

Task1

```
create table Emp(  
eid int primary key,  
ename varchar(20),  
age int,  
salary float  
);
```

```
create table Dept(  
did int primary key,  
budget float,  
managerid int,  
foreign key (managerid) references Emp(eid)  
);
```

```
create table Works(  
eid int,  
did int,  
pct_time int,  
primary key(eid,did),  
foreign key (eid) references Emp(eid),  
foreign key (did) references Dept(did)  
);
```

```
insert into Emp values  
(1, 'Jim', 33, 70000.0      ),  
(2, 'Zhuo', 33, 70000.0    ),  
(3, 'Sid', 33, 70000.0     ),  
(4, 'Gusto', 34, 70000.0   ),  
(5, 'Andy', 33, 70000.0    ),  
(6, 'Mary', 34, 70000.0    ),  
(7, 'Mouse', 50, 890000.0  ),  
(8, 'Kim', 55, 70000.0     ),  
(9, 'Meck', 20, 70000.0    ),  
(10, 'Mock', 30, 40000.0   ),  
(11, 'Tom', 30, 20000.0    ),  
(12, 'Toozy', 40, 80000.0  ),  
(13, 'Roro', 54, 90000.0   ),  
(14, 'Rara', 34, 780000.0  ),  
(15, 'Randy', 34, 40000.0  ),  
(16, 'Marry', 45, 80000.0  ),
```

(17, 'Larry', 32, 35000),
(18, 'Jarry', 32, 40000.0),
(19, 'Herry', 30, 50000.0),
(20, 'Mary', 40, 50000.0),
(21, 'MooMoo', 50, 780000.0),
(22, 'Giles', 40, 210000.0),
(23, 'Deniz', 24, 1000000.0),
(24, 'Suresh', 22, 89000.0),
(25, 'Shiva' , 22, 95000.0),
(26, 'Airy', 23, 77000.0),
(27, 'Kirohashi', 24, 10700.0),
(28, 'Krishna', 23, 11000.0),
(29, 'Kasi' , 21, 92000.0),
(30, 'Raja', 25, 100000.0),
(31, 'Bill', 43, 60000.0),
(32, 'Bob', 24, 37000.0),
(33, 'Ang', 32, 60000.0),
(34, 'Dave', 32, 63000.0),
(35, 'Kenneth', 36, 65000.0),
(36, 'Henry', 32, 160000.0),
(37, 'May', 32, 660000.0),
(38, 'Balaji', 22, 90000.0),
(39, 'Shiva', 28, 10000.0),
(40, 'Meck', 25, 100000.0),
(41, 'Lee', 23, 50000.0),
(42, 'Brian', 33, 47000.0),
(43, 'Michael', 36, 80000.0),
(44, 'Lisa', 42, 69000.0),
(45, 'Steven', 31, 45000.0),
(46, 'Charles', 39, 660000.0),
(47, 'Justin', 52, 70000.0),
(48, 'Aron', 27, 40000.0),
(49, 'Ellen', 20, 60000.0),
(50, 'William', 35, 90000.0),
(51, 'Bobbie', 23, 580000.0),
(52, 'Sonia', 33, 570000.0),
(53, 'Cindy', 45, 80000.0),
(54, 'Kathy', 42, 69000.0),
(55, 'Thai', 31, 45000.0),
(56, 'Ding', 32, 760000.0),
(57, 'Yang', 52, 70000.0),
(58, 'Jack', 30, 40000.0),
(59, 'Wang', 40, 60000.0),
(60, 'Zhong', 35, 90000.0);

insert into Dept values

(0, 1000000.0, 7),
(1, 750000.0, 59),
(2, 800000.0, 19),
(3, 7000000.0, 22),
(4, 6000000.0, 23),
(5, 5000000.0, 22),
(6, 2500000.0, 7),
(7, 3100000.0, 13),
(8, 2000000.0, 38),
(9, 3005000.0, 27),
(10, 4500000.0, 32);

insert into Works values

(1, 1, 10),
(1, 2, 10),
(1, 6, 80),
(2, 0, 60),
(2, 7, 40),
(3, 0, 100),
(4, 5, 80),
(4, 9, 20),
(5, 0, 100),
(6, 1, 70),
(6, 2, 30),
(7, 0, 25),
(7, 6, 50),
(7, 10, 25),
(8, 0, 33),
(8, 3, 33),
(8, 8, 33),
(9, 0, 100),
(10, 1, 20),
(10, 2, 80),
(11, 2, 50),
(11, 5, 50),
(12, 0, 100),
(13, 2, 30),
(13, 7, 70),
(14, 0, 33),
(14, 3, 33),
(14, 10, 33),
(15, 4, 70),

(15, 5, 30),
(16, 0, 100),
(17, 9, 100),
(18, 3, 100),
(19, 2, 100),
(20, 0, 100),
(21, 0, 33),
(21, 1, 33),
(21, 2, 33),
(22, 3, 50),
(22, 5, 50),
(23, 4, 100),
(24, 0, 100),
(25, 0, 100),
(26, 0, 100),
(27, 3, 20),
(27, 9, 80),
(28, 0, 100),
(29, 0, 100),
(30, 1, 100),
(31, 4, 30),
(31, 6, 70),
(32, 3, 50),
(32, 10, 50),
(33, 10, 100),
(34, 0, 80),
(34, 6, 20),
(35, 3, 50),
(35, 10, 50),
(36, 0, 100),
(37, 0, 33),
(37, 5, 33),
(37, 7, 33),
(38, 8, 100),
(39, 2, 30),
(39, 9, 70),
(40, 0, 100),
(41, 0, 100),
(42, 0, 100),
(43, 3, 80),
(43, 7, 20),
(44, 0, 100),
(45, 0, 100),
(46, 1, 35),

(46, 4, 30),
(46, 6, 35),
(47, 0, 100),
(48, 1, 100),
(49, 4, 50),
(49, 10, 50),
(50, 0, 100),
(51, 0, 50),
(51, 3, 20),
(51, 6, 30),
(52, 1, 33),
(52, 3, 10),
(52, 8, 60),
(53, 2, 30),
(53, 9, 70),
(54, 0, 100),
(55, 0, 100),
(56, 0, 30),
(56, 3, 50),
(56, 4, 20),
(57, 0, 100),
(58, 0, 34),
(58, 1, 33),
(58, 2, 33),
(59, 0, 20),
(59, 1, 80),
(60, 0, 100);

```
mysql> create table Emp(  
    -> eid int primary key,  
    -> ename varchar(20),  
    -> age int,  
    -> salary float  
    -> );  
Query OK, 0 rows affected (0.05 sec)
```

```
mysql>  
mysql> create table Dept(  
    -> did int primary key,  
    -> budget float,  
    -> managerid int,  
    -> foreign key (managerid) references Emp(eid)  
    -> );  
Query OK, 0 rows affected (0.04 sec)
```

```
mysql>  
mysql> create table Works(  
    -> eid int,  
    -> did int,  
    -> pct_time int,  
    -> primary key(eid,did),  
    -> foreign key (eid) references Emp(eid),  
    -> foreign key (did) references Dept(did)  
    -> );  
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> insert into Emp values
-> (1, 'Jim', 33, 70000.0),
-> (2, 'Zhuo', 33, 70000.0),
-> (3, 'Sid', 33, 70000.0),
-> (4, 'Gusto', 34, 70000.0),
-> (5, 'Andy', 33, 70000.0),
-> (6, 'Mary', 34, 70000.0),
-> (7, 'Mouse', 50, 890000.0),
-> (8, 'Kim', 55, 70000.0),
-> (9, 'Meck', 20, 70000.0),
-> (10, 'Mock', 30, 40000.0),
-> (11, 'Tom', 30, 20000.0),
-> (12, 'Toozy', 40, 80000.0),
-> (13, 'Roro', 54, 90000.0),
-> (14, 'Rara', 34, 780000.0),
-> (15, 'Randy', 34, 40000.0),
-> (16, 'Marry', 45, 80000.0),
-> (17, 'Larry', 32, 35000),
-> (18, 'Jarry', 32, 40000.0),
-> (19, 'Herry', 30, 50000.0),
-> (20, 'Mary', 40, 50000.0),
-> (21, 'MooMoo', 50, 780000.0),
-> (22, 'Giles', 40, 210000.0),
-> (23, 'Deniz', 24, 1000000.0),
-> (24, 'Suresh', 22, 89000.0),
-> (25, 'Shiva', 22, 95000.0),
-> (26, 'Airy', 23, 77000.0),
-> (27, 'Kirohashi', 24, 10700.0),
-> (28, 'Krishna', 23, 11000.0),
-> (29, 'Kasi', 21, 92000.0),
-> (30, 'Raja', 25, 100000.0),
-> (31, 'Bill', 43, 60000.0),
-> (32, 'Bob', 24, 37000.0),
-> (33, 'Ang', 32, 60000.0),
-> (34, 'Dave', 32, 63000.0),
```

```

-> (35, 'Kenneth', 36, 65000.0),
-> (36, 'Henry', 32, 160000.0),
-> (37, 'May', 32, 660000.0),
-> (38, 'Balaji', 22, 90000.0),
-> (39, 'Shiva', 28, 10000.0),
-> (40, 'Meck', 25, 100000.0),
-> (41, 'Lee', 23, 50000.0),
-> (42, 'Brian', 33, 47000.0),
-> (43, 'Michael', 36, 80000.0),
-> (44, 'Lisa', 42, 69000.0),
-> (45, 'Steven', 31, 45000.0),
-> (46, 'Charles', 39, 660000.0),
-> (47, 'Justin', 52, 70000.0),
-> (48, 'Aron', 27, 40000.0),
-> (49, 'Ellen', 20, 60000.0),
-> (50, 'William', 35, 90000.0),
-> (51, 'Bobbie', 23, 580000.0),
-> (52, 'Sonia', 33, 570000.0),
-> (53, 'Cindy', 45, 80000.0),
-> (54, 'Kathy', 42, 69000.0),
-> (55, 'Thai', 31, 45000.0),
-> (56, 'Ding', 32, 760000.0),
-> (57, 'Yang', 52, 70000.0),
-> (58, 'Jack', 30, 40000.0),
-> (59, 'Wang', 40, 60000.0),
-> (60, 'Zhong', 35, 90000.0);
Query OK, 60 rows affected (0.00 sec)
Records: 60 Duplicates: 0 Warnings: 0

```

```

mysql>
mysql> insert into Dept values
-> (0, 1000000.0, 7 ),
-> (1, 750000.0, 59 ),
-> (2, 800000.0, 19 ),
-> (3, 7000000.0, 22 ),
-> (4, 6000000.0, 23 ),
-> (5, 5000000.0, 22 ),
-> (6, 2500000.0, 7 ),
-> (7, 3100000.0, 13 ),
-> (8, 2000000.0, 38 ),
-> (9, 3005000.0, 27 ),
-> (10, 4500000.0, 32);
Query OK, 11 rows affected (0.01 sec)
Records: 11 Duplicates: 0 Warnings: 0

```



```
mysql> insert into Works values
```

```
-> (1, 1, 10 ),  
-> (1, 2, 10 ),  
-> (1, 6, 80 ),  
-> (2, 0, 60 ),  
-> (2, 7, 40 ),  
-> (3, 0, 100 ),  
-> (4, 5, 80 ),  
-> (4, 9, 20 ),  
-> (5, 0, 100 ),  
-> (6, 1, 70 ),  
-> (6, 2, 30 ),  
-> (7, 0, 25 ),  
-> (7, 6, 50 ),  
-> (7, 10, 25 ),  
-> (8, 0, 33 ),  
-> (8, 3, 33 ),  
-> (8, 8, 33 ),  
-> (9, 0, 100 ),  
-> (10, 1, 20 ),  
-> (10, 2, 80 ),  
-> (11, 2, 50 ),  
-> (11, 5, 50 ),  
-> (12, 0, 100 ),  
-> (13, 2, 30 ),  
-> (13, 7, 70 ),  
-> (14, 0, 33 ),  
-> (14, 3, 33 ),  
-> (14, 10, 33 ),  
-> (15, 4, 70 ),  
-> (15, 5, 30 ),  
-> (16, 0, 100 ),  
-> (17, 9, 100 ),  
-> (18, 3, 100 ),  
-> (19, 2, 100 ),  
-> (20, 0, 100 ),  
-> (21, 0, 33 ),  
-> (21, 1, 33 ),  
-> (21, 2, 33 ),  
-> (22, 3, 50 ),  
-> (22, 5, 50 ),
```

```
-> (23, 4, 100 ),
-> (24, 0, 100 ),
-> (25, 0, 100 ),
-> (26, 0, 100 ),
-> (27, 3, 20  ),
-> (27, 9, 80  ),
-> (28, 0, 100 ),
-> (29, 0, 100 ),
-> (30, 1, 100 ),
-> (31, 4, 30  ),
-> (31, 6, 70  ),
-> (32, 3, 50  ),
-> (32, 10, 50 ),
-> (33, 10, 100),
-> (34, 0, 80  ),
-> (34, 6, 20  ),
-> (35, 3, 50  ),
-> (35, 10, 50 ),
-> (36, 0, 100 ),
-> (37, 0, 33  ),
-> (37, 5, 33  ),
-> (37, 7, 33  ),
-> (38, 8, 100 ),
-> (39, 2, 30  ),
-> (39, 9, 70  ),
-> (40, 0, 100 ),
-> (41, 0, 100 ),
-> (42, 0, 100 ),
-> (43, 3, 80  ),
-> (43, 7, 20  ),
-> (44, 0, 100 ),
-> (45, 0, 100 ),
-> (46, 1, 35  ),
-> (46, 4, 30  ),
-> (46, 6, 35  ),
-> (47, 0, 100 ),
```

```
-> (48, 1, 100 ),
-> (49, 4, 50 ),
-> (49, 10, 50 ),
-> (50, 0, 100 ),
-> (51, 0, 50 ),
-> (51, 3, 20 ),
-> (51, 6, 30 ),
-> (52, 1, 33 ),
-> (52, 3, 10 ),
-> (52, 8, 60 ),
-> (53, 2, 30 ),
-> (53, 9, 70 ),
-> (54, 0, 100 ),
-> (55, 0, 100 ),
-> (56, 0, 30 ),
-> (56, 3, 50 ),
-> (56, 4, 20 ),
-> (57, 0, 100 ),
-> (58, 0, 34 ),
-> (58, 1, 33 ),
-> (58, 2, 33 ),
-> (59, 0, 20 ),
-> (59, 1, 80 ),
-> (60, 0, 100 );
Query OK, 100 rows affected (0.01 sec)
Records: 100  Duplicates: 0  Warnings: 0

mysql>
```

Task2

```
select e.ename,e.salary
from Emp e
where e.eid in (
select eid
from Works
where did=0
)
and e.eid in (
select eid
from Works
where did=2
```

);

```
select e1.ename, e1.age, e1.salary
from Emp e1
join Works w1 on e1.eid=w1.eid
join (
select w.did,min(e.age) as min_age
from Emp e
join Works w on w.eid=e.eid
group by w.did
) t on t.did=w1.did and t.min_age=e1.age;
```

```
select e.ename
from Emp e
join Dept d on d.managerid=e.eid
where d.budget=(
select max(budget)
from Dept
);
```

```
select d.did, d.budget, d.managerid
from Dept d
join Works w on d.did=w.did
join Emp e on e.eid=w.eid
group by d.did, d.budget, d.managerid
having avg(e.salary)=
(
select max(avg_salary) as max_avg
from
(
select w.did, avg(e.salary) as avg_salary
from Emp e
join Works w on w.eid=e.eid
group by w.did
) t
);
```

```
select *
from Emp
```

where salary > some (select e.salary from Emp e
join Dept d on d.managerid=e.eid);

```
mysql> select e.ename,e.salary  
-> from Emp e  
-> where e.eid in (  
-> select eid  
-> from Works  
-> where did=0  
-> )  
-> and e.eid in (  
-> select eid  
-> from Works  
-> where did=2  
-> );
```

ename	salary
MooMoo	780000
Jack	40000

2 rows in set (0.00 sec)

```
mysql> select e1.ename, e1.age, e1.salary
-> from Emp e1
-> join Works w1 on e1.eid=w1.eid
-> join (
-> select w.did, min(e.age) as min_age
-> from Emp e
-> join Works w on w.eid=e.eid
-> group by w.did
-> ) t on t.did=w1.did and t.min_age=e1.age;
```

ename	age	salary
Meck	20	70000
Tom	30	20000
Kirohashi	24	10700
Raja	25	100000
May	32	660000
Balaji	22	90000
Shiva	28	10000
Ellen	20	60000
Ellen	20	60000
Bobbie	23	580000
Bobbie	23	580000

11 rows in set (0.00 sec)

```
mysql> select e.ename
-> from Emp e
-> join Dept d on d.managerid=e.eid
-> where d.budget=(
-> select max(budget)
-> from Dept
-> );
```

ename
Giles

1 row in set (0.00 sec)

```
mysql>
```

```
mysql> select d.did, d.budget, d.managerid
-> from Dept d
-> join Works w on d.did=w.did
-> join Emp e on e.eid=w.eid
-> group by d.did, d.budget, d.managerid
-> having avg(e.salary)=
-> (
-> select max(avg_salary) as max_avg
-> from
-> (
-> select w.did, avg(e.salary) as avg_salary
-> from Emp e
-> join Works w on w.eid=e.eid
-> group by w.did
-> ) t
-> );
```

did	budget	managerid
4	6000000	23

1 row in set (0.00 sec)

```
mysql>
```

```
mysql>
mysql> select *
-> from Emp
-> where salary > some (select e.salary from Emp e
-> join Dept d on d.managerid=e.eid);
```

eid	ename	age	salary
1	Jim	33	70000
2	Zhuo	33	70000
3	Sid	33	70000
4	Gusto	34	70000
5	Andy	33	70000
6	Mary	34	70000
7	Mouse	50	890000
8	Kim	55	70000
9	Meck	20	70000
10	Mock	30	40000
11	Tom	30	20000
12	Toozy	40	80000
13	Roro	54	90000
14	Rara	34	780000
15	Randy	34	40000
16	Marry	45	80000
17	Larry	32	35000
18	Jarry	32	40000
19	Herry	30	50000
20	Mary	40	50000
21	MooMoo	50	780000
22	Giles	40	210000
23	Deniz	24	1000000
24	Suresh	22	89000
25	Shiva	22	95000
26	Airy	23	77000
28	Krishna	23	11000
29	Kasi	21	92000
30	Raja	25	100000
31	Bill	43	60000
32	Bob	24	37000
33	Ang	32	60000
34	Dave	32	63000
35	Kenneth	36	65000
36	Henry	32	160000
37	May	32	660000
38	Balaji	22	90000
40	Meck	25	100000
41	Lee	23	50000
42	Brian	33	47000
43	Michael	36	80000
44	Lisa	42	69000
45	Steven	31	45000
46	Charles	39	660000
47	Justin	52	70000
48	Aron	27	40000
49	Ellen	20	60000
50	William	35	90000
51	Bobbie	23	580000
52	Sonia	33	570000
53	Cindy	45	80000
54	Kathy	42	69000
55	Thai	31	45000
56	Ding	32	760000
57	Yang	52	70000
58	Jack	30	40000
59	Wang	40	60000
60	Zhong	35	90000

58 rows in set (0.00 sec)