

C12

三个视图 = physical/logic/view
DDL: Data-definition
DML: Data-Manipulation
C2 Relational
super key > candidate key > primary key > foreign key
key > ; foreign key
π (instructor) - π (6 in salary)
ed salary (instructor x B (instructor))
r.us, r.s, p.us, r.us
r(A1, A2, ..., Rn(XE))
X X X X
产生关系式, 在元组关系代数
的演算: $\pi > \sigma > \rho > \alpha > \gamma$
(信息流): $\pi > \sigma > \rho > \alpha > \gamma$
de-name (count, distinct (ID) (1)
min/sum/max/avg/count
多属性
Q = r.s, q 是最大属性 qxs ∈ r
Find all customers who have an account
at all branches located in Brooklyn
city
(depositor & account)
π (customer-name, branch-name)
π (branch-name, branch-city = Brooklyn)
get information about (customer)
SQL = DDL + DML + DCL
create table T (A1, D1, A2, D2, C1);
<<>: primary key (A1) (not null)
foreign key (A2 references T)
unique (A1, A2, ...) check (P)
insert into T values (V1, V2, ...);
drop table T; delete from T where ...
alter table add A.D;
alter table T drop A;
select distinct/all A from T where G;
select x from R natural join S natural join T;
select x from (R natural join S) join T;
select R A1, S B1 from
RR as R, RR as S where (A1, B1)
R A1 > S B1
r, -, (l, upper(s), lower(s), trim(s))
Info, ..., ...
select instructor * from instructor
order by salary desc, B asc
(union/intersect/except/all)
is null/is unknown
and: true and unknown = unknown
false and unknown = false
unknown and unknown = unknown
or: true or ... = true, false or ... = false
unknown or unknown = unknown
not: not unknown = unknown
avg/min/max/sum/count (distinct A)
count (*) (返回行数)
select A, avg(B) as avg--
from instructor
group by A
(SPW) select avg(B)
having avg(B) > 4000, 在哪个组
出32在 having 的 select 语句, 但是没有
和 where 的 select 语句, 但是有 group by
Nested
select - from where A in/not in (SPW)
where exists/not exists (SPW)
替代 having

with R(A1, A2) as (Fw) SPW; C8
将星查询
select A (select C(*) from S
where R A = S A) from R
update S set A = ~~where~~ where
insert into T SPW 将一行
信息插入到表中
update S set A = case
when pred, then result;
when else result;
end
select * from R join S on RA = SA closure (闭包)
return left/right/full outer join
create view v as <query expression>
drop view <v>
create table (branch_name)
foreign key (branch_name)
references branch
(on delete cascade)
(on update cascade)
--
create assertion AS check
(not exists (x)) ~ for all x, p(x)
create (unique) index <i-name>
on <table-name> (<attribute-list>)
create type A as final;
create domain B as constraint
(brand) create domain B as constraint
-- check ()
grant <权限> (权限) on <表/视图>
to <用户/角色> with grant option
(select/insert/update/delete/reference)
revoke <权限> (权限) on <表/视图>
restrict/cascade
create trigger trigger-name
before/after insert/update/delete
on table-name
referencing new row as ...
referencing old row as ...
for each row
when xxx
begin atomic
SQL 语句;
end
C7 E-R
简单/复杂 属性 子属性
单属性/多属性
弱关系/强关系
identifying relationship
discriminator
E 实体, R 关系
A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19, A20, A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37, A38, A39, A40, A41, A42, A43, A44, A45, A46, A47, A48, A49, A50, A51, A52, A53, A54, A55, A56, A57, A58, A59, A60, A61, A62, A63, A64, A65, A66, A67, A68, A69, A70, A71, A72, A73, A74, A75, A76, A77, A78, A79, A80, A81, A82, A83, A84, A85, A86, A87, A88, A89, A90, A91, A92, A93, A94, A95, A96, A97, A98, A99, A100, A101, A102, A103, A104, A105, A106, A107, A108, A109, A110, A111, A112, A113, A114, A115, A116, A117, A118, A119, A120, A121, A122, A123, A124, A125, A126, A127, A128, A129, A130, A131, A132, A133, A134, A135, A136, A137, A138, A139, A140, A141, A142, A143, A144, A145, A146, A147, A148, A149, A150, A151, A152, A153, A154, A155, A156, A157, A158, A159, A160, A161, A162, A163, A164, A165, A166, A167, A168, A169, A170, A171, A172, A173, A174, A175, A176, A177, A178, A179, A180, A181, A182, A183, A184, 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