```sql
//Create tables
create table student(
    student_ID int(5) not null auto_increment,
    student_Name varchar(150) not null,
    mobile_No varchar(10),
    Primary key(student_ID)
 ) ;

create table subject(
    subject_ID varchar(6) not null,
    subject varchar(100) not null,
    primary key(subject_ID)
    );

create table subjectMarks(
    student_ID int(5) not null,
    subject_ID varchar(6) not null,
    marks int(3) not null,
    primary key(student_ID,subject_ID),
    foreign key(student_ID) references student(student_ID) ON DELETE
CASCADE,
    foreign key(subject_ID) references subject(subject_ID)
    );


//Describe tables what kind of data available here
Describe tableName;
Desc tableName;


//Insert data into table
Insert into student(student_ID, student_Name,mobile_No)
values(1,'NImal' , '0453558504');

INSERT INTO subjectMarks(student_ID, subject_ID, marks)
VALUES
    (1, 'sub001', 45),
    (1, 'sub002', 55),
    (1, 'sub003', 50),
    (2, 'sub001', 65),
    (2, 'sub002', 45),
    (2, 'sub003', 75),
    (3, 'sub001', 95),
    (3, 'sub002', 85),
    (3, 'sub003', 74);

//delete data from table
```

```sql
delete from subjectMarks where student_ID = 1 and subject_ID = 'sub001';
delete from subject where subject_ID = 'sub001';

//Update data from table
update student set mobile_No = '0765697581' where student_ID = 2;
update student set student_Name = 'Nimalshika' where student_ID = 2;


INSERT INTO student (student_ID, student_Name)
VALUES
    (1, 'Student1'),
    (2, 'Student2'),
    (3, 'Student3');

//Using where clause can Filter data
select marks/2 as halfMarks  from subjectMarks where student_ID = 1;
select student_ID , marks from subjectMArks;
select subjectMarks.student_Id , subjectMarks.marks from subjectMarks;


//Join data using common columns
select * from subjectMarks
inner join student on subjectMarks.student_ID = student.student_ID;

//In here used table aliases and query has been simplified
select * from subjectMarks a  inner join student b on a.student_ID =
b.student_ID;


//Inner join three tables
select * from subjectMarks a
inner join student b on a.student_ID = b.student_ID
inner join subject c on a.subject_ID = c.subject_ID;

//this is how we filter columns
select b.student_Name, c.subject, a.marks from subjectMarks a inner join
student b on a.student_ID = b.student_ID inner join subject c on a.subject_ID =
c.subject_ID;

//Left join
select * from student left join subjectMarks on student.student_ID =
subjectMarks.subject_ID;

//using aliases
select * from student a  left join subjectMarks b on a.student_ID = b.subject_ID;
//check whether null or not
select * from student a  left join subjectMarks b on a.student_ID = b.subject_ID
```

```sql
where b.marks is null;
//filter and show only need tables
select a.student_Name, a.mobile_No from student a  left join subjectMarks b on
a.student_ID = b.subject_ID where b.marks is null;


//right join
select * from subjectMarks sm right join student s on s.student_ID =
sm.student_ID;
//check whether these columns are null or not
select s.student_Name, s.mobile_No from subjectMarks sm right join student s
on s.student_ID = sm.student_ID where sm.marks is null;

//cross join
select * from student
cross join subject;
  select * from (select *  from subject cross join student) a left join
subjectMarks b on a.subject_ID = b.subject_ID;

//like operator
select * from subject where subject like '%b';
select * from student where student_name like '%ud%';
select * from  student where student_Name not like '%ud%';

//order by clause
 select marks from subjectMarks
    order by marks;
select * from subjectMarks
    order by student_ID asc, marks desc;
select * from subjectMarks where student_ID = 1
    order by marks desc;
select * from subjectMarks
    where student_ID = 1
    order by marks asc;
select * from subjectMarks
    order by student_ID , marks desc;
select student_id, subject_id,marks/2
     order by marks;
select student_Id, marks/2 halfMarks from subjectMarks
    order by halfmarks;

//group by clause
SELECT subject_id, student_ID, AVG(marks) AS average_mark
FROM subjectMarks
GROUP BY subject_id, student_ID;

select subject_Id,marks from subjectMarks
```

```sql
    group by subject_ID ,student_ID;
select subject_ID , count(student_ID) from subjectMarks
    group by subject_ID;
select student_ID,avg(marks) from subjectMarks group by student_Id;
select student_ID,sum(marks) sum  from subjectMarks group by student_Id;
select student_ID,min(marks) min  from subjectMarks group by student_Id;
select student_ID,min(marks)' min mark'  from subjectMarks group by
student_Id;

//having clause
select subject_ID, avg(marks) from subjectMarks group by subject_ID having
avg(marks)>70;
select subject_ID, avg(marks) avgMarks from subjectMarks group by
subject_ID having avgMarks>70;
select subject_ID, min(marks) minMarks from subjectMarks group by
subject_ID having minmarks<30;
select subject_ID, count(marks) countminMarks from subjectMarks group by
subject_ID having countminmarks<30;

//Is null/ Is not Null
select student_Name from student where mobile_no is null;
select * from student where mobile_no is null;

//In or not IN
 select 1 = 1 from student;
 select 1 = 0 from student;
 select 1 in (1,2,3,4);
select 0 in (1,2,3,4);
 select 0 not in (1,2,3,4);
 select 5 not in (1,2,3,4,null);

select * from subjectMarks
    where subject_ID = 'sub001' or 'sub002';
 select * from subjectMarks where subject_ID not in ('sub001','sub002');

//between operator
select current_date between '2022-01-01' and '2022-12-31';
select current_date between '2024-01-01' and '2024-12-31'
select * from subjectMarks where marks between 30 and 50;
select * from subjectMarks where marks not between 30 and 50;

//subquery
select student_id, (select subject from subject where  subject.subject_Id =
subjectMarks.subject_Id) subjectName , marks from subjectMarks;
select student_id, (select subject from subject where  subject.subject_Id =
subjectMarks.subjectId), marks from subjectMarks;
select student_id, (select subject from subject where subject_Id = 'sub001'),
```

marks from subjectMarks;
select student_id, (select subject from subject where subject_Id), marks from subjectMarks;

//limit clause
select * from subjectMarks order by marks asc limit 10;
select * from subjectMarks order by marks asc limit 1;
select * from subjectMarks order by marks desc limit 1;
select * from subjectMarks order by marks desc limit 0,10;
 select * from subjectMarks order by marks asc limit 5,10;
select * from subjectMarks order by marks asc limit 2
select * from subjectMarks order by marks asc limit 0,2;
select * from subjectMarks order by marks asc limit 2,2;