

documentclass:
-ctexart
-
fontenc

Chapter 2

2.6

2.7

自然连接是以共享的分量为等值条件的等值连接, 同时额外使用投影去除重复分量

2.8

基本的操作有 σ , \times , Π , $-$ 其余操作有(注意, 为了方便书写, 我们可以使用已经实现的算子实现其后的操作)

$$\begin{aligned} A \cap B &= A - (A - B) \\ \neg A &= U - A \\ A \cup B &= U - (\neg A) \cap (\neg B) \\ A \bowtie_{cond} B &= \sigma_{cond}(A \times B) \\ A \bowtie B &= \Pi_{attr(A) \cup attr(B)}(\sigma_{A[attr(A) \cap attr(B)] = B[attr(A) \cap attr(B)]}(A \times B)) \end{aligned}$$

Chapter 3

3.3

```
drop table if exists S;
drop table if exists T;

create table S(
    A int,
    B int,
    C int,
    D int
);
```

RESULTS	
1	S1
2	S2
3	S2
4	S3
5	S3
6	S4
7	S5

sno
1
S1
2
S3

sno
1
S1
2
S3

jno
1
J2
2
J5
3
J6
4
J7

jno
1
J1
2
J4

Figure 1: 2.6 result
2

```

create table T(
    C int,
    D int,
    E int,
    F int
);

insert into S values
(1, 2, 3, 4),
(2, 2, 3, 4),
(3, 2, 4, 4),
(1, 2, 4, 4);

insert into T values
(3, 4, 3, 4),
(4, 4, 3, 4),
(3, 2, 4, 4),
(1, 2, 4, 4);

-- 1
select * from S where A=10;

-- 2
select A,B from S;

-- 3
select * from S inner join T on (S.C=T.C and S.D=T.D);

-- 4
select A, B, S.C as C1, S.D as D1, T.C as C2, T.D as D2, E, F
from S inner join T on (S.C=T.C);

-- 5
select A, B, S.C as C1, S.D as D1, T.C as C2, T.D as D2, E, F
from S, T where (A<E);

-- 6
select TMP.C as C1, TMP.D as D1, T.C as C2, T.D as D2, E, F
from (select distinct C, D from S) as TMP, T;

```

3.4

```

/* 1 */
select sno
from SPJ

```

```

where jno='J1';
/* 2 */
select sno
from SPJ
where jno='J1' and pno='P1';
/* 3 */
select sno
from SPJ
where
    jno = 'J1' and pno in (select pno
        from P
        where color=' ');
/* 4 */
-- tianjiSupplier <- select sno from S where city=' ';
-- redPart <- select pno from P where color=' ';
select jno
from J
where not exists(
    select *
from SPJ
where
    sno in (select sno
        from S
        where city=' ') and pno in (select pno
        from P
        where color=' ') and J.jno = SPJ.jno
);
/* 5 */
select distinct SPJ.jno
from SPJ inner join (
    select distinct TMP.pno
    from SPJ as TMP
    where TMP.sno='S1'
) as REF on (SPJ.pno = REF.pno)
group by SPJ.jno
having count(SPJ.pno) in (
    select count(distinct TMP.pno)
from SPJ as TMP
where TMP.sno='S1'
)
-- go
-- select * from SPJ inner join S1Part on (S1Part.pno=SPJ.pno);

```

3.5

```
-- 1
select sname, city from S;

-- 2
select pname, color, weight from P;

-- 3
select distinct jno from SPJ where sno='S1';

-- 4
select pname, sum(qty) as sum_qty from P, SPJ where
    P.pno = SPJ.pno and
    jno = 'J2'
    group by pname;

-- 5
select distinct pno from S, SPJ where
    city=`` and
    S.sno = SPJ.sno;

-- 6
select distinct jname from S, SPJ, J where
    S.sno = SPJ.sno and
    J.jno = SPJ.jno and
    S.city = ``;

-- 7
select J.jno from J where not exists(
    select * from SPJ, S where
        J.jno = SPJ.jno and
        SPJ.sno = S.sno and
        S.city = ``)
);

-- 8
update P set color=`` where color=``;

-- 9
update SPJ set sno='S3' where sno='S5' and jno='J4' and pno='P6';

-- 10 /* on delete cascade */
delete from S where sno='S2';
```

```
-- 11
insert into SPJ value(`S2`, `P4`, `J6`, 200);
#Chapter 4
```

4.6

```
-- 4.6.1
grant all privileges on table Student to U1;
with
grant option;
-- 4.6.2
grant select, update(addr) on table Student to U2;
-- 4.6.3
grant select on table Class to public;
-- 4.6.4
grant update, select on table Student to R1;
-- 4.6.5
grant R1 to U1 with grant option;
```

4.7

```
-- 4.7.1
grant select on table Staff, Department to WangMing;
-- 4.7.2
grant insert, delete on table Staff, Department to LiYong;
-- 4.7.3
----- BUGGY
grant select on Staff when User()=name to public;
go
----- Worked
create view hole
as
  select *
  from Staff
  where OWNER=user;
go
grant select on hole to public;
-- 4.7.4
grant select, update(Salary) on table Staff to LiuXing;
-- 4.7.5
grant references on table Staff, Department to ZhangXin;
-- 4.7.6
grant all privileges on table Staff, Department to ZhouPing with grant option;
```

```

go
-- 4.7.7
create view stat as
    select depart_id, max(Salary), min(Salary), average(Salary)
    from Staff
    group by depart_id;
go
grant select on stat to YangLan;
go

```

Chapter 5

5.6

```

--
create table Department(
    dpid char(20) primary key,
    dname char(20),
    manager char(20),
    phone char(20)
);

create table Staff(
    sid char(20) primary key,
    sname char(20),
    age char(20),
    title char(20),
    salary int,
    dpid char(20) REFERENCES Department(dpid),
    CONSTRAINT CK_AGE_LE_60 check(age <= 60)
);

```

5.7

违反实体完整性时,一般直接拒绝操作
 违反参照完整性时,根据不同的constraint配置,可能会拒绝操作或者级联更新删除
 违反用户定义的完整性时,可能拒绝操作,或者使用触发器解决.