作业2: SQL (2020春)

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

1. (10分，每题2分) 判断对错

   (a) SQL语句DELETE FROM TABLE R从数据库中删除关系R。

   (b) 将属性声明为PRIMARY KEY和UNIQUE NOT NULL作用是一样的。

   (c) ORDER BY A, B DESC将查询结果按照属性A和B的值降序排列。

   (d) SQL语句SELECT A FROM R与关系代数表达式$\Pi_A(R)$的结果相同。

   (e) 若关系R的属性A被声明为UNIQUE，则SQL语句SELECT COUNT(A) FROM R的结果是$|R|$。

2. (85分，每题5分) 在MySQL上创建Product数据库(Database Systems The Complete Book - Exercise 2.4.1)，然后使用SQL表达下列数据库查询与更新，并在MySQL上验证。

   (a) Find the manufacturers that sell laptops but not PC's. (使用集合差运算)

   (b) Find the manufacturers that sell laptops but not PC's. (使用含有IN的嵌套查询)

   (c) Find the manufacturers that sell laptops but not PC's. (使用含有EXISTS的嵌套查询)

   (d) Find the model numbers of all printers that are cheaper than the printer model 3002. (使用内连接查询)

   (e) Find the model numbers of all printers that are cheaper than the printer model 3002. (使用含有比较运算符的嵌套查询)

   (f) Find the model numbers of all printers that are cheaper than the printer model 3002. (使用含有EXISTS的嵌套查询)

   (g) Find the PC model with the highest available speed. (使用外连接查询)

   (h) Find the PC model with the highest available speed. (使用含有IN的嵌套查询)

   (i) Find the PC model with the highest available speed. (使用含有=的嵌套查询)

   (j) Find the PC model with the highest available speed. (使用含有>=的嵌套查询)

   (k) Find the PC model with the highest available speed. (使用含有EXISTS的嵌套查询)

   (l) Find the manufacturers of PC's with at least three different speeds. (使用内连接查询)

   (m) Find the manufacturers of PC's with at least three different speeds. (使用分组查询)

   (n) Find the manufacturers of PC's with at least three different speeds. (使用派生关系)

   (o) Decrease the price of all PC's made by maker A by 10%. (使用含有=的更新条件)

   (p) Decrease the price of all PC's made by maker A by 10%. (使用含有IN的更新条件)

   (q) Decrease the price of all PC's made by maker A by 10%. (使用含有EXISTS的更新条件)

3. (5分) 第1题(g)中的查询可以用多种SQL语句表示。尝试从语句的易读性和执行效率两方面对1(g)–1(k)的SQL语句进行分析和比较。在做效率分析时，我们假定每个关系上只有主索引，而没有其他索引(请自学索引的概念)。