SQL数据库面试题以及答案

Student(S#,Sname,Sage,Ssex) 学生表

S#：学号；Sname：学生姓名；Sage：学生年龄；Ssex：学生性别

Course(C#,Cname,T#) 课程表

C#,课程编号；Cname：课程名字；T#：教师编号

SC(S#,C#,score) 成绩表

S#：学号；C#,课程编号；score：成绩

Teacher(T#,Tname) 教师表

T#：教师编号； Tname：教师名字

问题：  
1、查询“001”课程比“002”课程成绩高的所有学生的学号；  
  select a.S# from (select s#,score from SC where C#='001') a,(select s#,score  
  from SC where C#='002') b  
  where a.score>b.score and a.s#=b.s#;

2、查询平均成绩大于60分的同学的学号和平均成绩；  
    select S#,avg(score)  
    from sc  
    group by S# having avg(score) >60;

3、查询所有同学的学号、姓名、选课数、总成绩；  
  select Student.S#,Student.Sname,count(SC.C#),sum(score)  
  from Student left Outer join SC on Student.S#=SC.S#  
  group by Student.S#,Sname

4、查询姓“李”的老师的个数；  
  select count(distinct(Tname))  
  from Teacher  
  where Tname like '李%';

5、查询没学过“叶平”老师课的同学的学号、姓名；  
    select Student.S#,Student.Sname  
    from Student   
    where S# not in (select distinct( SC.S#) from SC,Course,Teacher where SC.C#=Course.C# and Teacher.T#=Course.T# and Teacher.Tname='叶平');

6、查询学过“001”并且也学过编号“002”课程的同学的学号、姓名；  
  select Student.S#,Student.Sname from Student,SC where Student.S#=SC.S# and SC.C#='001'and exists( Select \* from SC as SC\_2 where SC\_2.S#=SC.S# and SC\_2.C#='002');

7、查询学过“叶平”老师所教的所有课的同学的学号、姓名；  
  select S#,Sname  
  from Student  
  where S# in (select S# from SC ,Course ,Teacher where SC.C#=Course.C# and Teacher.T#=Course.T# and Teacher.Tname='叶平' group by S# having count(SC.C#)=(select count(C#) from Course,Teacher  where Teacher.T#=Course.T# and Tname='叶平'));

8、查询课程编号“002”的成绩比课程编号“001”课程低的所有同学的学号、姓名；  
  Select S#,Sname from (select Student.S#,Student.Sname,score ,(select score from SC SC\_2 where SC\_2.S#=Student.S# and SC\_2.C#='002') score2  
  from Student,SC where Student.S#=SC.S# and C#='001') S\_2 where score2 <score;

9、查询所有课程成绩小于60分的同学的学号、姓名；  
  select S#,Sname  
  from Student  
  where S# not in (select Student.S# from Student,SC where S.S#=SC.S# and score>60);

10、查询没有学全所有课的同学的学号、姓名；  
    select Student.S#,Student.Sname  
    from Student,SC  
    where Student.S#=SC.S# group by  Student.S#,Student.Sname having count(C#) <(select count(C#) from Course);

11、查询至少有一门课与学号为“1001”的同学所学相同的同学的学号和姓名；  
    select S#,Sname from Student,SC where Student.S#=SC.S# and C# in select C# from SC where S#='1001';

12、查询至少学过学号为“001”同学所有一门课的其他同学学号和姓名；  
    select distinct SC.S#,Sname  
    from Student,SC  
    where Student.S#=SC.S# and C# in (select C# from SC where S#='001');

13、把“SC”表中“叶平”老师教的课的成绩都更改为此课程的平均成绩；  
    update SC set score=(select avg(SC\_2.score)  
    from SC SC\_2  
    where SC\_2.C#=SC.C# ) from Course,Teacher where Course.C#=SC.C# and Course.T#=Teacher.T# and Teacher.Tname='叶平');

14、查询和“1002”号的同学学习的课程完全相同的其他同学学号和姓名；  
    select S# from SC where C# in (select C# from SC where S#='1002')  
    group by S# having count(\*)=(select count(\*) from SC where S#='1002');

15、删除学习“叶平”老师课的SC表记录；  
    Delect SC  
    from course ,Teacher   
    where Course.C#=SC.C# and Course.T#= Teacher.T# and Tname='叶平';

16、向SC表中插入一些记录，这些记录要求符合以下条件：没有上过编号“003”课程的同学学号、2、  
    号课的平均成绩；  
    Insert SC select S#,'002',(Select avg(score)  
    from SC where C#='002') from Student where S# not in (Select S# from SC where C#='002');

17、按平均成绩从高到低显示所有学生的“数据库”、“企业管理”、“英语”三门的课程成绩，按如下形式显示： 学生ID,,数据库,企业管理,英语,有效课程数,有效平均分  
    SELECT S# as 学生ID  
        ,(SELECT score FROM SC WHERE SC.S#=t.S# AND C#='004') AS 数据库  
        ,(SELECT score FROM SC WHERE SC.S#=t.S# AND C#='001') AS 企业管理  
        ,(SELECT score FROM SC WHERE SC.S#=t.S# AND C#='006') AS 英语  
        ,COUNT(\*) AS 有效课程数, AVG(t.score) AS 平均成绩  
    FROM SC AS t  
    GROUP BY S#  
    ORDER BY avg(t.score)

18、查询各科成绩最高和最低的分：以如下形式显示：课程ID，最高分，最低分  
    SELECT L.C# As 课程ID,L.score AS 最高分,R.score AS 最低分  
    FROM SC L ,SC AS R  
    WHERE L.C# = R.C# and  
        L.score = (SELECT MAX(IL.score)  
                      FROM SC AS IL,Student AS IM  
                      WHERE L.C# = IL.C# and IM.S#=IL.S#  
                      GROUP BY IL.C#)  
        AND  
        R.Score = (SELECT MIN(IR.score)  
                      FROM SC AS IR  
                      WHERE R.C# = IR.C#  
                  GROUP BY IR.C#  
                    );

19、按各科平均成绩从低到高和及格率的百分数从高到低顺序  
    SELECT t.C# AS 课程号,max(course.Cname)AS 课程名,isnull(AVG(score),0) AS 平均成绩  
        ,100 \* SUM(CASE WHEN  isnull(score,0)>=60 THEN 1 ELSE 0 END)/COUNT(\*) AS 及格百分数  
    FROM SC T,Course  
    where t.C#=course.C#  
    GROUP BY t.C#  
    ORDER BY 100 \* SUM(CASE WHEN  isnull(score,0)>=60 THEN 1 ELSE 0 END)/COUNT(\*) DESC

20、查询如下课程平均成绩和及格率的百分数(用"1行"显示): 企业管理（001），马克思（002），OO&UML （003），数据库（004）  
    SELECT SUM(CASE WHEN C# ='001' THEN score ELSE 0 END)/SUM(CASE C# WHEN '001' THEN 1 ELSE 0 END) AS 企业管理平均分  
        ,100 \* SUM(CASE WHEN C# = '001' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN C# = '001' THEN 1 ELSE 0 END) AS 企业管理及格百分数  
        ,SUM(CASE WHEN C# = '002' THEN score ELSE 0 END)/SUM(CASE C# WHEN '002' THEN 1 ELSE 0 END) AS 马克思平均分  
        ,100 \* SUM(CASE WHEN C# = '002' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN C# = '002' THEN 1 ELSE 0 END) AS 马克思及格百分数  
        ,SUM(CASE WHEN C# = '003' THEN score ELSE 0 END)/SUM(CASE C# WHEN '003' THEN 1 ELSE 0 END) AS UML平均分  
        ,100 \* SUM(CASE WHEN C# = '003' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN C# = '003' THEN 1 ELSE 0 END) AS UML及格百分数  
        ,SUM(CASE WHEN C# = '004' THEN score ELSE 0 END)/SUM(CASE C# WHEN '004' THEN 1 ELSE 0 END) AS 数据库平均分  
        ,100 \* SUM(CASE WHEN C# = '004' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN C# = '004' THEN 1 ELSE 0 END) AS 数据库及格百分数  
  FROM SC

21、查询不同老师所教不同课程平均分从高到低显示  
  SELECT max(Z.T#) AS 教师ID,MAX(Z.Tname) AS 教师姓名,C.C# AS 课程ＩＤ,MAX(C.Cname) AS 课程名称,AVG(Score) AS 平均成绩  
    FROM SC AS T,Course AS C ,Teacher AS Z  
    where T.C#=C.C# and C.T#=Z.T#  
  GROUP BY C.C#  
  ORDER BY AVG(Score) DESC

22、查询如下课程成绩第 3 名到第 6 名的学生成绩单：企业管理（001），马克思（002），UML （003），数据库（004）  
    [学生ID],[学生姓名],企业管理,马克思,UML,数据库,平均成绩  
    SELECT  DISTINCT top 3  
      SC.S# As 学生学号,  
        Student.Sname AS 学生姓名 ,  
      T1.score AS 企业管理,  
      T2.score AS 马克思,  
      T3.score AS UML,  
      T4.score AS 数据库,  
      ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0) as 总分  
      FROM Student,SC  LEFT JOIN SC AS T1  
                      ON SC.S# = T1.S# AND T1.C# = '001'  
            LEFT JOIN SC AS T2  
                      ON SC.S# = T2.S# AND T2.C# = '002'  
            LEFT JOIN SC AS T3  
                      ON SC.S# = T3.S# AND T3.C# = '003'  
            LEFT JOIN SC AS T4  
                      ON SC.S# = T4.S# AND T4.C# = '004'  
      WHERE student.S#=SC.S# and  
      ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0)  
      NOT IN  
      (SELECT  
            DISTINCT  
            TOP 15 WITH TIES  
            ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0)  
      FROM sc  
            LEFT JOIN sc AS T1  
                      ON sc.S# = T1.S# AND T1.C# = 'k1'  
            LEFT JOIN sc AS T2  
                      ON sc.S# = T2.S# AND T2.C# = 'k2'  
            LEFT JOIN sc AS T3  
                      ON sc.S# = T3.S# AND T3.C# = 'k3'  
            LEFT JOIN sc AS T4  
                      ON sc.S# = T4.S# AND T4.C# = 'k4'  
      ORDER BY ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0) DESC);

23、统计列印各科成绩,各分数段人数:课程ID,课程名称,[100-85],[85-70],[70-60],[ <60]  
    SELECT SC.C# as 课程ID, Cname as 课程名称  
        ,SUM(CASE WHEN score BETWEEN 85 AND 100 THEN 1 ELSE 0 END) AS [100 - 85]  
        ,SUM(CASE WHEN score BETWEEN 70 AND 85 THEN 1 ELSE 0 END) AS [85 - 70]  
        ,SUM(CASE WHEN score BETWEEN 60 AND 70 THEN 1 ELSE 0 END) AS [70 - 60]  
        ,SUM(CASE WHEN score < 60 THEN 1 ELSE 0 END) AS [60 -]  
    FROM SC,Course  
    where SC.C#=Course.C#  
    GROUP BY SC.C#,Cname;

24、查询学生平均成绩及其名次  
      SELECT 1+(SELECT COUNT( distinct 平均成绩)  
              FROM (SELECT S#,AVG(score) AS 平均成绩  
                      FROM SC  
                  GROUP BY S#  
                  ) AS T1  
            WHERE 平均成绩 > T2.平均成绩) as 名次,  
      S# as 学生学号,平均成绩  
    FROM (SELECT S#,AVG(score) 平均成绩  
            FROM SC  
        GROUP BY S#  
        ) AS T2  
    ORDER BY 平均成绩 desc;

25、查询各科成绩前三名的记录:(不考虑成绩并列情况)  
      SELECT t1.S# as 学生ID,t1.C# as 课程ID,Score as 分数  
      FROM SC t1  
      WHERE score IN (SELECT TOP 3 score  
              FROM SC  
              WHERE t1.C#= C#  
            ORDER BY score DESC  
              )  
      ORDER BY t1.C#;

26、查询每门课程被选修的学生数  
  select c#,count(S#) from sc group by C#;

27、查询出只选修了一门课程的全部学生的学号和姓名  
  select SC.S#,Student.Sname,count(C#) AS 选课数  
  from SC ,Student  
  where SC.S#=Student.S# group by SC.S# ,Student.Sname having count(C#)=1;

28、查询男生、女生人数  
    Select count(Ssex) as 男生人数 from Student group by Ssex having Ssex='男';  
    Select count(Ssex) as 女生人数 from Student group by Ssex having Ssex='女'；

29、查询姓“张”的学生名单  
    SELECT Sname FROM Student WHERE Sname like '张%';

30、查询同名同性学生名单，并统计同名人数  
  select Sname,count(\*) from Student group by Sname having  count(\*)>1;;

31、1981年出生的学生名单(注：Student表中Sage列的类型是datetime)  
    select Sname,  CONVERT(char (11),DATEPART(year,Sage)) as age  
    from student  
    where  CONVERT(char(11),DATEPART(year,Sage))='1981';

32、查询每门课程的平均成绩，结果按平均成绩升序排列，平均成绩相同时，按课程号降序排列  
    Select C#,Avg(score) from SC group by C# order by Avg(score),C# DESC ;

33、查询平均成绩大于85的所有学生的学号、姓名和平均成绩  
    select Sname,SC.S# ,avg(score)  
    from Student,SC  
    where Student.S#=SC.S# group by SC.S#,Sname having    avg(score)>85;

34、查询课程名称为“数据库”，且分数低于60的学生姓名和分数  
    Select Sname,isnull(score,0)  
    from Student,SC,Course  
    where SC.S#=Student.S# and SC.C#=Course.C# and  Course.Cname='数据库'and score <60;

35、查询所有学生的选课情况；  
    SELECT SC.S#,SC.C#,Sname,Cname  
    FROM SC,Student,Course  
    where SC.S#=Student.S# and SC.C#=Course.C# ;

36、查询任何一门课程成绩在70分以上的姓名、课程名称和分数；  
    SELECT  distinct student.S#,student.Sname,SC.C#,SC.score  
    FROM student,Sc  
    WHERE SC.score>=70 AND SC.S#=student.S#;

37、查询不及格的课程，并按课程号从大到小排列  
    select c# from sc where scor e <60 order by C# ;

38、查询课程编号为003且课程成绩在80分以上的学生的学号和姓名；  
    select SC.S#,Student.Sname from SC,Student where SC.S#=Student.S# and Score>80 and C#='003';

39、求选了课程的学生人数  
    select count(\*) from sc;

40、查询选修“叶平”老师所授课程的学生中，成绩最高的学生姓名及其成绩  
    select Student.Sname,score  
    from Student,SC,Course C,Teacher  
    where Student.S#=SC.S# and SC.C#=C.C# and C.T#=Teacher.T# and Teacher.Tname='叶平' and SC.score=(select max(score)from SC where C#=C.C# );

41、查询各个课程及相应的选修人数  
    select count(\*) from sc group by C#;

42、查询不同课程成绩相同的学生的学号、课程号、学生成绩  
  select distinct  A.S#,B.score from SC A  ,SC B where A.Score=B.Score and A.C# <>B.C# ;

43、查询每门功成绩最好的前两名  
    SELECT t1.S# as 学生ID,t1.C# as 课程ID,Score as 分数  
      FROM SC t1  
      WHERE score IN (SELECT TOP 2 score  
              FROM SC  
              WHERE t1.C#= C#  
            ORDER BY score DESC  
              )  
      ORDER BY t1.C#;

44、统计每门课程的学生选修人数（超过10人的课程才统计）。要求输出课程号和选修人数，查询结果按人数降序排列，查询结果按人数降序排列，若人数相同，按课程号升序排列   
    select  C# as 课程号,count(\*) as 人数  
    from  sc   
    group  by  C#  
    order  by  count(\*) desc,c#

45、检索至少选修两门课程的学生学号  
    select  S#   
    from  sc   
    group  by  s#  
    having  count(\*)  >  =  2

46、查询全部学生都选修的课程的课程号和课程名  
    select  C#,Cname   
    from  Course   
    where  C#  in  (select  c#  from  sc group  by  c#)

47、查询没学过“叶平”老师讲授的任一门课程的学生姓名  
    select Sname from Student where S# not in (select S# from Course,Teacher,SC where Course.T#=Teacher.T# and SC.C#=course.C# and Tname='叶平');

48、查询两门以上不及格课程的同学的学号及其平均成绩  
    select S#,avg(isnull(score,0)) from SC where S# in (select S# from SC where score <60 group by S# having count(\*)>2)group by S#;

49、检索“004”课程分数小于60，按分数降序排列的同学学号  
    select S# from SC where C#='004'and score <60 order by score desc;

50、删除“002”同学的“001”课程的成绩  
delete from Sc where S#='002'and C#='001';