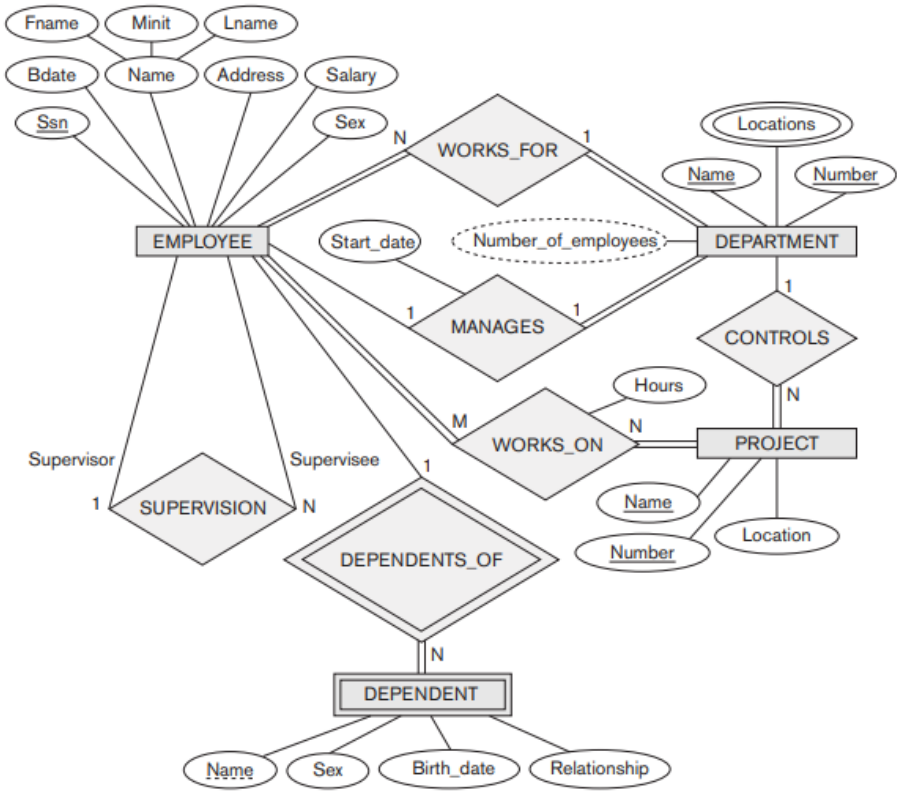
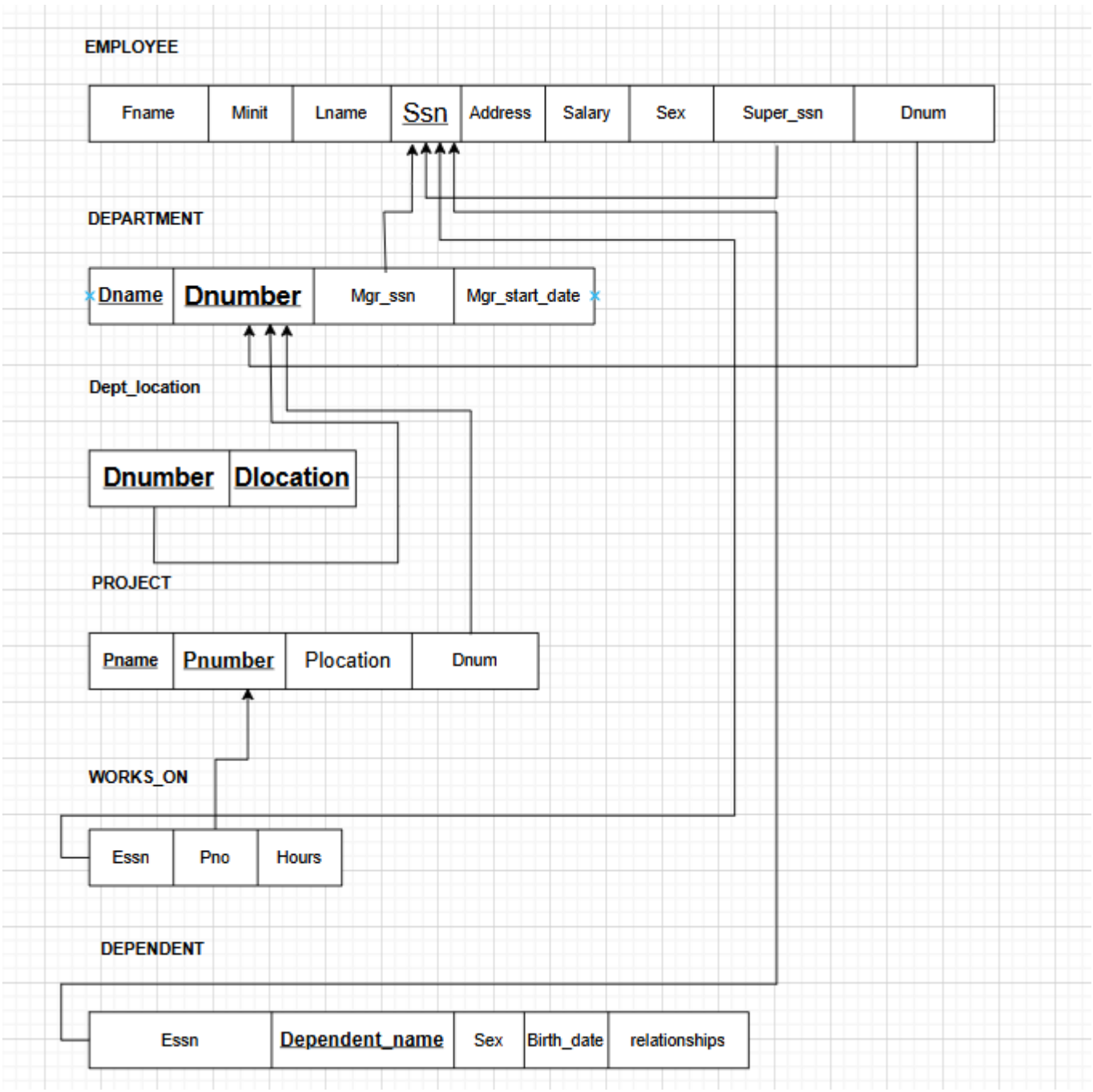
Q)Construct an ER diagram for a travel agency

Q) Construct an ER diagram for a Library management system

Q) Mapping the following ER/EER diagram to Relational schema model




EMPLOYEE
Fname
Minit
Lname
Ssn
Address
Salary
Sex
Super_ssn
Dnum
DEPARTMENT
Dname
Dnumber
Mgr_ssn
Mgr_start_date
Dept_location
Dnumber
Dlocation
PROJECT
Pname
Pnumber
Plocation
Dnum
WORKS_ON
Essn
Pno
Hours
DEPENDENT
Essn
Dependent_name
Sex
Birth_date
relationships

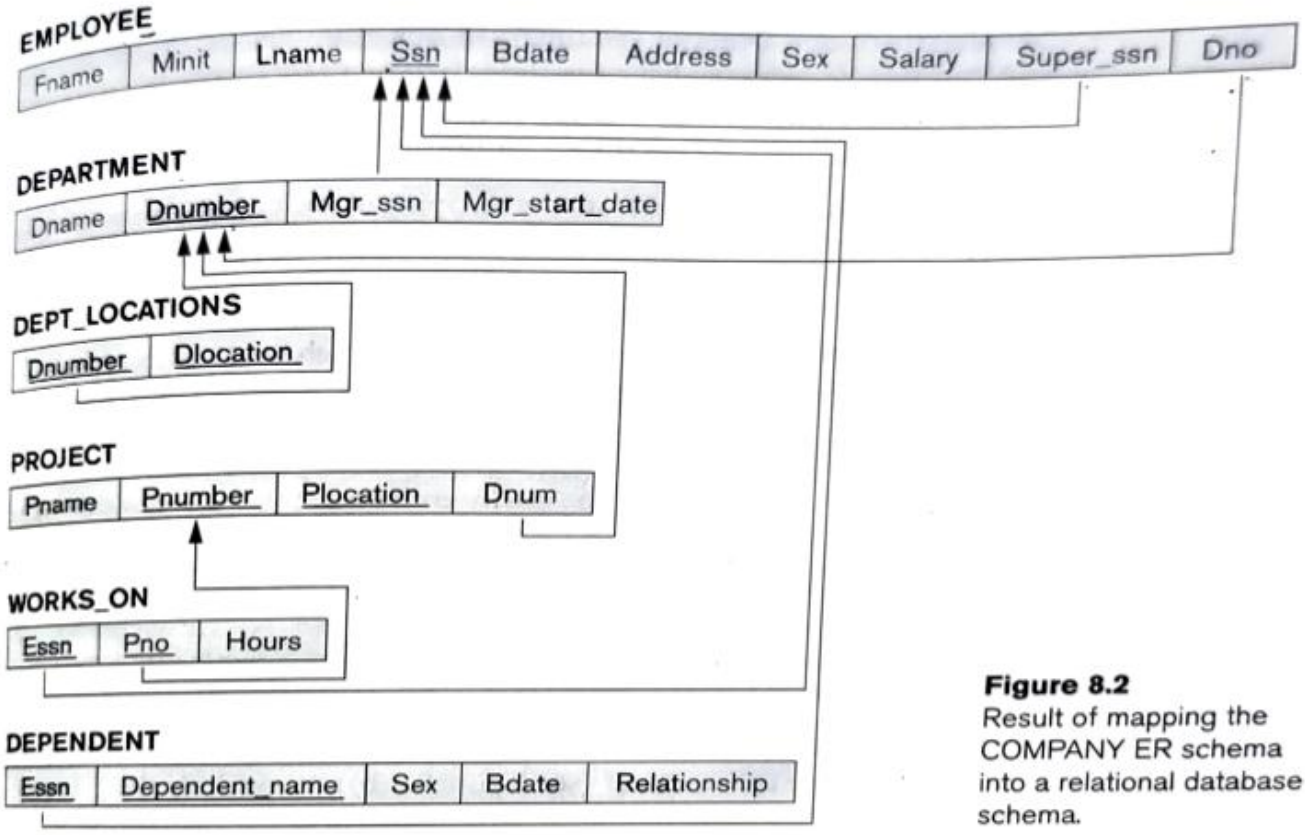
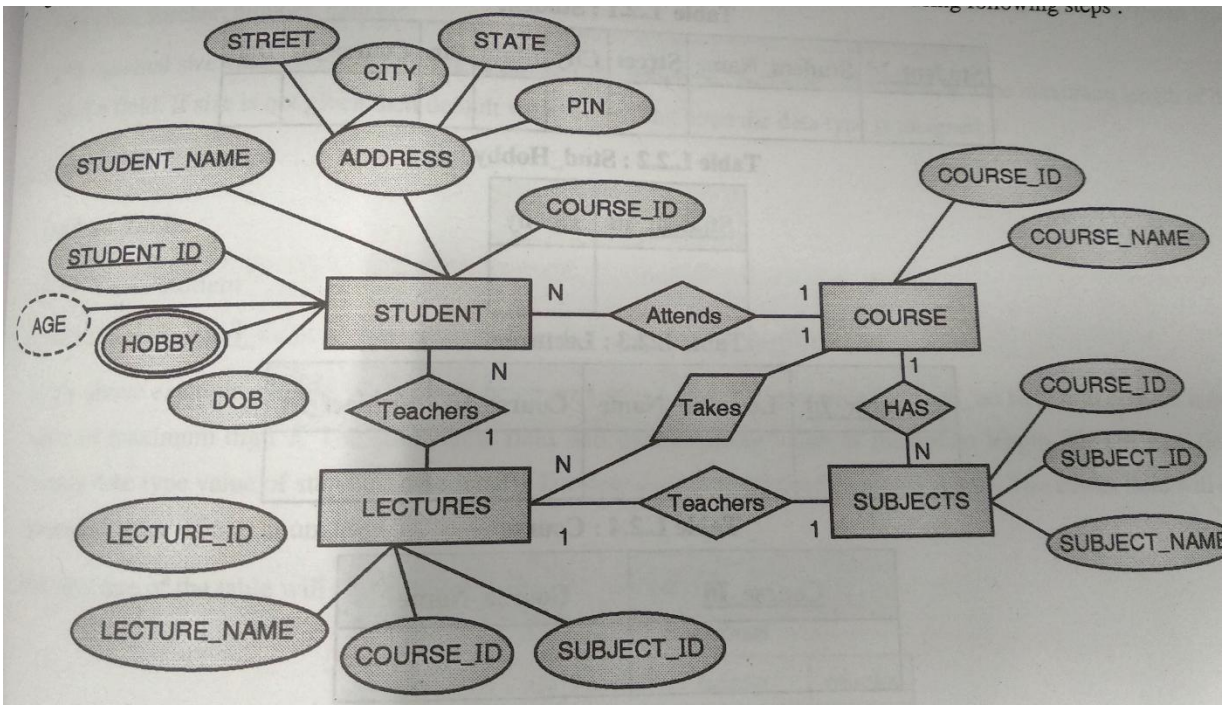
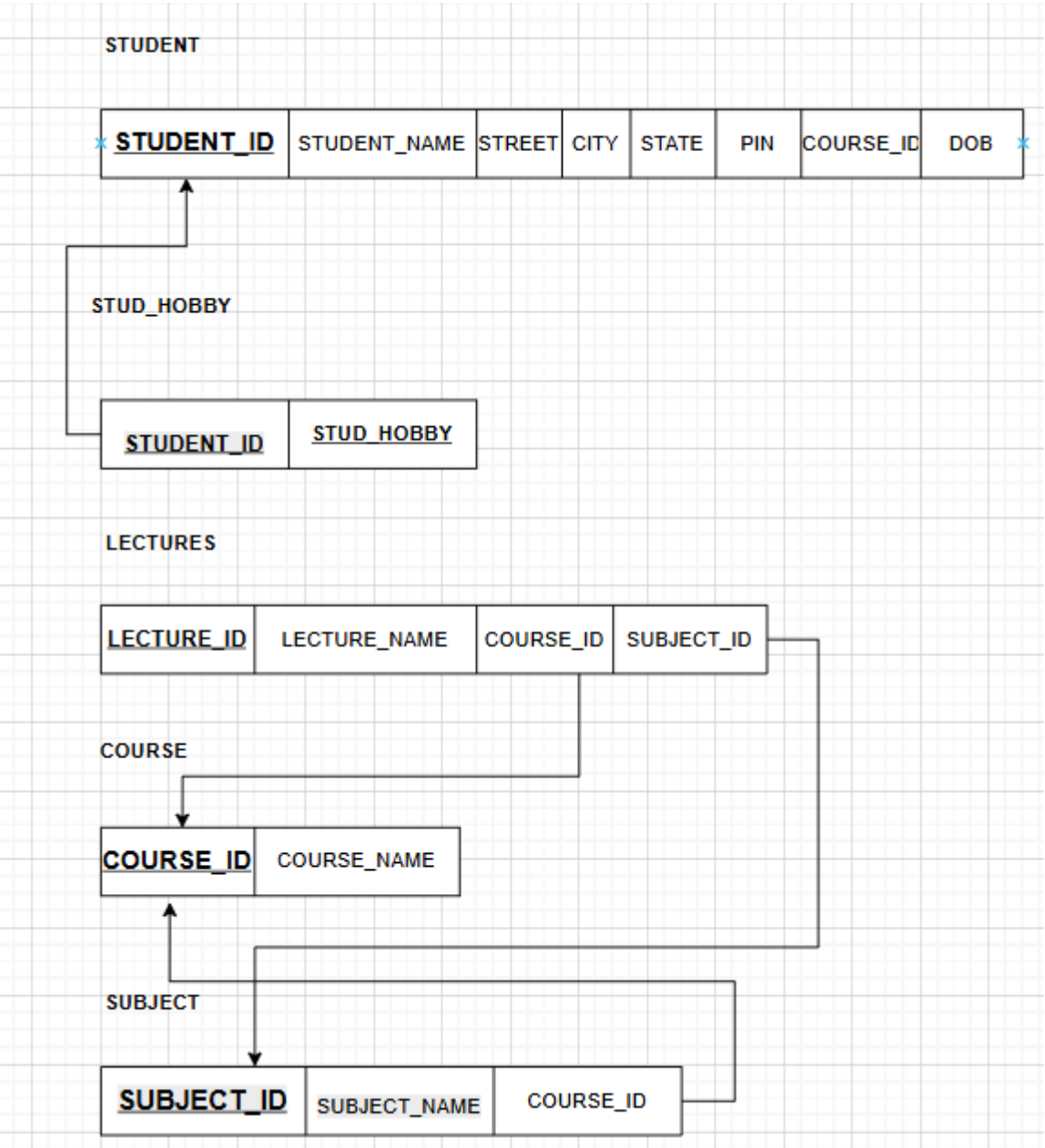


Figure 8.2
Result of mapping the COMPANY ER schema into a relational database schema.

Q) Mapping the following ER/EER diagram to Relational schema model


STREET
CITY
STATE
PIN
ADDRESS
STUDENT_NAME
COURSE_ID
STUDENT_ID
AGE
HOBBY
DOB
STUDENT
N
Attends
1
COURSE
1
COURSE_ID
COURSE_NAME
N
Teachers
1
Takes
HAS
1
N
COURSE_ID
SUBJECT_ID
LECTURES
N
Teachers
1
SUBJECTS
1
LECTURE_ID
LECTURE_NAME
COURSE_ID
SUBJECT_ID



Q) Create a database using Data Definition Language (DDL) and apply integrity constraints for the specified System

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

PROJECT

Pname	Pnumber	Plocation	Dnum

WORKS_ON

Essn	Pno	Hours

```
create database if not exists company;
use company;

create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn)
    -- foreign key(Dno) references DEPARTMENT(Dnumber)
);

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date,
    foreign key(Mgr_ssn) references EMPLOYEE(Ssn)
);
```

```
create table PROJECT(
        Pname varchar(50) not null,
    Pnumber int primary key,
    Plocation varchar(100),
    Dnum int,
    foreign key(Dnum) references DEPARTMENT(Dnumber)
);

create table WORKS_ON(
        Essn char(9),
    Pno int,
    Hours  decimal(5,2),
    primary key(Essn, Pno),
    foreign key(Essn) references EMPLOYEE(Ssn),
    foreign key(Pno) references PROJECT(Pnumber)
);

alter table EMPLOYEE
add constraint fk_dept
foreign key(Dno) references DEPARTMENT(Dnumber);

set foreign_key_checks = 0;
truncate table EMPLOYEE;
set foreign_key_checks = 1;

-- drop, rename, alter (add, modify)
-- alter table table_name add column_name datatype;
-- alter table table_name modify column column_name datatype;
-- drop table table_name;
-- rename table old_name to new_name;
```

Q) Create a database using Data Definition Language (DDL) and apply integrity constraints for the specified System

Company(Company_id, Name, Address)

Customer(Customer_id, Name, Address, phone, Insurance_company)

Car(Car_Number, Car_Model, Owner_id)

Accidents (Accident_id, Car_Number, Location, date, time)

```
create database companydb;
use companydb;

create table Company(
        Company_id int primary key,
    Name varchar(50) not null,
    Address varchar(100)
);

create table Customer(
        Customer_id int primary key,
    Name varchar(50) not null,
    Address varchar(100),
    phone varchar(15),
    insurance_company int,
    foreign key(insurance_company) references Company(Company_id)
);

create table Car(
        Car_Number varchar(20) primary key,
    Car_Model varchar(35),
    Owner_id int,
    foreign key(Owner_id) references Customer(Customer_id)
```

```
);

create table Accidents(
        Accident_id int primary key,
    Car_Number varchar(20),
    Location varchar(30),
    date date,
    time time,
    foreign key(Car_Number) references Car(Car_Number)
);
```

Q) Create and insert four rows in the following relations. Write a query to modify the salary of each employee by incrementing with 20%

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

```
create database if not exists company;
use company;

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
```

```
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
('IT', 2, '234567890', '2000-03-31'),
('PR', 3, '345678901', '2024-04-26'),
('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values
('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),
('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),
('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),
('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4);

set sql_safe_updates = 0;
update EMPLOYEE
set Salary = Salary + Salary*0.2;
--set Salary = Salary*1.2
set sql_safe_updates = 1;
```

Q) Create and insert four rows in the following relations. Write a query to remove all the projects belonging to any one department.

PROJECT

Pname	Pnumber	Plocation	Dnum

WORKS_ON

Essn	Pno	Hours

```
create database if not exists company;
use company;

create table PROJECT(
        Pname varchar(50) not null,
    Pnumber int primary key,
    Plocation varchar(100),
    Dnum int
);

create table WORKS_ON(
        Essn char(9),
    Pno int,
    Hours  decimal(5,2),
    primary key(Essn, Pno),
    foreign key(Pno) references PROJECT(Pnumber)
);

insert into PROJECT values
('AI chatbot', 101, 'New York', 1),
('Youtube Summarizer', 102, 'America', 2),
```

```
('Login System', 103, 'Canada', 1),
('Web application', 104, 'Africa', 3);

insert into WORKS_ON values
('123455556', 101, 20.5),
('123456789', 102, 23),
('234567891', 103, 23.56),
('345678901', 104, 34.24);

set sql_safe_updates = 0;
set foreign_key_checks = 0;
delete from PROJECT
where Dnum = 1;
set foreign_key_checks = 1;
set sql_safe_updates = 1;
```

Q) Create and insert four rows in the following relations. Write a query to change the address of all the customers with the name beginning with letter "A".

Company(Company_id, Name, Address)

Customer(Customer_id, Name, Address, phone, Insurance_company)

```
create database companydb;
use companydb;

create table Company(
        Company_id int primary key,
    Name varchar(50) not null,
    Address varchar(100)
);
```

```
create table Customer(
        Customer_id int primary key,
    Name varchar(50) not null,
    Address varchar(100),
    phone varchar(15),
    insurance_company int,
    foreign key(insurance_company) references Company(Company_id)
);

insert into Company values
(1, 'Infosys', 'NewYork'),
(2, 'TCS', 'Canada'),
(3, 'Google', 'America'),
(4, 'Microsoft', 'India');

insert into Customer values
(101, 'Aarti', 'Virar', 9126672782, 2),
(102, 'Nitin', 'England', 9786734524, 1),
(103, 'Ms.Dipti', 'vasai',6777777707, 3),
(104, 'aaditi', 'mumbai', 8999945555, 3);

set sql_safe_updates = 0;
update Customer
set Address = 'Updated new address'
where Name like 'A%';
set sql_safe_updates = 0;

select * from Customer;
```

Q) Create and insert four rows in the following relations. Write a query to delete all cars owned by a single owner.

Car(Car_Number, Car_Model, Owner_id)

Accidents (Accident_id, Car_Number, Location, date, time)

```
create database companydb;
use companydb;
create table Car(
        Car_Number varchar(20) primary key,
   Car_Model varchar(35),
   Owner_id int
);

create table Accidents(
        Accident_id int primary key,
   Car_Number varchar(20),
   Location varchar(30),
   date date,
   time time,
   foreign key(Car_Number) references Car(Car_Number)
);

insert into Car values
('MH1002728', 'ferrari', 1),
('MH2345678', 'sports', 1),
('MH5667383', 'suv', 2),
('MH6778282', 'honda', 3);

insert into Accidents values
(01, 'MH1002728', 'Pune', '2024-06-03', '14:00:00' ),
(02, 'MH2345678', 'Mumbai', '2024-07-02', '23:00:23'),
```

```
(03, 'MH5667383', 'Satara', '2024-08-09', '12:12:02'),
(04, 'MH6778282', 'thane', '2025-01-01', '13:00:09');

delete from Accidents
where Car_Number in(
    select Car_Number from Car where Owner_id = 1
);

set foreign_key_checks = 0;
delete from Car
where Owner_id = 1;
set foreign_key_checks = 1;
```

Q) Create and insert four rows in the following relations. Write a query to find average salary of all employees

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

```
create database if not exists company;
use company;

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
```

```
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
('IT', 2, '234567890', '2000-03-31'),
('PR', 3, '345678901', '2024-04-26'),
('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values
('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),
('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),
('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),
('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4);

select avg(Salary) as averageSalary from EMPLOYEE;
```

Q) Create and insert four rows in the following relations. Write a query to count the number of project belonging to each department.

PROJECT

Pname	Pnumber	Plocation	Dnum

WORKS_ON

Essn	Pno	Hours

```
create database if not exists company;
use company;

create table PROJECT(
        Pname varchar(50) not null,
    Pnumber int primary key,
    Plocation varchar(100),
    Dnum int
);

create table WORKS_ON(
        Essn char(9),
    Pno int,
    Hours  decimal(5,2),
    primary key(Essn, Pno),
    foreign key(Pno) references PROJECT(Pnumber)
);

insert into PROJECT values
('AI chatbot', 101, 'New York', 1),
('Youtube Summarizer', 102, 'America', 2),
('Login System', 103, 'Canada', 1),
('Web application', 104, 'Africa', 3);

insert into WORKS_ON values
('123455556', 101, 20.5),
```

```
('123456789', 102, 23),
('234567891', 103, 23.56),
('345678901', 104, 34.24);

SELECT Dnum AS Department_ID, COUNT(*) AS Project_Count
FROM PROJECT
GROUP BY Dnum;

select Dnum, count(*) as Project_Count from PROJECT group by Dnum;
```

Q) Create and insert four rows in the following relations. Write a query to find number of customers in each insurance company

Company(Company_id, Name, Address)

Customer(Customer_id, Name, Address, phone, Insurance_company)

```
create database companydb;
use companydb;

create table Company(
        Company_id int primary key,
    Name varchar(50) not null,
    Address varchar(100)
);

create table Customer(
        Customer_id int primary key,
    Name varchar(50) not null,
    Address varchar(100),
    phone varchar(15),
```

```
    insurance_company int,
    foreign key(insurance_company) references Company(Company_id)
);

insert into Company values
(1, 'Infosys', 'NewYork'),
(2, 'TCS', 'Canada'),
(3, 'Google', 'America'),
(4, 'Microsoft', 'India');

insert into Customer values
(101, 'Aarti', 'Virar', 9126672782, 2),
(102, 'Nitin', 'England', 9786734524, 1),
(103, 'Ms.Dipti', 'vasai',6777777707, 3),
(104, 'aaditi', 'mumbai', 8999945555, 3);

select Company.Name, count(*) as total_customers
from Customer
join Company on Customer.insurance_company = Company.Company_id
group by Company.Company_id;
```

Q) Create and insert four rows in the following relations. Write a query to arrange the accidents date wise.

Car(Car_Number, Car_Model, Owner_id)

Accidents (Accident_id, Car_Number, Location, date, time)

```
create database companydb;
use companydb;
create table Car(
        Car_Number varchar(20) primary key,
```

```
    Car_Model varchar(35),
    Owner_id int
);

create table Accidents(
        Accident_id int primary key,
    Car_Number varchar(20),
    Location varchar(30),
    date date,
    time time,
    foreign key(Car_Number) references Car(Car_Number)
);

insert into Car values
('MH1002728', 'ferrari', 1),
('MH2345678', 'sports', 1),
('MH5667383', 'suv', 2),
('MH6778282', 'honda', 3);

insert into Accidents values
(01, 'MH1002728', 'Pune', '2024-06-03', '14:00:00' ),
(02, 'MH2345678', 'Mumbai', '2024-07-02', '23:00:23'),
(03, 'MH5667383', 'Satara', '2024-08-09', '12:12:02'),
(04, 'MH6778282', 'thane', '2025-01-01', '13:00:09');

select * from Accidents
order by date asc;
```

Q) Create and insert four rows in the following relations. Write a query to perform Equi Join.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

```
create database if not exists company;
use company;

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
```

('Research', 1, '123456789', '2020-03-01'),

('IT', 2, '234567890', '2000-03-31'),

('PR', 3, '345678901', '2024-04-26'),

('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values

('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),

('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),

('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),

('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4);

select EMPLOYEE.Fname, EMPLOYEE.Lname, EMPLOYEE.Salary, DEPARTMENT.Dname

From EMPLOYEE

join DEPARTMENT on

EMPLOYEE.Dno = DEPARTMENT.Dnumber;

Q) Create and insert four rows in the following relations. Write a query to perform Natural Join.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

create database if not exists company;

use company;

create table DEPARTMENT(

Dname varchar(50) not null,

Dnumber int primary key,

Mgr_ssn char(9),

Mgr_start_date date

);

```
create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
('IT', 2, '234567890', '2000-03-31'),
('PR', 3, '345678901', '2024-04-26'),
('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values
('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),
('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),
('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),
('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4);

alter table EMPLOYEE
rename column Dno to Dnumber;
```

```
select *
from EMPLOYEE
natural join DEPARTMENT;
```

Q) Create and insert four rows in the following relations. Write a query to perform Left Outer Join.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

```
create database if not exists company;
use company;

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
```

```
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
('IT', 2, '234567890', '2000-03-31'),
('PR', 3, '345678901', '2024-04-26'),
('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values
('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),
('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),
('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),
('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4),
('Alex', 'B', 'Smith', '456789123', '1990-07-15', 'Mumbai', 'Male', 60000, NULL, NULL);
-- No department, 5th rows

select EMPLOYEE.Fname, EMPLOYEE.Lname, EMPLOYEE.Salary, EMPLOYEE.Dno,
DEPARTMENT.Dname
from EMPLOYEE
left outer join DEPARTMENT ON
EMPLOYEE.Dno = DEPARTMENT.Dnumber;
```

Q) Create and insert four rows in the following relations. Write a query to perform Right Outer Join.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

```
create database if not exists company;
use company;

create table DEPARTMENT(
        Dname varchar(50) not null,
    Dnumber int primary key,
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
```

('IT', 2, '234567890', '2000-03-31'),

('PR', 3, '345678901', '2024-04-26'),

('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values

('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),

('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),

('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),

('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4),

('Alex', 'B', 'Smith', '456789123', '1990-07-15', 'Mumbai', 'Male', 60000, NULL, NULL);

-- No department, 5th rows

select EMPLOYEE.Fname, EMPLOYEE.Lname, EMPLOYEE.Salary, EMPLOYEE.Dno,
DEPARTMENT.Dname

from EMPLOYEE

right outer join DEPARTMENT ON

EMPLOYEE.Dno = DEPARTMENT.Dnumber;

Q) Create and insert four rows in the following relations. Write a query to perform Inner Join.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date

create database if not exists company;

use company;

create table DEPARTMENT(

Dname varchar(50) not null,

Dnumber int primary key,

```
    Mgr_ssn char(9),
    Mgr_start_date date
);

create table EMPLOYEE(
        Fname varchar(30) not null,
    Minit char(1),
    Lname varchar(30) not null,
    Ssn char(9) primary key,
    Bdate date,
    Address varchar(100),
    Sex varchar(7),
    Salary decimal(10,2),
    Super_ssn char(9),
    Dno int,
    foreign key(Super_ssn) references EMPLOYEE(Ssn),
    foreign key(Dno) references DEPARTMENT(Dnumber)
);

insert into DEPARTMENT values
('Research', 1, '123456789', '2020-03-01'),
('IT', 2, '234567890', '2000-03-31'),
('PR', 3, '345678901', '2024-04-26'),
('HR', 4, '564783992', '2005-09-30');

insert into EMPLOYEE values
('Nikita', 'K', 'Agarwal', '123456789', '1982-03-03', 'Virar', 'Female',50500, NULL, 1),
('Raj', 'A', 'Choudhari', '234567890' , '2000-02-02', 'Nallasopara', 'Male',75000, NULL, 2),
('Nilam', 'V', 'Patel', '345678901', '2011-09-08', 'Virar', 'Female', 100000, '123456789', 1),
('Raju', 'L', 'Lade', '564783992', '1993-09-03', 'Vasai', 'Male', 29000, NULL, 4),
('Alex', 'B', 'Smith', '456789123', '1990-07-15', 'Mumbai', 'Male', 60000, NULL, NULL);
```

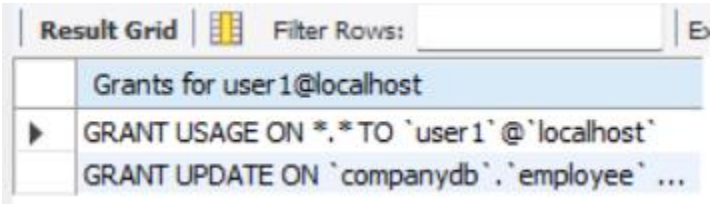
```
-- No department, 5th rows

select EMPLOYEE.Fname, EMPLOYEE.Lname, EMPLOYEE.Salary, EMPLOYEE.Dno, DEPARTMENT.Dname
from EMPLOYEE
inner join DEPARTMENT ON
EMPLOYEE.Dno = DEPARTMENT.Dnumber;
```

Q) Write a query to create a user and a table. Grant Select and insert privilege to this user and revoke select privilege from same user;

```
create database companydb;
use companydb;

create table employee(
        emp_id int primary key,
   emp_name varchar(50),
   department_name varchar(15),
   salary decimal(10,2)
);

create user 'user1'@'localhost' identified by '12345678';

grant select, insert on companydb.employee to 'user1'@'localhost';

revoke select on companydb.employee from 'user1'@'localhost';

show grants for 'user1'@'localhost';
```

Q) Write a query to create a user and a table. Grant Update and delete privilege to this user and revoke delete privilege from same user;

```
create database companydb;
use companydb;

create table employee(
        emp_id int primary key,
    emp_name varchar(50),
    department_name varchar(15),
    salary decimal(10,2)
);

create user 'user1'@'localhost' identified by '12345678';

grant update, delete on companydb.employee to 'user1'@'localhost';

revoke delete on companydb.employee from 'user1'@'localhost';

show grants for 'user1'@'localhost';
```



Q) Create and insert four rows in the following relations. Write a query to create a virtual table of join of these two tables.

Car(Car_Number, Car_Model, Owner_id)

Accidents (Accident_id, Car_Number, Location, date, time)

```
create database companydb;
use companydb;
create table Car(
        Car_Number varchar(20) primary key,
    Car_Model varchar(35),
    Owner_id int
);

create table Accidents(
        Accident_id int primary key,
    Car_Number varchar(20),
    Location varchar(30),
    date date,
    time time,
    foreign key(Car_Number) references Car(Car_Number)
);

insert into Car values
('MH1002728', 'ferrari', 1),
('MH2345678', 'sports', 1),
('MH5667383', 'suv', 2),
('MH6778282', 'honda', 3);

insert into Accidents values
(01, 'MH1002728', 'Pune', '2024-06-03', '14:00:00' ),
(02, 'MH2345678', 'Mumbai', '2024-07-02', '23:00:23'),
(03, 'MH5667383', 'Satara', '2024-08-09', '12:12:02'),
(04, 'MH6778282', 'thane', '2025-01-01', '13:00:09');
```

```
create view CarAccidents as
select Car.Car_Number, Car.Car_model, Car.Owner_id,
Accidents.Accident_id, Accidents.Location, Accidents.date as Accidents_date, Accidents.time as Accidents_time
from car join Accidents on
Car.Car_Number = Accidents.Car_Number;

select * from CarAccidents;
```

Q) Create and insert four rows in the following relations. Write a query to create a virtual table of join of these two tables. Identify the number of accidents occurred to one owner.

Car(Car_Number, Car_Model, Owner_id)

Accidents (Accident_id, Car_Number, Location, date, time)

```
create database companydb;
use companydb;
create table Car(
        Car_Number varchar(20) primary key,
    Car_Model varchar(35),
    Owner_id int
);

create table Accidents(
        Accident_id int primary key,
    Car_Number varchar(20),
    Location varchar(30),
    date date,
    time time,
    foreign key(Car_Number) references Car(Car_Number)
```

```
);

insert into Car values
('MH1002728', 'ferrari', 1),
('MH2345678', 'sports', 1),
('MH5667383', 'suv', 2),
('MH6778282', 'honda', 3);

insert into Accidents values
(01, 'MH1002728', 'Pune', '2024-06-03', '14:00:00' ),
(02, 'MH2345678', 'Mumbai', '2024-07-02', '23:00:23'),
(03, 'MH5667383', 'Satara', '2024-08-09', '12:12:02'),
(04, 'MH6778282', 'thane', '2025-01-01', '13:00:09');

create view CarAccidents as
select Car.Car_Number, Car.Car_model, Car.Owner_id,
Accidents.Accident_id, Accidents.Location, Accidents.date as Accidents_date, Accidents.time as
Accidents_time
from Car join Accidents on
Car.Car_Number = Accidents.Car_Number;

select * from CarAccidents;

select Owner_id, count(*) as Number_Of_Accidents
from Accidents join Car on
Car.Car_Number = Accidents.Car_Number
group by Owner_id;
```

Q) Create the following relations. Write queries to display actions performed by commit and rollback.

Company(Company_id, Name, Address)

Customer(Customer_id, Name, Address, phone, Insurance_company)

```
create database companydb;
use companydb;

create table Company(
        Company_id int primary key,
    Name varchar(50) not null,
    Address varchar(100)
);

create table Customer(
        Customer_id int primary key,
    Name varchar(50) not null,
    Address varchar(100),
    phone varchar(15),
    insurance_company int,
    foreign key(insurance_company) references Company(Company_id)
);

insert into Company values
(1, 'Infosys', 'NewYork'),
(2, 'TCS', 'Canada'),
(3, 'Google', 'America'),
(4, 'Microsoft', 'India');

insert into Customer values
(101, 'Aarti', 'Virar', 9126672782, 2),
(102, 'Nitin', 'England', 9786734524, 1),
(103, 'Ms.Dipti', 'vasai',6777777707, 3),
```

(104, 'aaditi', 'mumbai', 8999945555, 3);

start transaction;

insert into Customer values(105, 'Nitya', 'Delhi', 4567887654, 4);
select * from Customer;
rollback;
select * from Customer;

insert into Customer values(105, 'Nitya', 'Delhi', 4567887654, 4);
select * from Customer;
commit;
select * from Customer;
