

# 2024 年春季《数据库系统》上机考试题

第一题：查询学生表中所有不同的学院编号（注：过滤学院编号为空的数据）

保存 查询创建工具 美化 SQL 代码段 文本 导出结果

Mysql stu 运行 停止 解释

1 SELECT DISTINCT col\_id

2 FROM student where col\_id is not null;

信息 结果 1 剖析 状态

col_id
COMP
CSSE
FINA
LAWS
SOFT

第二题：查询每个学院开设的课程数量（col\_id, cor\_count）

4 SELECT col\_id, COUNT(cor\_name) AS cor\_count

5 FROM course

6 GROUP BY col\_id;

信息 结果 1 结果 2 剖析 状态

col_id	cor_count
AMTD	2
COMP	4
CSSE	4
ENTD	2
FINA	1
IPTD	2
LAWS	1
PETDS	4
SOFT	1
UPEC	1

**第三题：** 查询学生平均年龄大于 19 的学院编号和平均年龄， 按平均年龄降序排序

7  
8  
9  
10  
11  
12  
13  
14

```
SELECT col_id, AVG(age) AS avg_age
FROM student
GROUP BY col_id
HAVING avg_age > 19
ORDER BY avg_age DESC;
```

信息	结果 1	结果 2	结果 3	剖析	状态
col_id	avg_age				
LAWS	19.6667				
CSSE	19.5000				
▶ COMP	19.4444				

**第四题：** 查询学生姓名含'王安'或者学号为空的学生的学号和姓名

14  
15  
16  
17

```
SELECT stu_id, stu_name
FROM student
WHERE stu_name LIKE '王安%' OR idcard is null;
```

信息	结果 1	结果 2	结果 3	结果 4	结果 5	剖析	状态
stu_id	stu_name						
▶ 0110514	王安						
0111123	王安默						
0111871	魏前程						
0210535	王安						
0211258	艾之章						
0211666	王安						

**第五题：** 查询计算机学院开设课程的课程名和平均期末成绩， 按平均期末成绩降序排序

18	SELECT	course.cor_name,	AVG(takes.fin_score)	as	avg_fin_score
19	FROM	course			
20	JOIN	takes	ON	course.cor_id = takes.cor_id	
21	JOIN	college	ON	course.col_id = college.col_id	
22	WHERE	college.col_name = '计算机学院'			
23	GROUP BY	course.cor_name			
24	ORDER BY	avg_fin_score	DESC;		

信息	结果 1	结果 2	结果 3	结果 4	结果 5	剖析	状态
	cor_name	avg_fin_score					
▶	操作系统	94.00000					
	算法导论	93.00000					
	数据库系统	92.08333					
	计算机网络	90.66667					

第六题：查询上课时间有冲突的课程对，同一对课程只输出一次

40	SELECT	C1.cor_name, C2.cor_name
41	FROM	course C1, course C2
42	WHERE	C1.cor_id < C2.cor_id
43	AND	C1.day = C2.day
44	AND	((C1.start_time BETWEEN C2.start_time AND C2.end_time) OR (C1.end_time BETWEEN C2.start_time AND C2.end_time));
45		
46		
47		

信息	结果 1	剖析	状态
	cor_name	cor_name(1)	
▶	计算机网络	高等数学B	
	基础英语	高等数学A	
	算法导论	足球	
	算法设计	篮球	
	法律方法	软件测试	

第七题：查询课程平均成绩前三的课程的课号和名称，课程成绩=0.3 平时成绩+0.7 期末成绩（不考虑均分相同，只输出 3 个）

173	SELECT	course.cor_id, course.cor_name
174	FROM	course
175	JOIN	(
176		SELECT takes.cor_id, AVG(0.3 * takes.mid_score + 0.7 * takes.fin_score) as avg_score
177		FROM takes
178		GROUP BY takes.cor_id
179	) AS	score ON course.cor_id = score.cor_id
180	ORDER BY	score.avg_score DESC
181	LIMIT	3;
182		
183		

信息	结果 1	剖析	状态
	cor_id	cor_name	
▶	0513	健康教育	
	1012	数据库系统	
	1016	算法设计	

第八题：查询没有选课的学生的姓名和他们所在的学院的名称

```

53 SELECT student.stu_name, college.col_name
54 FROM student
55 LEFT JOIN college ON student.col_id = college.col_id
56 WHERE NOT EXISTS (
57     SELECT * FROM takes WHERE student.stu_id = takes.stu_id
58 );
59
60
61
62
63
64
65
66

```

信息	结果 1	剖析	状态
	stu_name	col_name	
▶ 魏前程	(Null)		
张睬	计算机学院		

**第九题：** 查询满足以下条件的学生的学号和姓名：

1. 学生所选的课程中，至少有一门课程的成绩高于该课程的平均成绩；
2. 学生的平均成绩高于学生所在学院中所有学生的平均成绩，学生的平均成绩=该学生所有课程成绩的均值，学院中所有学生的平均成绩=该学院所有学生的平均成绩的均值。

(成绩=0.3 平时成绩+0.7 期末成绩)

```

320 SELECT S1.stu_id, S1.stu_name
321 FROM student AS S1
322 WHERE EXISTS (
323     SELECT 1
324     FROM takes AS T1
325     WHERE S1.stu_id = T1.stu_id AND (0.3 * T1.mid_score + 0.7 * T1.fin_score) > (
326         SELECT AVG(0.3 * inner_takes.mid_score + 0.7 * inner_takes.fin_score)
327         FROM takes AS inner_takes
328         WHERE inner_takes.col_id = T1.col_id
329     )
330 )
331 AND (
332     S1.stu_id in (
333         SELECT stu_id
334         FROM (
335             (SELECT student.stu_id, student.col_id, AVG(0.3 * takes.mid_score + 0.7 * takes.fin_score) as avg_score
336              FROM takes
337              JOIN student ON takes.stu_id = student.stu_id
338              GROUP BY student.stu_id
339             ) AS Q1
340             JOIN
341             (
342                 SELECT student.col_id, AVG(0.3 * takes.mid_score + 0.7 * takes.fin_score) as avg_score_col
343                 FROM takes
344                 JOIN student ON takes.stu_id = student.stu_id
345                 GROUP BY student.col_id
346             ) AS Q2
347             ON Q1.col_id = Q2.col_id
348         )
349         WHERE Q1.avg_score > Q2.avg_score_col
350     )
351 )
352 ;

```

信息	结果 1	剖析	状态
	stu_id	stu_name	
	0110058	郭美濂	
	0110514	王安	
	0111123	王安默	
	0111168	姚同铭	
	0210535	王安	
	0210655	王平	
	0211168	姚童茗	
	0310524	朱鹏程	
	0311423	董参商	
	0411412	齐达雷	

**第十题：**查询满足以下条件的学生姓名和课程名：

1.学生姓名为同名；

2.这些同名同学同时选的课程。

例如，有三个都叫张三的同学，他们的选课记录为：

“

张三 算法设计 足球

张三 操作系统 算法设计 足球

张三 算法设计

”

则输出：

“张三 算法设计”

```

193 select stu_name, cor_name from
194 (
195     SELECT T1.stu_name, T1.cor_name, COUNT( * ) AS countcor
196     FROM (
197         SELECT S1.stu_id, S1.stu_name, C.cor_name
198         FROM student S1
199         JOIN takes T1 ON S1.stu_id = T1.stu_id
200         JOIN course C ON T1.cor_id = C.cor_id
201         WHERE
202             EXISTS ( SELECT 1 FROM student S2 WHERE S1.stu_name = S2.stu_name AND S1.stu_id != S2.stu_id )
203         ) AS T1
204     GROUP BY T1.cor_name, T1.stu_name
205 ) as T3
206 where (stu_name,countcor)
207 in
208 (
209     SELECT stu_name, max(countcor) AS countcor from
210     (
211         SELECT T1.stu_name, T1.cor_name, COUNT( * ) AS countcor
212         FROM (
213             SELECT S1.stu_id, S1.stu_name, C.cor_name
214             FROM student S1
215             JOIN takes T1 ON S1.stu_id = T1.stu_id
216             JOIN course C ON T1.cor_id = C.cor_id
217             WHERE
218                 EXISTS ( SELECT 1 FROM student S2 WHERE S1.stu_name = S2.stu_name AND S1.stu_id != S2.stu_id )
219             ) AS T1
220         GROUP BY T1.cor_name, T1.stu_name
221         ) as T2
222     GROUP BY stu_name
223 );

```

信息	结果 1	剖析	状态
	stu_name	cor_name	
▶	王安	基础英语	
	王安	马原	
	王安	高等数学A	
	王安	健康教育	