std_id=ex.std_id and ex.sub_id=sub.sub_id;
+--------------+-----------+-------------+
| fullname     | std_score | sub_name    |
+--------------+-----------+-------------+
| Ali Hassan   |        85 | Mathematics |
| Sara Ahmed   |        90 | Physics     |
| Omar Khaled  |        75 | Chemistry   |
| Laila Mahmoud |        88 | Biology     |
| Ahmed Ali    |        92 | English     |
+--------------+-----------+-------------+
5 rows in set (0.00 sec)
```

Or

Select concat(std.first_name ," ",std.last_name) as fullname , ex.std_score, sub.sub_name
from exam ex
join student std on std.std_id=ex.std_id
join subject sub on ex.sub_id=sub.sub_id;

```
mysql> Select concat(std.first_name ," ",std.last_name) as fullname , ex.std_score, sub.sub_name
    -> from exam ex
    -> join student std on std.std_id=ex.std_id
    -> join subject sub on ex.sub_id=sub.sub_id;
+--------------+-----------+-------------+
| fullname     | std_score | sub_name    |
+--------------+-----------+-------------+
| Ali Hassan   |        85 | Mathematics |
| Sara Ahmed   |        90 | Physics     |
| Omar Khaled  |        75 | Chemistry   |
| Laila Mahmoud |        88 | Biology     |
| Ahmed Ali    |        92 | English     |
+--------------+-----------+-------------+
5 rows in set (0.00 sec)
```

19. Delete students their score is lower than 50 in a particular subject exam.

Delete from student
Where std_id in (select std_id from exam where std_score <50 and sub_id = 1);

```
mysql> select * from exam;
+---------+------------+-----------+--------+--------+
| exam_id | exam_date  | std_score | std_id | sub_id |
+---------+------------+-----------+--------+--------+
|       1 | 2025-01-01 |        44 |      1 |      1 |
|       2 | 2025-01-02 |        90 |      2 |      2 |
|       3 | 2025-01-03 |        75 |      3 |      3 |
|       4 | 2025-01-04 |        88 |      4 |      4 |
|       5 | 2025-01-05 |        92 |      5 |      5 |
+---------+------------+-----------+--------+--------+
5 rows in set (0.00 sec)
```

```
mysql> select * from student;
+--------+------------------+-------------+--------+------------+------------+-----------+
| std_id | email            | address     | gender | birth_date | first_name | last_name |
+--------+------------------+-------------+--------+------------+------------+-----------+
|      1 | ali@example.com  | 123 Main St | male   | 1995-03-15 | Ali        | Hassan    |
|      2 | sara@example.com | 456 Elm St  | female | 1996-07-20 | Sara       | Ahmed     |
|      3 | omar@example.com | 789 Oak St  | male   | 1997-01-12 | Omar       | Khaled    |
|      4 | laila@example.com | 321 Pine St | female | 1998-06-25 | Laila      | Mahmoud   |
|      5 | ahmed@example.com | 654 Cedar St | male   | 1995-11-05 | Ahmed      | Ali       |
|      6 | sara2@example.com | 765 mans st | female | 1990-10-17 | Sara       | Ali       |
+--------+------------------+-------------+--------+------------+------------+-----------+
6 rows in set (0.00 sec)
```

```
mysql> Delete from student
    -> Where std_id in (select std_id from exam where std_score <50 and sub_id = 1 );
Query OK, 1 row affected (0.01 sec)

mysql> select * from student;
+--------+------------------+-------------+--------+------------+------------+-----------+
| std_id | email            | address     | gender | birth_date | first_name | last_name |
+--------+------------------+-------------+--------+------------+------------+-----------+
|      2 | sara@example.com | 456 Elm St  | female | 1996-07-20 | Sara       | Ahmed     |
|      3 | omar@example.com | 789 Oak St  | male   | 1997-01-12 | Omar       | Khaled    |
|      4 | laila@example.com | 321 Pine St | female | 1998-06-25 | Laila      | Mahmoud   |
|      5 | ahmed@example.com | 654 Cedar St | male   | 1995-11-05 | Ahmed      | Ali       |
|      6 | sara2@example.com | 765 mans st | female | 1990-10-17 | Sara       | Ali       |
+--------+------------------+-------------+--------+------------+------------+-----------+
5 rows in set (0.00 sec)
```

Or (by sub name)

Delete from student Where std_id in (select ex.std_id from exam ex , subject sub where std_score <50 and sub_name = “Mathematics” and ex.sub_id = sub.sub_id);