

Example1

```
create database example1;  
use example1;  
show tables;
```

1

```
create table student (  
    Roll varchar(20) primary key,  
    Name varchar(100),  
    Dept varchar(50),  
    Year varchar(10),  
    Semester varchar(10)  
);
```

```
insert into student (Roll, Name, Dept, Year, Semester) values  
( '06543201', 'Rahim', 'BBA', '2nd', '1st'),  
( '06543202', 'Karim', 'ICE', '2nd', '1st'),  
( '06543203', 'Motin', 'CSE', '1st', '2nd'),  
( '05654456', 'Swadhin', 'CSE', '1st', '2nd'),  
( '05654457', 'Hena', 'BBA', '4th', '2nd'),  
( '05654458', 'Sohag', 'CSE', '3rd', '1st');
```

2

```
create table studentinfo (  
    Roll varchar(20) primary key,  
    Name varchar(100),  
    FatherName varchar(100),  
    Address varchar(100),  
    Mobile varchar(15)  
);
```

```
insert into studentinfo (Roll, Name, FatherName, Address, Mobile) values  
( '06543201', 'Rahim', 'Ataur', 'Rajshahi', '01719201233'),  
( '06543202', 'Karim', 'Tareq', 'Dhaka', '01719202020'),  
( '06543203', 'Motin', 'Rahman', 'Khulna', '01719202678'),  
( '05654456', 'Swadhin', 'Fazlu', 'Rajshahi', '01719204564'),  
( '05654457', 'Hena', 'Rahman', 'Rajshahi', '01119212020'),  
( '05654458', 'Sohag', 'Fazlul', 'Natore', '01719202222');
```

-- i.1. Students in 1st semester

```
select name from student where Semester = '1st';
```

-- i.2. Students in 2nd year

```
select name from student where Year = '2nd';
```

```
-- i.3. Students in CSE
select name from student where Dept = 'CSE';

-- i.4. Student with roll 06543201
select name from student where Roll = '06543201';
```

Example2

```
create database example2;
use example2;
show tables;
create table employee(
employee_name varchar(50) primary key,
street varchar(50),
city varchar(50)
);
```

```
# (a)
insert into employee values
('Arif', '51 upashahar', 'Rajshahi'),
('Sumon', '52 east', 'Moynamati'),
('Sagor', 'Neemgachhi', 'Sirajgong'),
('Abdul', 'Binodpur', 'Rajshahi'),
('Himesh', 'Nazrul avenue', 'Dhaka'),
('Amirul', 'Chawk bazar', 'Sylhet'),
('Sajib', '99 north', 'Chittagong');
select * from employee;
create table works(
employee_name varchar(50) primary key,
company_name varchar(50), salary int
);
insert into works values
('sumon', 'agrani', 12000),
('abdul', 'sonali', 13000),
('himesh', 'agrani', 6000),
('amirul', 'sonali', 20000),
('sagor', 'sonali', 8000),
('arif', 'janata', 13000),
('sajib', 'janata', 9000);
```

```
select * from works;  
truncate table works;
```

```
# (b)  
select employee_name  
from employee  
where city = 'Rajshahi';
```

```
# (c)  
select employee_name, street  
from employee  
where city = 'Rajshahi';
```

```
# (d)  
select employee_name  
from works  
where company_name='Sonali';  
select employee_name  
from works  
where company_name='Agrani';  
select employee_name  
from works  
where company_name='Janata';
```

```
# (e)  
select employee_name,salary  
from works  
where company_name = 'Sonali';  
select employee_name,salary  
from works  
where company_name = 'Agrani';  
select employee_name,salary  
from works where company_name = 'Janata';
```

```
# (f)  
select employee_name  
from works  
where salary = 12000;  
select employee_name  
from works  
where salary >= 12000;  
select employee_name  
from works  
where salary < 12000;
```

```
# (g)
select employee_name, company_name
from works
where salary = 12000;
select employee_name, company_name
from works
where salary >= 12000;
select employee_name, company_name
from works
where salary < 12000;
```

```
# (h)
select employee.employee_name, street, city
from employee
natural join works
where company_name = 'Agrani';
select e.employee_name, street, city
from employee e, works w
where e.employee_name = w.employee_name and w.company_name = 'Agrani' ;
```

```
# (i)
select e.employee_name, e.street, e.city
from employee e
natural join works w
where w.salary >= 10000;
```

```
# (j)
select e.employee_name, w.company_name, w.salary
from employee e natural join works w
where e.city = 'Rajshahi';
```

```
# (k)
select e.employee_name, e.street, e.city, w.company_name
from employee e
natural join works w
where w.salary >= 10000;
```

```
# (l)
select e.employee_name, e.street, e.city
from employee e
natural join works w
where w.company_name = 'Sonali' and w.salary > 12000;
```

```
# (m)
```

```
select employee_name
from works
where company_name != 'Sonali';
```

```
# (n)
update employee
set city = 'Natore'
where employee_name = 'Arif';
select * from employee;
```

```
# (o)
SET SQL_SAFE_UPDATES = 0;
update works
set salary = salary * 1.1
where company_name = 'Agrani';
SET SQL_SAFE_UPDATES = 1;
select * from works;
```

```
# (p)
delete from employee
where employee_name = 'Sagor';
select * from employee;
```

```
# (q)
alter table works
add column manager varchar(50);
```

```
# Example (03)
```

```
# (a)
create database example3;
use example3;
create table person(
nid int,
name varchar(50),
address varchar(50)
);
insert into person values
(123451, 'Arif', 'Rajshahi'),
(123452, 'Sumon', 'Moynamati'),
(123453, 'Sagor', 'Sirajgang'),
(123454, 'Abdul', 'Rajshahi'),
(123455, 'Himesh', 'Dhaka'),
(123456, 'Amirul', 'Sylhet'),
(123457, 'Sajib', 'Chittagang');
```

```

select * from person;
create table car(
license varchar(50),
year year,
model varchar(50)
);
insert into car values
('12-3000', 2012, 'Axio'),
('11-3000', 2008, 'Corolla'),
('12-4000', 2013, 'Axio'),
('12-5000', 2013, 'Premio'),
('11-5000', 2010, 'Nano'),
('11-6000', 2011, 'Alto'),
('12-6000', 2015, 'Nano Twist');
select * from car;
create table accident(
date date,
driver varchar(50),damage_amount int
);
insert into accident values
('2013-01-12', 'Arif', 10000),
('2015-09-25', 'Komol', 12000),
('2014-06-20', 'Bahadur', 11000),
('2011-12-20', 'Abdul', 8000),
('2015-09-19', 'Akter', 7000),
('2013-05-15', 'Arif', 20000),
('2014-08-20', 'Arif', 15000);
create table owns(
nid int,
license varchar(50)
);
INSERT INTO owns VALUES
(123451, '11-3000'),
(123452, '12-4000'),
(123453, '12-5000'),
(123454, '11-5000'),
(123455, '11-6000'),
(123456, '12-6000'),
(123457, '12-3000');create table log(
license varchar(50),
date date,
driver varchar(50),
primary key(license,date,driver)
);

```

```
INSERT INTO log VALUES
('11-3000', '2013-12-01', 'Arif'),
('12-4000', '2015-09-25', 'Komol'),
('11-6000', '2014-06-20', 'Bahadur'),
('11-5000', '2011-12-20', 'Abdul'),
('12-6000', '2015-09-19', 'Aker'),
('11-3000', '2013-05-15', 'Arif'),
('11-3000', '2014-08-20', 'Arif');
```

```
# (b)
select name
from person
where address = 'Rajshahi';
```

```
# (c)
select model from car
where year = 2013;
```

```
# (d)
select distinct driver
from accident
where damage_amount >= 10000 and damage_amount <= 15000;
```

```
# (e)
select nid
from owns
natural join car
where model = 'Axio';
SELECT p.nid
FROM person p
JOIN owns o ON p.nid = o.nid
JOIN car c ON o.license = c.license
WHERE c.model = 'Axio';
```

```
# (f)
select name, address
from person
natural join owns natural join car
where model = "Alto";
```

```
# (g)
select driver
from accident
where date = '2011-12-20';
```

```
# (h)
select name
from person
where nid = (select nid from owns where license = '12-4000');
select name
from person
natural join owns
where license = '12-4000';
```

```
# (i)
select name
from person
natural join owns
natural join log
where driver = 'Arif';
```

```
# (j)
select model
from car
join log on car.license = log.license
join accident on log.driver = accident.driver
where accident.date = '2015-09-19';
```

```
# (k)
select count(driver)
from accident
where driver = 'Arif';
```

```
# (l)
select date
from accident
where driver = 'Arif';
```

```
# (m)
set sql_safe_updates = 0;
update person
set address = 'Natore' where name = "Arif";
set sql_safe_updates = 1;
select *
from person
where name = 'Arif';
```

```
# Example3
```


(a)

```
create database example3;  
use example3;  
show tables;
```

```
create table person (  
    nid varchar(20) primary key,  
    name varchar(100),  
    address varchar(255)  
);
```

```
insert into person (nid, name, address) values  
('123451', 'arif', 'rajshahi'),  
('123452', 'sumon', 'moynamati'),  
('123453', 'sagor', 'sirajgang'),  
('123454', 'abdul', 'rajshahi'),  
('123455', 'himesh', 'dhaka'),  
('123456', 'amirul', 'sylhet'),  
('123457', 'sajib', 'chittagang');
```

```
select * from person;  
create table car(  
    license varchar(50),  
    year year,  
    model varchar(50)  
);
```

```
insert into car values  
('12-3000', 2012, 'Axio'),  
('11-3000', 2008, 'Corolla'),  
('12-4000', 2013, 'Axio'),  
('12-5000', 2013, 'Premio'),  
('11-5000', 2010, 'Nano'),  
('11-6000', 2011, 'Alto'),  
('12-6000', 2015, 'Nano Twist');
```

```
select * from car;
```

```
create table accident(  
    date date,  
    driver varchar(50),  
    damage_amount int  
);
```

```
insert into accident (date, driver, damage_amount) values
('12/01/2013', 'Arif', 10000),
('25/09/2015', 'Komol', 12000),
('20/06/2014', 'Bahadur', 11000),
('20/12/2011', 'Abdul', 8000),
('19/09/2015', 'Akter', 7000),
('15/05/2013', 'Arif', 20000),
('20/08/2014', 'Arif', 15000);
```

```
select * from accident;
```

```
create table owns(
nid int,
license varchar(50)
);
```

```
insert into owns (nid, license) values
(123451, '11-3000'),
(123452, '12-4000'),
(123453, '12-5000'),
(123454, '11-5000'),
(123455, '11-6000'),
(123456, '12-6000'),
(123457, '12-3000');
```

```
select * from owns;
```

```
create table log(
license varchar(50),
date date,
driver varchar(50),
primary key(license,date,driver)
);
```

```
insert into log values
('11-3000', '2013-12-01', 'Arif'),
('12-4000', '2015-09-25', 'Komol'),
('11-6000', '2014-06-20', 'Bahadur'),
('11-5000', '2011-12-20', 'Abdul'),
('12-6000', '2015-09-19', 'Akter'),
('11-3000', '2013-05-15', 'Arif'),
('11-3000', '2014-08-20', 'Arif');
```

```
select * from log;
```

```
# (b)
```

```
select name  
from person  
where address = 'Rajshahi';
```

```
# (c)
```

```
select model from car  
where year = 2013;
```

```
# (d)
```

```
select distinct driver  
from accident  
where damage_amount >= 10000 and damage_amount <= 15000;
```

```
# (e)
```

```
select nid  
from owns  
natural join car  
where model = 'Axio';  
SELECT p.nid  
FROM person p  
JOIN owns o ON p.nid = o.nid  
JOIN car c ON o.license = c.license  
WHERE c.model = 'Axio';
```

```
# (f)
```

```
select name, address  
from person  
natural join owns natural join car  
where model = "Alto";
```

```
# (g)
```

```
select driver  
from accident  
where date = '2011-12-20';
```

```
# (h)
```

```
select name  
from person  
where nid = (select nid from owns where license = '12-4000');  
select name  
from person
```

```
natural join owns
where license = '12-4000';
```

```
# (i)
select name
from person
natural join owns
natural join log
where driver = 'Arif';
```

```
# (j)
select model
from car
join log on car.license = log.license
join accident on log.driver = accident.driver
where accident.date = '2015-09-19';
```

```
# (k)
select count(driver)
from accident
where driver = 'Arif';
```

```
# (l)
select date
from accident
where driver = 'Arif';
```

```
# (m)
set sql_safe_updates = 0;
update person
set address = 'Natore'
where name = 'Arif';
set sql_safe_updates = 1;
select *
from person
where name = 'Arif';
```

```
# Example 4
```

```
# (a)
```

```
create database example4;
use example4;
create table employee(
employee_name varchar(50) primary key,
```

```
street varchar(50),  
city varchar(50)  
);
```

```
insert into employee values  
( 'arif','51 upashahar','rajshahi'),  
( 'sumon','52 east','moynamati'),  
( 'sagor','neemgachhi','sirajgong'),  
( 'abdul','binodpur','rajshahi'),  
( 'himesh','nazrul avenue','dhaka'),('amirul','chawk bazar','sylhet'),  
( 'sajib','99 north','chittagong');
```

```
select * from employee;
```

```
create table works(  
employee_name varchar(50) primary key,  
company_name varchar(50),  
salary int  
);
```

```
insert into works values  
( 'sumon','agrani',12000),  
( 'abdul','sonali',13000),  
( 'himesh','agrani',6000),  
( 'amirul','sonali',20000),  
( 'sagor','sonali',8000),  
( 'arif','janata',13000),  
( 'sajib','janata',9000);
```

```
select * from works;
```

```
truncate table works;
```

```
create table company(company_name varchar(30),city varchar(30));
```

```
insert into company values  
( 'agrani','rajshahi'),  
( 'sonali','sylhet'),  
( 'janata','dhaka');
```

```
create table manages(employee_name varchar(30),manager_name varchar(30));
```

```
insert into manages values  
( 'amirul','amirul'),  
( 'abdul','amirul'),
```

```
('sagor','amirul'),  
('sumon','sumon'),  
('himesh','sumon'),  
('arif','arif'),  
('sajib','arif');
```

```
select * from manages;
```

```
# (b)  
select employee_name  
from works  
where company_name = "Sonali";
```

```
# (c)  
select e.employee_name, street, city  
from employee e  
natural join works  
where company_name = 'agrani';
```

```
# (d)  
select e.employee_name, street, city  
from employee e  
natural join works w  
where w.company_name = 'sonali' and salary*12 > 120000;
```

```
# (e)  
select e.employee_name  
from employee e  
natural join works w  
natural join company c  
where e.city = c.city;
```

```
# (f)  
select distinct e.employee_name  
from employee e  
natural join manages m  
join employee mn on m.manager_name = mn.employee_name  
where e.city = mn.city and  
e.street = mn.street;
```

```
# (g)  
select employee_name  
from works  
where company_name != 'Sonali';
```

```
# (h)
select employee_name
from works
where salary > (select max(salary) from works where company_name = 'Janata');
select w1.employee_name
from works w1
where w1.salary > all (select w2.salary from works w2 where
w2.company_name = 'Janata');
```

```
# (i)
select w.employee_name
from works w
where w.salary > (select avg(salary) from works w2 where w.company_name =
w2.company_name);
```

```
# (j)
select company_name
from works group by company_name
order by count(employee_name) desc
limit 1;
```

```
# (k)
select company_name
from works
group by company_name
order by sum(salary) ASC
limit 1;
```

```
# (l)
select company_name
from works
group by company_name
having avg(salary) > (select avg(salary) from works where company_name =
'agrani');
```

```
# (m)
set sql_safe_updates = 0;
update employee
set city = 'natore'
where employee_name = "arif";set sql_safe_updates=1;
```

```
# (n)
set sql_safe_updates=0;
update works
```

```
set salary = salary * 1.10
where company_name = 'agrani';
set sql_safe_updates = 1;
select * from works;
```

```
# (o)
update works
set salary = salary * 1.10
where employee_name in (
select manager_name
from manages m
join employee e on m.manager_name = e.employee_name
where company_name = 'agrani'
);
```

```
# (p)
update works
set salary = case
when salary * 1.10 <= 19000 then salary *
1.10
else salary * 1.03
end
where employee_name in (
select manager_name
from manages
);
```

```
# (q)
delete from works
where company_name = 'Janata';
```

```
# (r)
create view managerAverageSalary as
select m.manager_name, avg(w.salary) as avg_salary
from manages m
join works w on m.employee_name = w.employee_name
group by m.manager_name;select * from managerAverageSalary;
```

Example 5

```
# (a)
create database example05;
use example05;
show tables;
```



```
create table publisher(  
name varchar(50) primary key,  
address varchar(50),  
phone varchar(50)  
);
```

```
insert into publisher values  
( 'PHI', '20 Delhi Super Market', '01715-454678'),  
( 'Tata', 'North Kolkata', '0156-2345445'),  
( 'Galgotia', 'Mumbai', '0192-203490');
```

```
create table library_branch(  
branchid int primary key,  
branchname varchar(50),  
address varchar(50)  
);
```

```
insert into library_branch values  
(1001, 'CSE Seminar Library', 'Rajshahi'),  
(1002, 'RU Central Library', 'Rajshahi'),  
(1003, 'DU Central Library', 'Dhaka');
```

```
create table borrower(  
cardno int primary key,  
name varchar(50),  
address varchar(50),  
phone varchar(11)  
);
```

```
insert into borrower values  
(10001, 'Saidur', 'CSE', '01714400567'),  
(10002, 'Rafiq', 'PHYSICS', '0194300456'),  
(10003, 'Masud', 'CSE', '0156345678'),  
(10004, 'Nobir', 'ICT', '01199203456');
```

```
create table book(  
bookid varchar(50) primary key,  
title varchar(50), publishername varchar(50) ,  
foreign key (publishername) references publisher(name)  
);
```

```
insert into book values  
( '100.001cn', 'Computer Network', 'PHI'),  
( '100.002dsc', 'Database System', 'Tata'),
```

```
('100.003ds', 'Digital System', 'PHI'),  
( '100.004db', 'DBMS', 'PHI'),  
( '100.005ora', 'Oracle 2000', 'Galgotia');
```

```
create table bookauthors(  
bookid varchar(50),  
authorname varchar(50),  
primary key(bookid,authorname),  
foreign key(bookid) references book(bookid)  
);
```

```
insert into bookauthors values  
( '100.001cn', 'A S Tanenbaum'),  
( '100.002dsc', 'Silberschatz'),  
( '100.003ds', 'Ronald J Tocci'),  
( '100.004db', 'Ivan Bayross'),  
( '100.005ora', 'Ivan Bayross');
```

```
create table book_copies(  
bookid varchar(50),  
branchid int ,  
noofcopies int,  
primary key(bookid,branchid),  
foreign key(bookid) references book(bookid),  
foreign key(branchid) references library_branch(branchid)  
);
```

```
insert into book_copies values  
( '100.001cn', 1001, 2),  
( '100.001cn', 1002, 5),  
( '100.002dsc', 1001, 3),  
( '100.002dsc', 1002, 4),  
( '100.003ds', 1001, 3),  
( '100.003ds', 1003, 5),  
( '100.004db', 1001, 2),  
( '100.004db', 1002, 5),  
( '100.005ora', 1001, 2),  
( '100.005ora', 1002, 7);
```

```
create table book_loan (bookid VARCHAR(10),  
branchid INT,  
cardno INT,  
dateout DATE,  
duedate DATE,
```

```
PRIMARY KEY (bookid, branchid, cardno ),
FOREIGN KEY (bookid) REFERENCES book(bookid),
FOREIGN KEY (branchid) REFERENCES library_branch(branchid),
FOREIGN KEY (cardno) REFERENCES borrower(cardno)
);
```

```
insert into book_loan values
('100.001cn', 1001, 10001, '2015-01-15', '2015-02-15'),
('100.001cn', 1002, 10002, '2015-01-25', '2015-02-25'),
('100.002dsc', 1001, 10003, '2015-02-20', '2015-03-20'),
('100.002dsc', 1002, 10004, '2015-03-15', '2015-04-15'),
('100.003ds', 1001, 10001, '2015-06-07', '2015-07-07'),
('100.003ds', 1003, 10002, '2015-10-15', '2015-11-15'),
('100.004db', 1001, 10003, '2015-10-25', '2015-11-25'),
('100.004db', 1002, 10004, '2015-11-15', '2015-12-15'),
('100.005ora', 1001, 10003, '2015-12-22', '2016-01-22'),
('100.005ora', 1002, 10001, '2015-12-25', '2016-01-25');
```

```
select * from book;
select * from bookauthors;
select * from publisher;
select * from book_copies;
select * from library_branch;
select * from borrower;
select * from book_loan;
```

```
# (1)
select noofcopies
from book_copies
where bookid = (select bookid from book where title = 'dbms')
and branchid = (select branchid from library_branch where branchname = 'cse
seminar library');
```

```
# (2)
select lib.branchname, c1.noofcopies
from (select branchid, noofcopies from book_copies where bookid = (select
bookid from book where title = 'dbms')) c1
natural join library_branch lib;
```

```
# (3)
select name
from borrower
where cardno not in (select b.cardno from book_loan b );
```

```

# (4)
select title, name, address
from (
select bookid, cardno
from book_loan
where branchid = (select branchid from library_branch where branchname=
'cse seminar library') and duedate = '2015-02-15'
) b1
natural join book
natural join borrower;
-- select name,address,phone from borrower where cardno in (
-- select cardno from book_loan where branchid=1001 and duedate='2015-02-15')

```

```

# (5)
select b.branchname , c1.cnt
from (select branchid, count(branchid) as cnt
from book_loan
group by branchid) c1
natural join library_branch b

```

```

# (6)
select b.name, b.address, c1.cdno
from ( select * from (select cardno, count(cardno) as cdno
from book_loan
group by cardno
) c where cdno > 2 ) c1
natural join borrower b;
select * from bookauthors;

```

```

# (7)
select title , noofcopies
from (((bookauthors natural join book) natural join book_copies) natural join
library_branch)
where authorname = 'ivan bayross' and branchname = 'ru central library';

```