Set Operations

Create table Sailors with following attributes Sid, Sname, Rating, Age

```
1  create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2  insert into sailors values(21,"harri",9,55);
3  insert into sailors values(22,"bibin",8,45);
4  insert into sailors values(23,"manu",8.5,50);
5  insert into sailors values(24,"appu",9.5,35);
6  insert into sailors values(25,"jibu",5.5,48);
7  select * from sailors;
```

Run (Ctrl-Enter) ▲ MySQL books

Output Input Comments **0**

SID	sname	rating	age
21	harri	9	55
22	bibin	8	45
23	manu	8.5	50
24	appu	9.5	35
25	jibu	5.5	48

Create table Boat with attributes Bid, Name and Color

```
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",8.5,50);
5   insert into sailors values(24,"appu",9.5,35);
6   insert into sailors values(25,"jibu",5.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(101,"wind","white");
14  select * from boats;
15
16
```

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Output Input Comments 0

BID	bname	bcolor
98	island	blue
99	marine	green
100	speed	red
101	wind	white

Create table Reserves with the attributes Sid, Bid, Date

```
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",8.5,50);
5   insert into sailors values(24,"appu",9.5,35);
6   insert into sailors values(25,"jibu",5.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(101,"wind","white");
14
15
16  create table reserves(SID int,BID int,day varchar(20),primary key(SID,BID,day),foreign key (SID) references sailors(SID),foreign key (BID) references boats(BID));
17  insert into  reserves values(22,99,"monday");
18  insert into  reserves values(23,100,"wednesday");
19  insert into  reserves values(22,99,"friday");
20  insert into  reserves values(24,101,"sunday");
21  select * from  reserves;
22
23
```

Run (Ctrl-Enter) ▲ MySQL books

Output Input Comments 0

SID	BID	day
22	99	friday
22	99	monday
23	100	wednesday
24	101	sunday

1.find the names of sailors who have reserved a red or a green boat

```sql
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",5.5,50);
5   insert into sailors values(24,"appu",10,35);
6   insert into sailors values(25,"jibu",6.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(101,"wind","white");
14
15
16  create table reserves(SID int,BID int,day varchar(20),primary key(SID,BID,day),foreign key (SID) references sailors(SID),foreign key (BID) references boats(BID));
17  insert into  reserves values(22,98,"monday");
18  insert into  reserves values(23,100,"wednesday");
19  insert into  reserves values(22,99,"friday");
20  insert into  reserves values(24,101,"sunday");
21  insert into  reserves values(23,101,"wednesday");
22  insert into  reserves values(22,100,"friday");
23  insert into  reserves values(22,101,"sunday");
24  select S.sname from sailors S, reserves R, boats B where S.sid=R.sid and R.bid=B.bid and (B.bcolor='red' or B.bcolor='green');
25
```

Save and Run

▶ Run (Ctrl-Enter)   ▲   MySQL books

Output Input Comments ⓪

```
sname
bibin
manu
bibin
```

2.find the names of sailors who have reserved both red or a green boat

```sql
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",5.5,50);
5   insert into sailors values(24,"appu",10,35);
6   insert into sailors values(25,"jibu",6.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(101,"wind","white");
14
15
16  create table reserves(SID int,BID int,day varchar(20),primary key(SID,BID,day),foreign key (SID) references sailors(SID),foreign key (BID) references boats(BID));
17  insert into  reserves values(22,98,"monday");
18  insert into  reserves values(23,100,"wednesday");
19  insert into  reserves values(22,99,"friday");
20  insert into  reserves values(24,101,"sunday");
21  insert into  reserves values(23,101,"wednesday");
22  insert into  reserves values(22,100,"friday");
23  insert into  reserves values(22,101,"sunday");
24  select sid,sname from sailors where sid in(select sid from reserves where bid in(select bid from boats where bcolor in('red','green')));
25
```

Save and Run

▶ Run (Ctrl-Enter)   ▲   MySQL books

Output Input Comments ⓪

```
sid     sname
22      bibin
23      manu
```

3.find the sid of sailors who have reserved a red boat but not a green boat

```
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",5.5,50);
5   insert into sailors values(24,"appu",10,35);
6   insert into sailors values(25,"jibu",6.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(101,"wind","white");
14
15
16  create table reserves(SID int,BID int,day varchar(20),primary key(SID,BID,day),foreign key (SID) references sailors(SID),foreign key (BID) references boats(BID));
17  insert into  reserves values(22,98,"monday");
18  insert into  reserves values(23,100,"wednesday");
19  insert into  reserves values(22,99,"friday");
20  insert into  reserves values(24,101,"sunday");
21  insert into  reserves values(23,101,"wednesday");
22  insert into  reserves values(22,100,"friday");
23  insert into  reserves values(22,101,"sunday");
24  select S.sid from sailors S.reserves R.boats B where S.sid=R.sid and R.bid=B.bid and B.bcolor='red'
25  except select S2.sid from sailors S2.reserves R2.boats B2 where S2.sid=R2.sid and R2.bid=B2.bid and B2.bcolor='green';
26
27
```

▶ Run (Ctrl-Enter)   ▲   MySQL books

Output Input Comments ⓪

4.find all sid of sailors who have a rating of 10 or have reserved boat 104

```
1   create table sailors(SID int primary key,sname varchar(50),rating float,age int);
2   insert into sailors values(21,"harri",9,55);
3   insert into sailors values(22,"bibin",8,45);
4   insert into sailors values(23,"manu",5.5,50);
5   insert into sailors values(24,"appu",10,35);
6   insert into sailors values(25,"jibu",6.5,48);
7
8
9   create table boats(BID int primary key,bname varchar(50),bcolor varchar(20));
10  insert into boats values(98,"island","blue");
11  insert into boats values(99,"marine","green");
12  insert into boats values(100,"speed","red");
13  insert into boats values(104,"wind","white");
14
15
16  create table reserves(SID int,BID int,day varchar(20),primary key(SID,BID,day),foreign key (SID) references sailors(SID),foreign key (BID) references boats(BID));
17  insert into  reserves values(22,98,"monday");
18  insert into  reserves values(23,100,"wednesday");
19  insert into  reserves values(22,99,"friday");
20  insert into  reserves values(24,104,"sunday");
21  insert into  reserves values(23,104,"wednesday");
22  insert into  reserves values(22,100,"friday");
23  insert into  reserves values(22,104,"sunday");
24  select S.sid from sailors S where S.rating=10
25  union
26  select R.sid from reserves R where R.bid=104;
27
2   Save and Run
```

▶ Run (Ctrl-Enter)   ▲   MySQL books

Output Input Comments ⓪

```
sid
24
23
22
```