

## 2020 春《数据库系统》作业 X

主讲教师: 邹兆年(znzou@hit.edu.cn)

姓名: 刘仁彪 学号: 1170400307 班号: 1737301

题目	1	2	3	4	5	6	7	8	9	10	总分
得分											

### 1. 回答

- a) 回答: 错, 语句作用是删除关系 R。
- b) 回答: 错, 前者是极小的超键, 后者是一般的。
- c) 回答: 错。是按照属性 A 的值升序排列, 属性 A 的值相同时按属性 B 的值降序排列。
- d) 回答: 错, 因为投影结果会去掉重复项。
- e) 回答: 错, Count(A)返回的是属性 A 中值不为 NULL 的行数, 因此当 A 中含有 NULL 的时候, 结果不一样。

### 2. 回答

- a) 回答: `select maker from product where type = 'laptop' minus select maker from product where type = 'pc';`  
验证: `select * from ((select distinct maker,type from product where type = 'laptop' ) as t1 left join (select distinct maker,type from product where type = 'pc' ) as t2 on t1.maker = t2.maker ) where t2.maker is null`
- b) 回答: `select distinct maker from product as p1 where p1.type = 'laptop' and p1.maker not in (select maker from product as p2 where p2.type = 'pc');`
- c) 回答: `select distinct maker from product as p1 where p1.type = 'laptop' and not exists (select * from product as p2 where p2.type = 'pc' and p1.maker = p2.maker)`

maker
F
G

- d) 回答: `select p1.model, p1.price from printer as p1 join (select model, price from`

printer where model ='3002') as p2 on (p1.price < p2.price);

e) 回答: select p1.model, p1.price from printer as p1 join (select model, price from printer where model ='3002') as p2 where p1.price < p2.price;

f) 回答: select model from printer as p1 where exists (select \* from printer as p2 where p2.model ='3002' and p2.price > p1.price);

	model	price
▶	3001	99
	3004	120
	3005	120
	3006	100
	3007	200

g) 回答: select p1.model from pc as p1 left join pc as p2 on (p1.speed < p2.speed) where p2.model is NULL;

h) 回答: select distinct model from pc where speed in (select max(speed) from pc);

i) 回答: select model from pc where speed = (select max(speed) from pc);

j) 回答: select model from pc where speed >= all(select speed from pc);

k) 回答: select p1.model from pc as p1 where not exists (select p2.model from pc as p2 where p1.speed < p2.speed);

	model
▶	1005
	1006

l) 回答: select maker from (select maker from product join pc on product.type = 'pc' and product.model = pc.model group by maker,speed ) as t group by maker having count(\*) >=3

m) 回答: select maker from pc join product using (model) group by maker having count(distinct speed) >=3;

n) 回答: select maker from (select distinct maker, speed from pc join product using (model)) as p1 group by maker having count(\*) >= 3;

	maker
▶	A
	D
	E

- o) 回答: `update pc set price = price*0.9 where 'A' = (select maker from product where product.model =pc.model);`
- p) 回答: `update pc set price = price*0.9 where model in (select model from product where maker ='A');`
- q) 回答: `update pc set price = price * 0.9 where exists (select * from product where product.model =pc.model and product.maker ='A');`

model	speed	ram	hd	price
1001	2.66	1024	250	1903
1002	2.1	512	250	896
1003	1.42	512	80	430
1004	2.8	1024	250	649
1005	3.2	512	250	630
1006	3.2	1024	320	1049
1007	2.2	1024	200	510
1008	2.2	2048	250	770
1009	2	1024	250	650
1010	2.8	2048	300	770
1011	1.86	2048	160	959
1012	2.8	1024	160	649
1013	3.06	512	80	529

3. 回答: 个人认为, 使用 MAX 的语句是易读性最强的 (道理显而易见), 使用 exists 语句的易读性稍微弱一点, 使用 in 的语句差不多, 其他的更差。

从效率上来看, 感觉使用比较运算符的语句效果比较好, 使用 in 的语句效果相差不多, 最差的应该是使用 exists 的语句, 应该是与查询的方式有关, 但是具体的比较, 需要查看源代码或者查看具体的运行时间。