

数据库作业：

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4.7

```
create table employee
    (employee_name varchar(30),
    street varchar(30),
    city varchar(30),
    primary key(employee_name))
create table works
    (employee_name varchar(30),
    company_name varchar(30),
    salary integer,
    primary key(employee_name),
    foreign key(employee_name) references employee,
    foreign key(company_name) references company)
create table company
    (company_name varchar(30),
    city varchar(30),
    primary key(company_name))
create table manages
    (employee_name varchar(30),
    manager_name varchar(30),
    primary key(employee_name),
    foreign key(employee_name) references employee,
    foreign key(manager_name) references works)
```

4.12

```
select employee.employee_name
from employee natural right outer join managers
on(employee.employee_name=managers.employee_name)
where manager.manager_name="NULL"
```

5.15

```
a. create function avg_salary(cname varchar(20))
    returns integer
    declare result integer;
    select avg(salary) into result
    from works
    where works.comany_name=cname
    return result;
end
select company_name
from works
where avg_salary(comany_name) > avg_salary("First Bank Corporation")
b. select company_name
from works
group by company_name
having avg(salary)> (select avg(salary)
    from works
    where company_name="First Bank Corporation")
```

5.17

SQL function is used for extending the power of SQL to handle more complex data types, or to perform more complex and nonstandard operations. Embedded SQL can not only retrieve data, but also can perform the function's operations on the SQL result.

5.21

create trigger t after delete on s

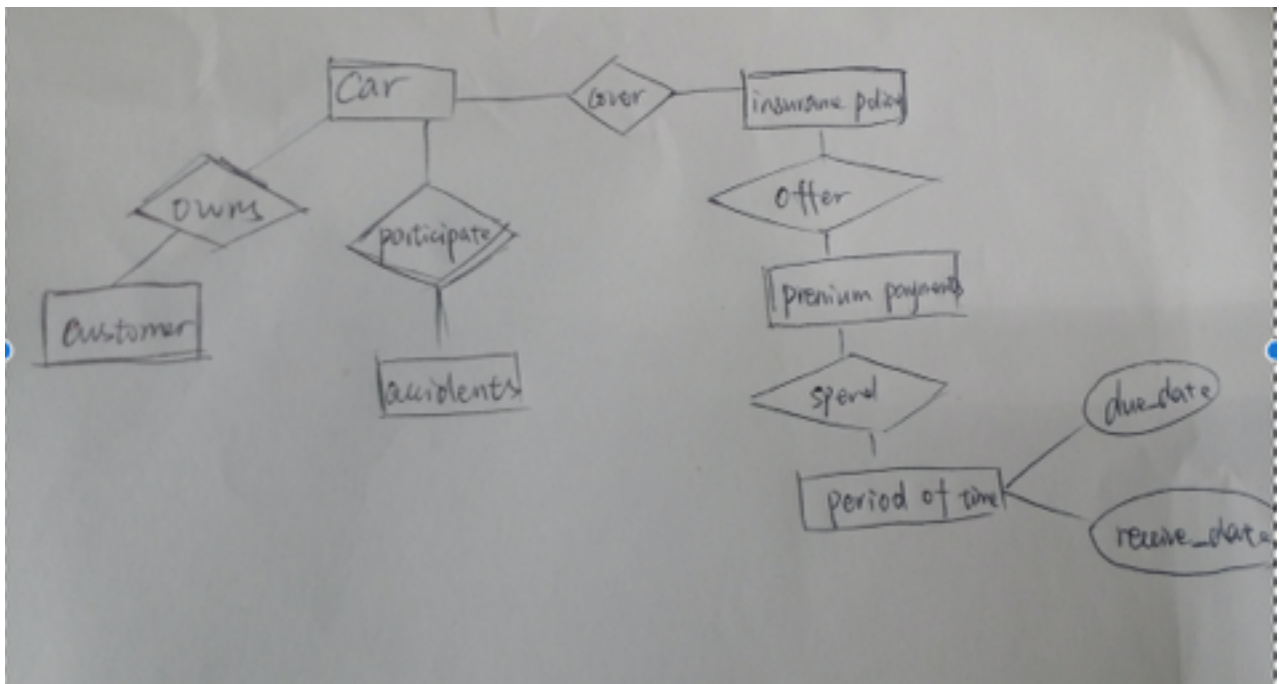
for each row

begin

delete from r where B =: old.A;

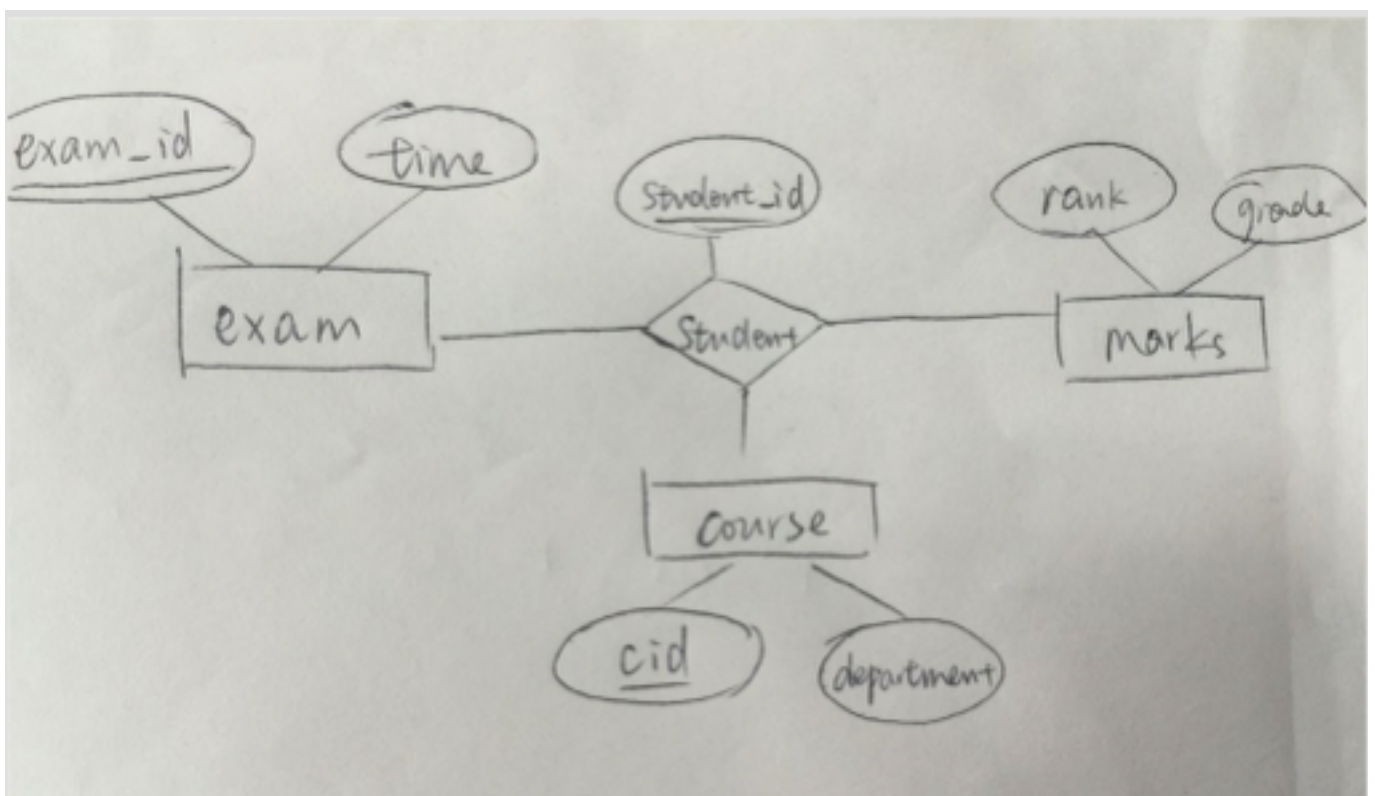
end;

7.1

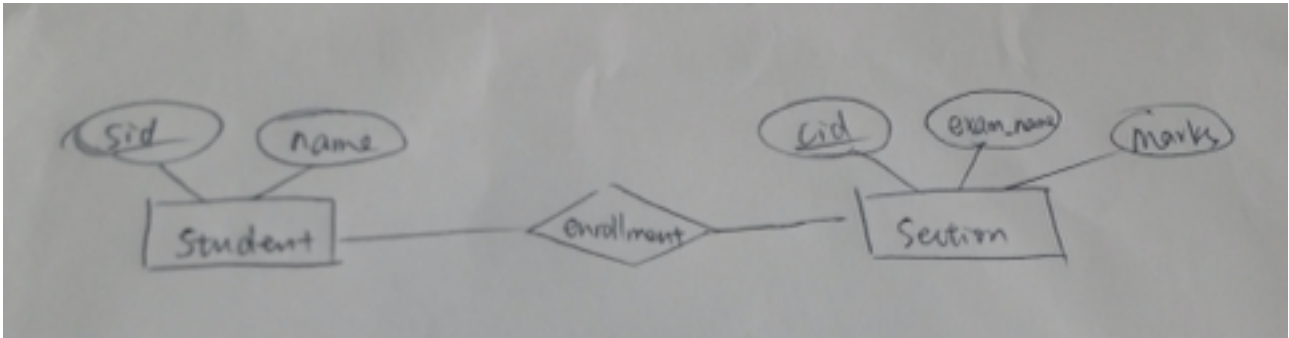


7.2

a.



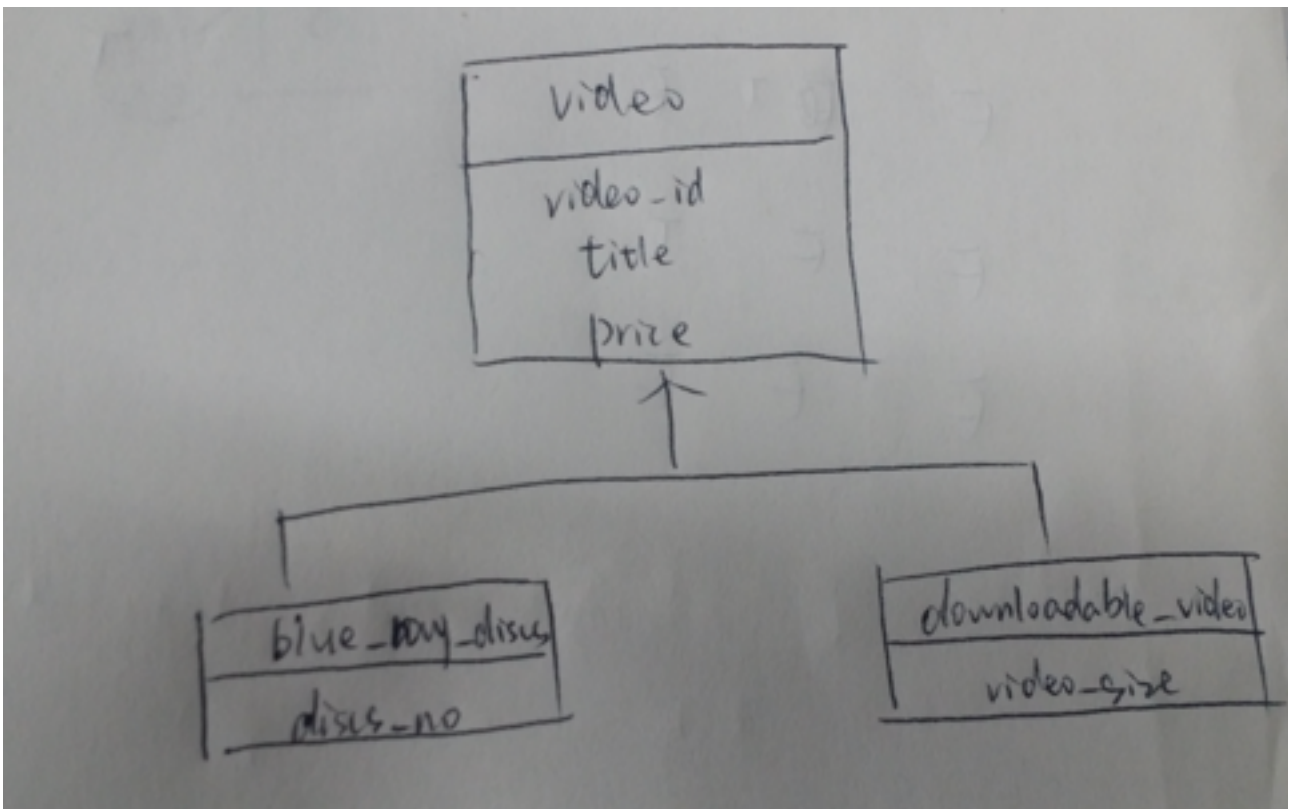
b.



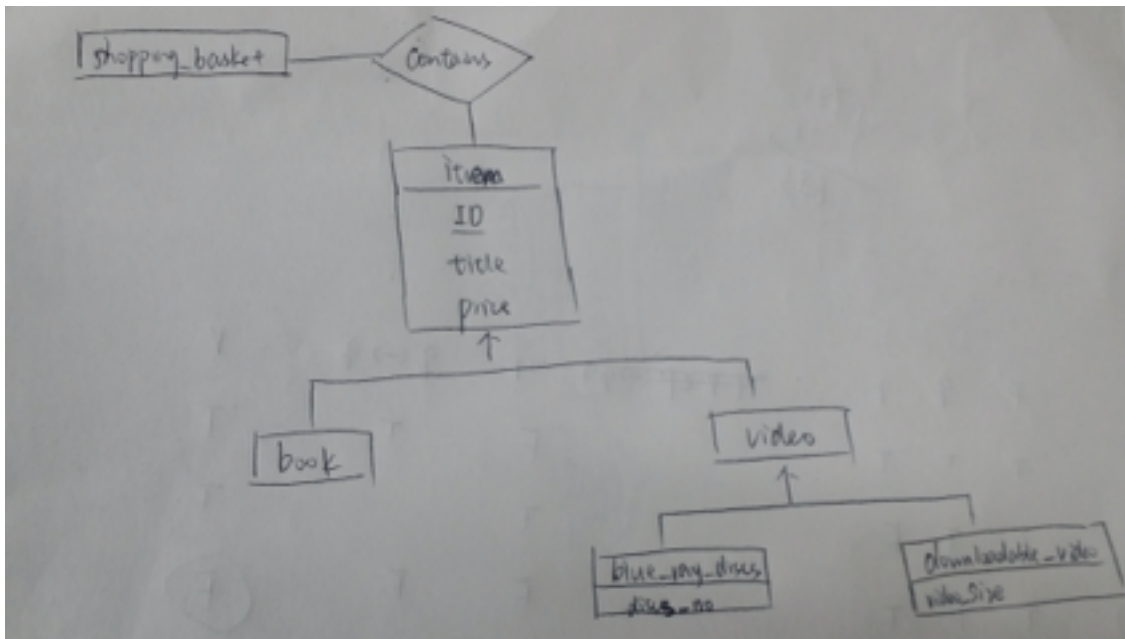
7.20

- a. entity sets: (primary key will be underlined)
- author(name, address, URL)
 - publisher(name, address, phone, URL)
 - book(ISBN, title, year, price)
 - customer(email, name, address, phone)
 - warehouse(code, address, phone)
 - shopping_basket(basket_id)

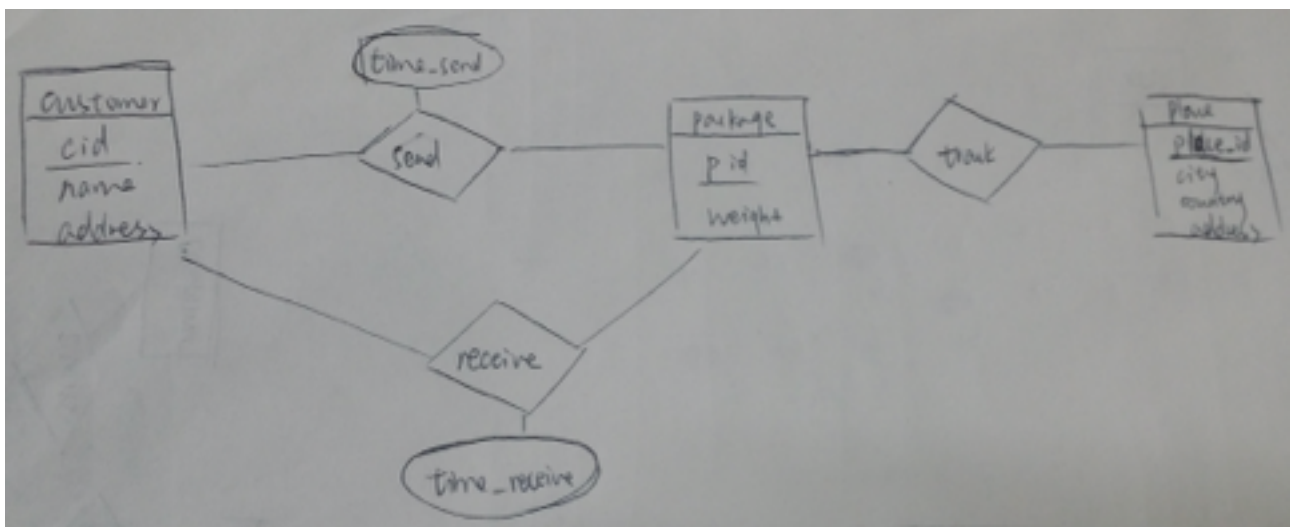
b.



c.



7.22



a set of relational schemas:

customer(cid, name, address)

package(pid, weight)

place(place_id, city, county, address)

send(cid, pid, time_send,

foreign key cid references customer,

foreign key pid references package

)

receive(cid, pid, time_receive,

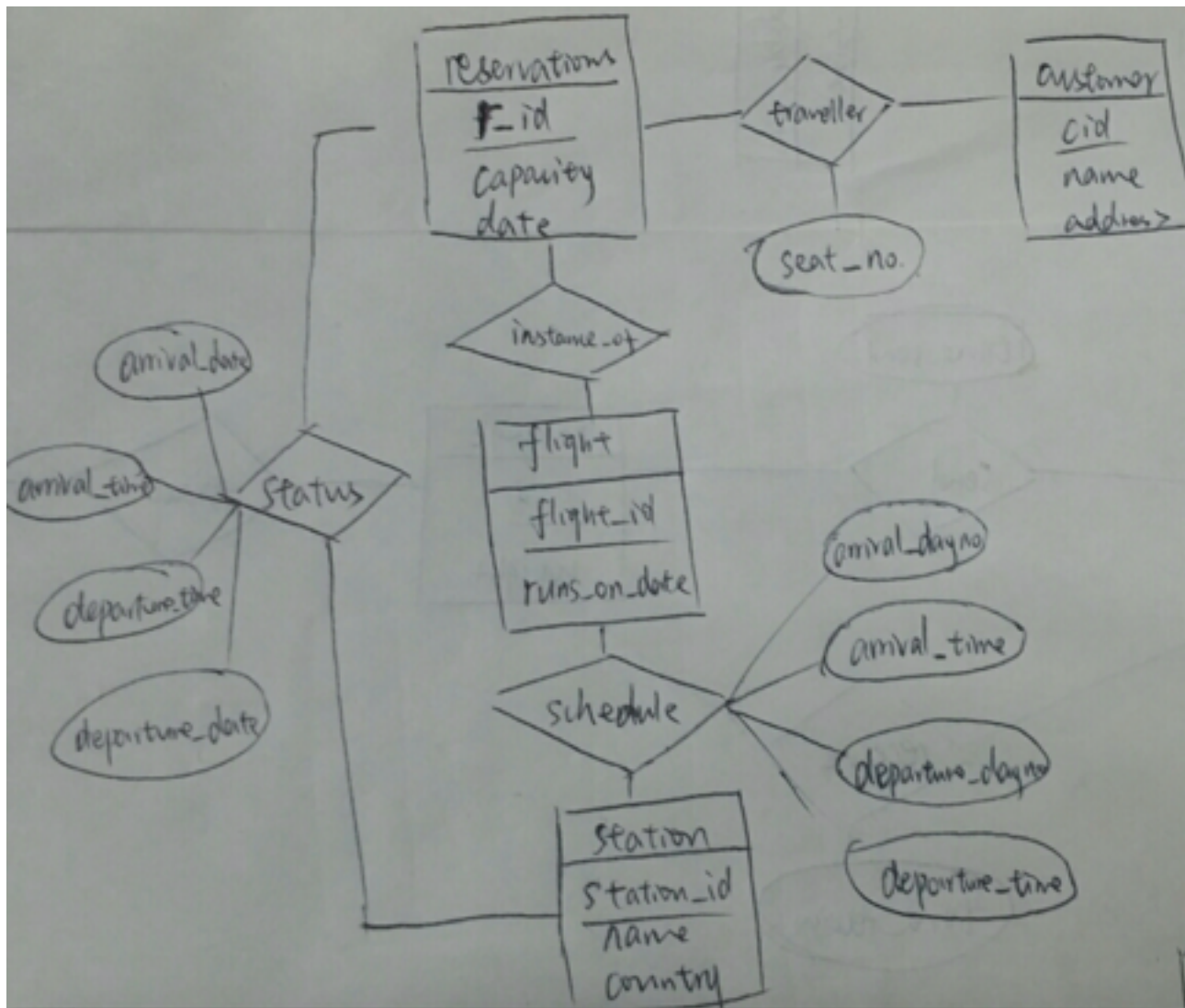
foreign key cid references customer,

foreign key pid references customer)

track(pid, place_id,

foreign key pid references package,

foreign key place_id references place)



a set of relational schemas:

customer(cid, name, address)

reservations(r_id, capacity, date)

flight(flight_id, runs_on_date)

station(station_id, name, country)

traveller(cid, r_id, seat_no,

foreign key cid references customer,

foreign key r_id references reservations)

instance_of(r_id, flight_id,

foreign key r_id references reservations,

foreign key flight_id references flight)

schedule(flight_id, station_id, arrival_dayno, arrival_time, departure_dayno, departure_time,

foreign key flight_id references flight,

foreign key station_id references station)

status(r_id, station_id, arrival_date, arrival_time, departure_time, departure_date,

foreign key r_id references reservations,

foreign key station_id references station)