

# 「設計計算工作室 2」作业四

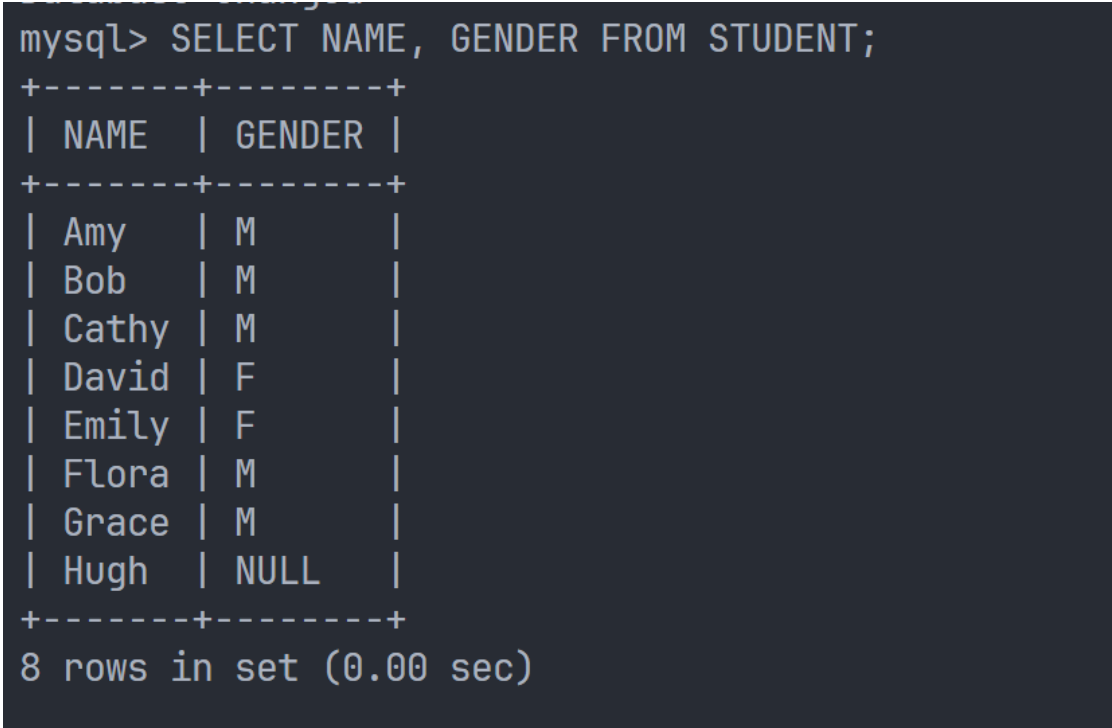
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## 第零題：

你的名字每個字的拼音首字母	SYC
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課堂練習：（每一題的截圖需截取語句及輸出結果，否則該小題不得分）

cmd 截圖 1	SELECT id, name, gender, grade FROM student; 和 SELECT id, grade, gender, name FROM student; 輸出的結果的字段（列名）順序不同, SELECT * FROM STUDENT 展示所有字段並按照字段默認順序輸出
cmd 截圖 2a	 <pre>mysql&gt; SELECT NAME, GENDER FROM STUDENT; +-----+-----+   NAME    GENDER   +-----+-----+   Amy     M          Bob     M          Cathy   M          David   F          Emily   F          Flora   M          Grace   M          Hugh    NULL     +-----+-----+ 8 rows in set (0.00 sec)</pre>

cmd  
截  
圖  
2b

```
mysql> SELECT GENDER, NAME FROM STUDENT;
+-----+-----+
| GENDER | NAME  |
+-----+-----+
| M      | Amy   |
| M      | Bob   |
| M      | Cathy |
| F      | David |
| F      | Emily |
| M      | Flora |
| M      | Grace |
| NULL   | Hugh  |
+-----+-----+
8 rows in set (0.00 sec)
```

以上两个 SELECT 执行后均输出了性别和姓名，但是字段顺序不同一个性别在，另一个姓名在前

cmd  
截  
圖  
3

```
mysql> SELECT NAME, GRADE FROM STUDENT WHERE GRADE>80;
+-----+-----+
| NAME  | GRADE |
+-----+-----+
| Bob   | 100   |
| Cathy | 90     |
| David | 88     |
| Flora | 86     |
| Grace | 92     |
| Hugh  | 90     |
+-----+-----+
6 rows in set (0.00 sec)

mysql> █
```

cmd 截圖 4	<pre>mysql&gt; SELECT ID, NAME, GENDER FROM STUDENT WHERE ID NOT IN(1,2,3); +----+-----+-----+   ID   NAME   GENDER   +----+-----+-----+   4    David   F          5    Emily   F          6    Flora   M          7    Grace   M          8    Hugh    NULL     +----+-----+-----+ 5 rows in set (0.00 sec)</pre>
cmd 截圖 5	<pre>mysql&gt; SELECT * FROM STUDENT WHERE ID NOT BETWEEN 2 AND 5; +----+-----+-----+-----+   ID   NAME   GRADE   GENDER   +----+-----+-----+-----+   1    Amy    40      M          6    Flora   86      M          7    Grace   92      M          8    Hugh    90      NULL     +----+-----+-----+-----+ 4 rows in set (0.00 sec)  mysql&gt; █</pre>
cmd 截圖 6	<pre>mysql&gt; SELECT ID, NAME, GENDER FROM STUDENT WHERE GENDER IS NOT NULL; +----+-----+-----+   ID   NAME   GENDER   +----+-----+-----+   1    Amy    M          2    Bob    M          3    Cathy   M          4    David   F          5    Emily   F          6    Flora   M          7    Grace   M        +----+-----+-----+ 7 rows in set (0.00 sec)</pre>
cmd 截圖 7	SELECT gender FROM student; 输出表中 gender 列所有的值，包括重复的 SELECT DISTINCT gender FROM student; 只输出不同的 gender，去除重复的值
cmd 截圖 8	结果输出为唯一不同的值，即 Amy 的名字只出现一次，因为新加入的 Amy 和表中原有的 gender 和 name 相同；在表中，一个列可能会包含多个重复值， SELECT DISTINCT 语句用于返回唯一不同的值

cmd 截圖 9	<pre>mysql&gt; SELECT DISTINCT NAME FROM STUDENT WHERE NAME LIKE '%a%'; +-----+   NAME   +-----+   Amy       Cathy     David     Flora     Grace   +-----+ 5 rows in set (0.00 sec)</pre>
cmd 截圖 10	<pre>mysql&gt; SELECT * FROM STUDENT WHERE NAME LIKE '%\%%'; +----+-----+-----+-----+   ID   NAME   GRADE   GENDER   +----+-----+-----+-----+   10   I%y    40      M          11   J%y    100     M        +----+-----+-----+-----+ 2 rows in set (0.00 sec)  mysql&gt;</pre>
cmd 截圖 11	<pre>mysql&gt; SELECT DISTINCT * FROM STUDENT WHERE ID &lt; 7 AND GENDER = 'M' AND GRADE &gt; 60; +----+-----+-----+-----+   ID   NAME   GRADE   GENDER   +----+-----+-----+-----+   2    Bob    100     M          3    Cathy  90      M          6    Flora  86      M        +----+-----+-----+-----+ 3 rows in set (0.00 sec)  mysql&gt; █</pre>

cmd

截  
圖

12

```
mysql> SELECT id, name
-> FROM student
-> WHERE name LIKE 'A%' OR name LIKE '%y';

+----+-----+
| id | name |
+----+-----+
|  1 | Amy  |
|  3 | Cathy|
|  5 | Emily|
|  9 | Amy  |
| 10 | I%y  |
| 11 | J%y  |
+----+-----+
6 rows in set (0.00 sec)

mysql>
```

cmd

截  
圖

13

```
mysql> SELECT DISTINCT *
-> FROM student
-> WHERE (grade > 60 AND gender = 'm')
->      OR (grade < 90 AND gender = 'f');

+----+-----+-----+-----+
| ID | NAME  | GRADE | GENDER |
+----+-----+-----+-----+
|  2 | Bob   | 100   | M      |
|  3 | Cathy | 90    | M      |
|  4 | David | 88    | F      |
|  5 | Emily | 66    | F      |
|  6 | Flora | 86    | M      |
|  7 | Grace | 92    | M      |
| 11 | J%y   | 100   | M      |
+----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql>
```

<p>cmd 截 圖 14</p>	<pre>mysql&gt; SELECT DISTINCT * -&gt; FROM student -&gt; WHERE (grade &gt;= 90 OR grade &lt;= 70) -&gt; AND gender = 'f';  +----+-----+-----+-----+   ID   NAME    GRADE   GENDER   +----+-----+-----+-----+    5   Emily      66   F        +----+-----+-----+-----+ 1 row in set (0.00 sec)  mysql&gt;</pre>
<p>cmd 截 圖 15</p>	<pre>mysql&gt; SELECT AVG(GRADE) FROM STUDENT WHERE GENDER='F';  +-----+   AVG(GRADE)   +-----+            77   +-----+ 1 row in set (0.00 sec)  mysql&gt;</pre>
<p>cmd 截 圖 16</p>	<pre>mysql&gt; SELECT MAX(GRADE) FROM STUDENT WHERE ID&gt;4;  +-----+   MAX(GRADE)   +-----+            100   +-----+ 1 row in set (0.00 sec)  mysql&gt;</pre>
<p>cmd 截 圖 17</p>	<p>SELECT * FROM student LIMIT 4; 输出 student 表中的前 4 条记录</p> <p>SELECT * FROM student LIMIT 2, 4; 输出 student 表中由索引为 2 （第三条）记录开始，接下来 4 条的记录。结果不同因为 LIMIT n: 返回从第一条记录开始的前 n 条记录，LIMIT m, n: 跳过前 m 条记录，从第 m+1 条记录开始，返回接下来的 n 条记录</p>
<p>cmd 截 圖 18</p>	<p>SELECT name AS stu_name, gender AS stu_gender FROM student; 从 student 表中选择 name 和 gender 列，并将它们分别重命名为 stu_name 和 stu_gender，并使用新的列名输出;</p> <p>SELECT name, gender FROM student; 从 student 表中选择 name 和 gender 列，保持原始列名不变，并输出 name 和 gender</p>

課後作業：（每一題的截圖需截取語句及輸出結果，否則該小題不得分）

cm d 截 圖 1	<pre>mysql&gt; SELECT SID, SNAME, AGE FROM STUDENT_SYC WHERE AGE &gt;= 20; +-----+-----+-----+   SID   SNAME   AGE   +-----+-----+-----+   S3    Cathy   21      S4    David   24    +-----+-----+-----+ 2 rows in set (0.00 sec)</pre>
cm d 截 圖 2	<pre>mysql&gt; SELECT * FROM STUDENT_SYC WHERE NOT SEX='F'; +-----+-----+-----+-----+   SID   SNAME   SEX   AGE   +-----+-----+-----+-----+   S2    Bob     M     19      S4    David   M     24    +-----+-----+-----+-----+ 2 rows in set (0.00 sec)  mysql&gt;</pre>
cm d 截 圖 3	<pre>mysql&gt; SELECT * FROM SC_SYC WHERE SCORE BETWEEN 80 AND 90; +-----+-----+-----+   SID   CID   SCORE   +-----+-----+-----+   S1    C1    90        S3    C2    80        S3    C3    88      +-----+-----+-----+ 3 rows in set (0.00 sec)  mysql&gt;</pre>
cm d 截 圖 4	<pre>mysql&gt; SELECT SID FROM SC_SYC WHERE CID='C2'; +-----+   SID   +-----+   S1       S2       S3     +-----+ 3 rows in set (0.00 sec)  mysql&gt;</pre>

<div>cmd 截圖 5</div>	<pre>mysql&gt; SELECT DISTINCT SNAME FROM STUDENT_SYC WHERE SID IN (SELECT SID FROM SC_SYC WHERE CID IN ('C1','C2')); +-----+   SNAME   +-----+   Amy       Bob       Cathy   +-----+ 3 rows in set (0.01 sec)</pre>
<div>cmd 截圖 6</div>	<pre>mysql&gt; SELECT DISTINCT SID FROM SC_SYC WHERE CID IN (SELECT CID FROM COURSE_SYC WHERE CNAME LIKE '%a%'); +-----+   SID   +-----+   S1       S2       S3     +-----+ 3 rows in set (0.00 sec)  mysql&gt; █</pre>
<div>cmd 截圖 7</div>	<pre>mysql&gt; SELECT DISTINCT s.SNAME, c.CNAME -&gt; FROM STUDENT_SYC s -&gt; JOIN SC_SYC sc ON s.SID = sc.SID -&gt; JOIN COURSE_SYC c ON sc.CID = c.CID -&gt; WHERE c.CNAME LIKE '%a%';  +-----+-----+   SNAME   CNAME   +-----+-----+   Amy     Java      Bob     Java      Bob     Database     Cathy   Java      Cathy   Database   +-----+-----+ 5 rows in set (0.00 sec)  mysql&gt; █</pre>
<div>cmd 截圖 8</div>	<pre>mysql&gt; SELECT s.SNAME, c.CNAME -&gt; FROM Student_SYC s -&gt; JOIN SC_SYC sc ON s.SID = sc.SID -&gt; JOIN COURSE_SYC c ON sc.CID = c.CID -&gt; WHERE LENGTH(C.CNAME) - LENGTH(REPLACE(C.CNAME, 'a', '')) = 2 -&gt; ;  +-----+-----+   SNAME   CNAME   +-----+-----+   Amy     Java      Bob     Java      Cathy   Java    +-----+-----+ 3 rows in set (0.00 sec)  mysql&gt; █</pre>



<p>cmd 截圖 9</p>	<pre>mysql&gt; mysql&gt; SELECT SID, AVG(SCORE) FROM SC_SYC GROUP BY SID; +-----+-----+   SID    AVG(SCORE)   +-----+-----+   S1     92.6667        S2     67.5000        S3     89.3333      +-----+-----+ 3 rows in set (0.01 sec)</pre>
<p>cmd 截圖 10</p>	<pre>mysql&gt; SELECT s.SID, s.SNAME, MAX(sc.SCORE) -&gt; FROM STUDENT_SYC s -&gt; JOIN SC_SYC sc ON s.SID = sc.SID -&gt; GROUP BY s.SID, s.SNAME; +-----+-----+-----+   SID   SNAME   MAX(sc.SCORE)   +-----+-----+-----+   S1    Amy     95                 S2    Bob     70                 S3    Cathy   100              +-----+-----+-----+ 3 rows in set (0.00 sec)</pre>
<p>cmd 截圖 11</p>	<pre>mysql&gt; SELECT s.SNAME, MAX(sc.SCORE) -&gt; FROM STUDENT_SYC s -&gt; JOIN SC_SYC sc ON s.SID=sc.SID -&gt; WHERE s.SEX='F' -&gt; GROUP BY s.SID, s.SNAME -&gt; ; +-----+-----+   SNAME   MAX(sc.SCORE)   +-----+-----+   Amy     95                 Cathy   100              +-----+-----+ 2 rows in set (0.00 sec)  mysql&gt;</pre>