

深 圳 大 学

实 验 报 告

课程名称: 数据库原理与实践

实验序号: 实验 1

实验名称: Database Command and SQL

学 号: 2017303010

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实验完成日期: 2021 年 09 月 日

一、实验目的：

- 1、了解 DBMS 系统的功能、软件组成；
- 2、掌握利用 SQL 语句定义、操纵数据库的方法。

二、实验要求：

- 1、在课外安装相关软件并浏览软件自带的帮助文件和功能菜单，了解 DBMS 的功能、结构；
- 2、创建一个有两个关系表的数据库；
- 3、数据库、关系表定义；
- 4、学习定义关系表的约束(主键、外键、自定义)；
- 5、了解 SQL 的数据定义功能；
- 6、了解 SQL 的操纵功能；
- 7、掌握典型的 SQL 语句的功能；
- 8、了解视图的概念；

三、实验设备：

计算机、数据库管理系统如 SQL SERVER, DB2, Oracle 等软件。

四、实验内容

EMP:

EMPNO	ENAME	JOB	MGR (经理)	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-Dec-90	13750		20
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30
7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30
7566	JONES	MANAGER	7839	02-APR-89	26850		20
7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30
7698	BLAKE	MANAGER	7839	01-MAY-90	24000		30
7782	CLARK	MANAGER	7839	09-JUN-88	27500		10
7788	SCOTT	ANALYST	7566	19-APR-87	19500		20
7839	KING	PRESIDENT		17-NOV-83	82500		10
7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30
7876	ADAMS	CLERK	7788	23-MAY-96	11900		20
7900	JAMES	CLERK	7698	03-DEC-95	12500		30
7902	FORD	ANALYST	7566	03-DEC-91	21500		20
7934	MILLER	CLERK	7782	23-JAN-95	13250		10

3258	GREEN	SALESMAN	4422	24-Jul-95	18500	2750	50
4422	STEVENS	MANAGER	7839	14-Jan-94	24750		50
6548	BARNES	CLERK	4422	16-Jan-95	11950		50

DEPT:

DEPTNO	DNAME	LOC
10	ACCOUNTING	LONDON
20	RESEARCH	PRESTON
30	SALES	LIVERPOOL
40	OPERATIONS	STAFFORD
50	MARKETING	LUTON

按照实验指导讲义完成老师要求的练习题目，必须写出 sql 语句以及运行结果。（示例如 Exercise2 q4,后面按照这个格式完成练习。）

1、用 PHPstudy 配置好 mysql 环境后，打开 Sqlog（图 4-1），点击数据库里的创建数据库，并设置好名称，如 demo11。

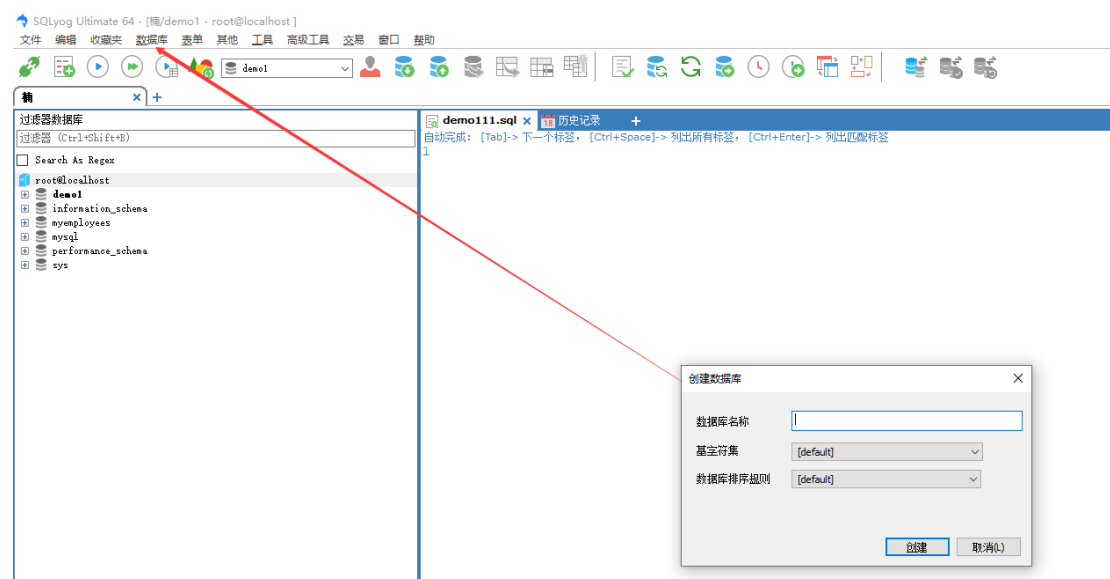


图 4-1

2、创建好数据库后，根据题意，分别把题目所给数据复制进相应 Excel 表格（图 4-2、图 4-3）。注意：因为在复制过去后文字有空格，必须通过查找替换的方式把所有空格去掉，否则导入不进去数据！

DEPTNO	DNAME	LOC
10	ACCOUNTING	LONDON
20	RESEARCH	PRESTON
30	SALES	LIVERPOOL
40	OPERATIONS	STAFFORD
50	MARKETING	LUTON

图 4-2

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-Dec-90	13750		20
7499	ALLEN	SALESMAN	7698	20-Feb-89	19000	6400	30
7521	WARD	SALESMAN	7698	22-Feb-93	18500	4250	30
7566	JONES	MANAGER	7839	2-Apr-89	26850		20
7654	MARTIN	SALESMAN	7698	2-Apr-90	15675	3500	30
7698	BLAKE	MANAGER	7839	2-Apr-91	24000		30
7782	CLARK	MANAGER	7839	2-Apr-92	27500		10
7788	SCOTT	ANALYST	7566	2-Apr-93	19500		20
7839	KING	PRESIDENT		2-Apr-94	82500		10
7844	TURNER	SALESMAN	7698	2-Apr-95	18500	6250	30
7876	ADAMS	CLERK	7788	2-Apr-96	11900		20
7900	JAMES	CLERK	7698	2-Apr-97	12500		30
7902	FORD	ANALYST	7566	2-Apr-98	21500		20
7934	MILLER	CLERK	7782	2-Apr-99	13250		10
3258	GREEN	SALESMAN	4422	02-APR-100	18500	2750	50
4422	STEVENS	MANAGER	7839	02-APR-101	24750		50
6548	BARNES	CLERK	4422	02-APR-102	11950		50

图 4-3

3、紧接着创建表，定义列名与数据类型，否则后面找不到匹配的，也成功不了（图 4-4），最后点击保存（department 表同理）。

列名	数据类型	长度	默认	主键?	非空?	Unsigned	自增?	Zer
EMPNO	varchar	255						
ENAME	varchar	255						
JOB	varchar	255						
MGR	varchar	255						
HIREDATE	varchar	255						
SAL	varchar	255						

图 4-4

4、对数据库右键，并选择导入->导入外部数据（图 4-5），弹出向导，点击下一页（图 4-6）。

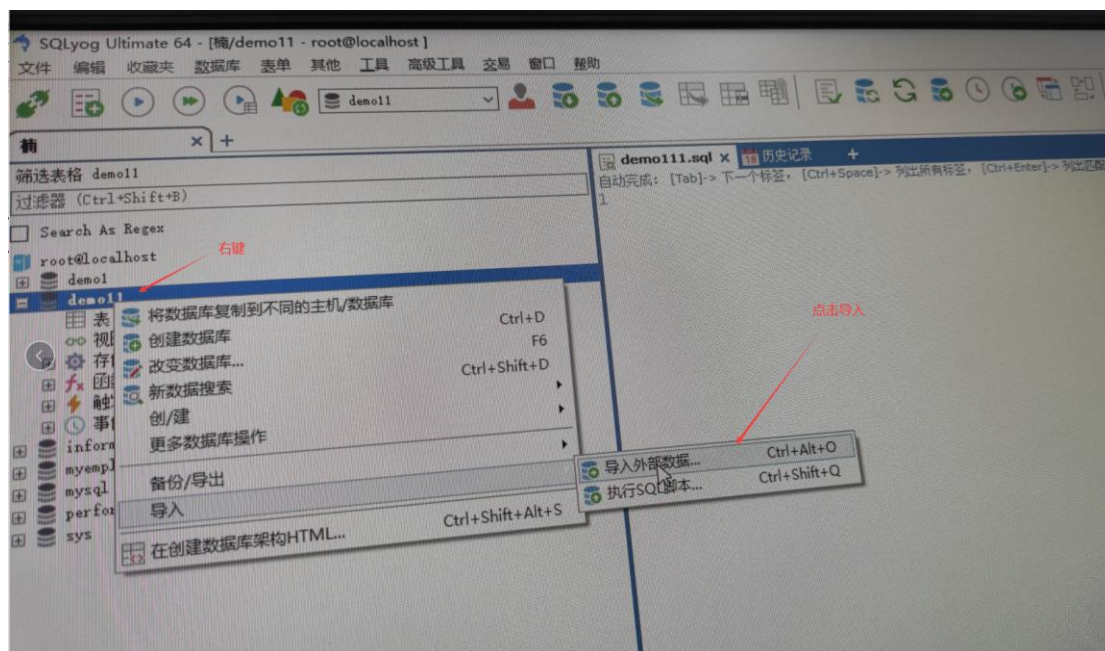


图 4-5



图 4-6

4、在弹出的向导里选择数据源类型为 Excel，文件选择为一开始的 excel 文件，最后点击下一页（图 4-7），继续点击下一页（图 4-8），再点击下一页（图 4-9）。

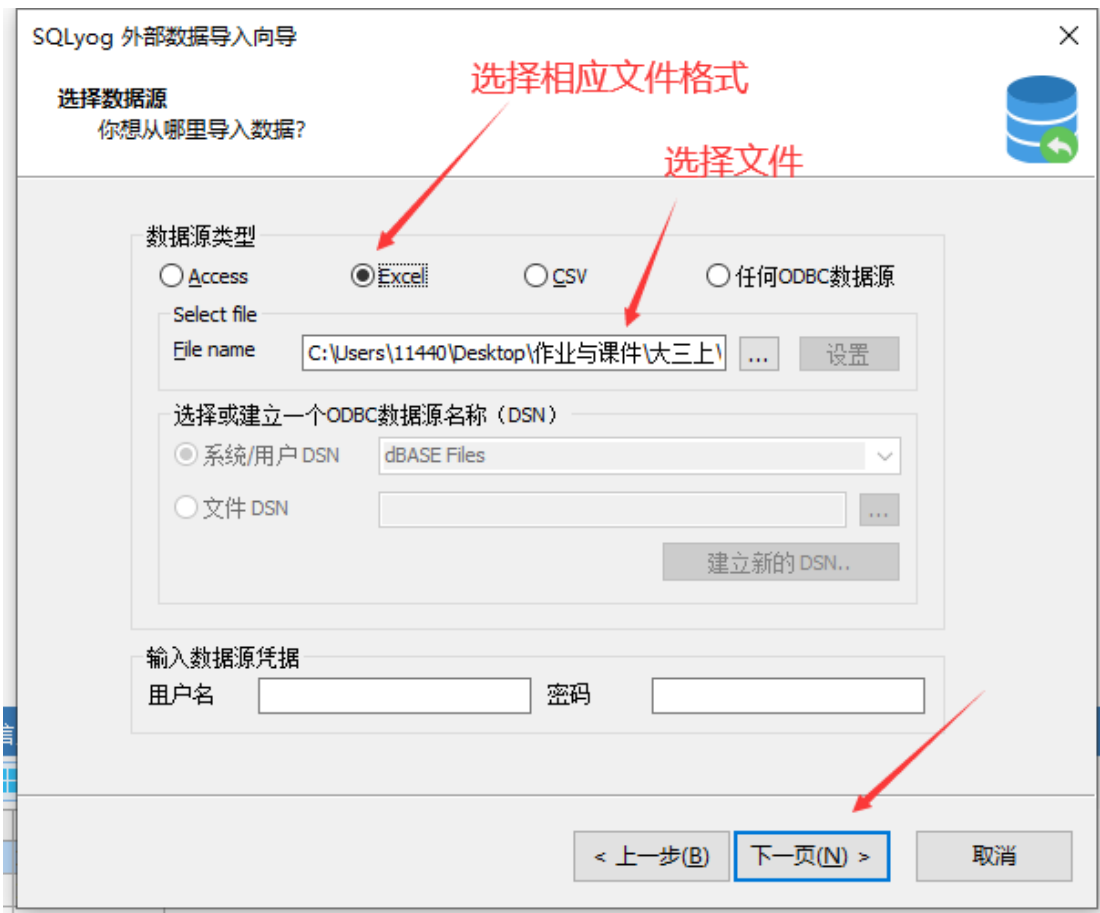


图 4-7

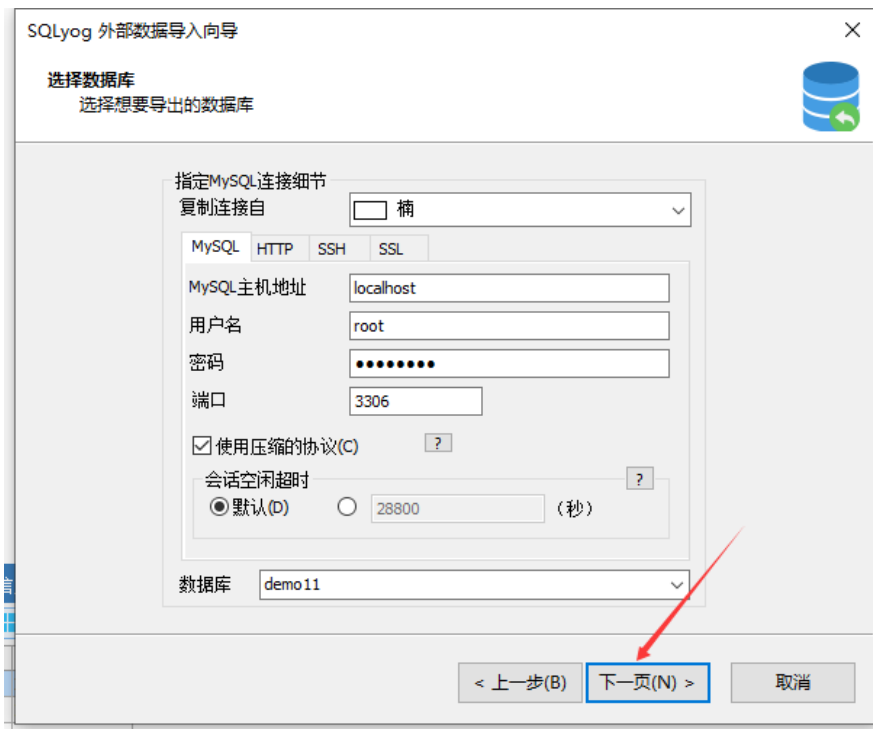


图 4-8

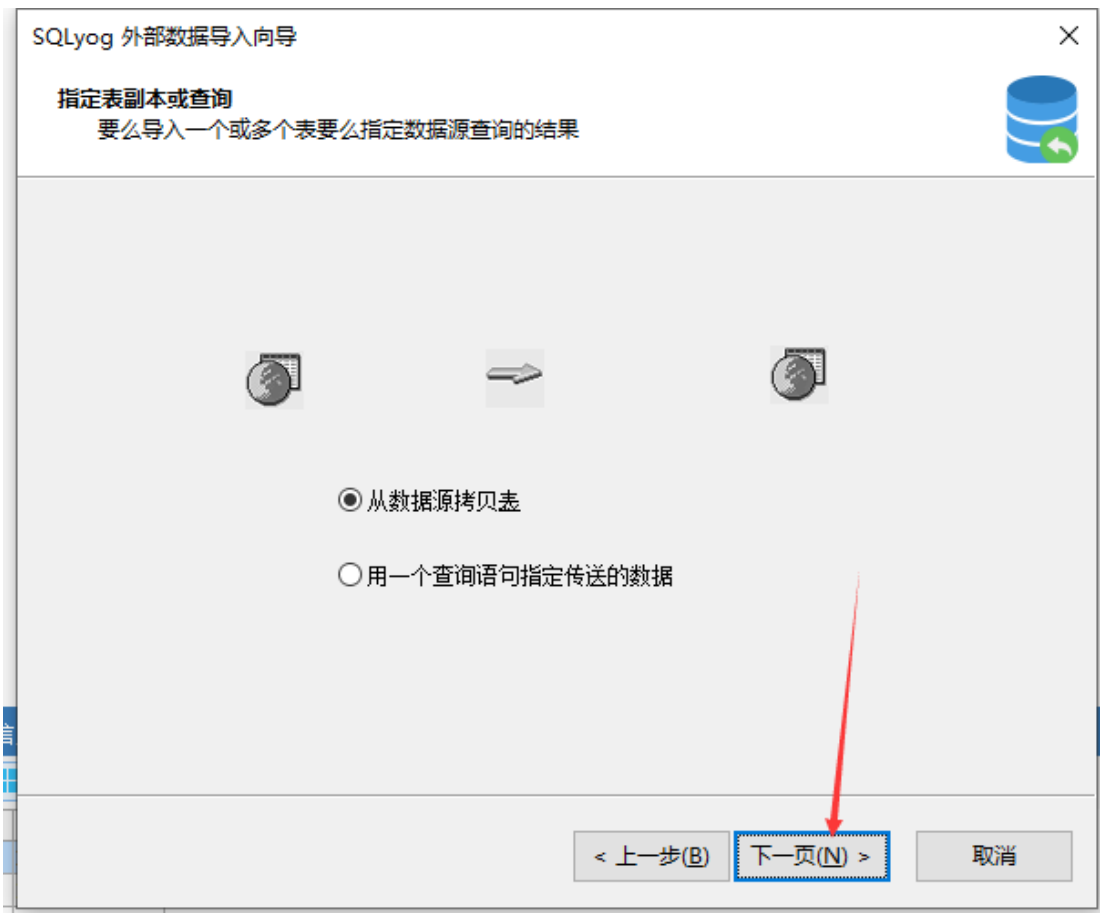


图 4-9

5、在当前页对表下方方框打勾，并把 destination 选择对应的表项（图 4-10），最后点击 map 检查（图 4-11），确认正确则点击确定并点击下一步进入下一个步骤，再继续点击下一步。

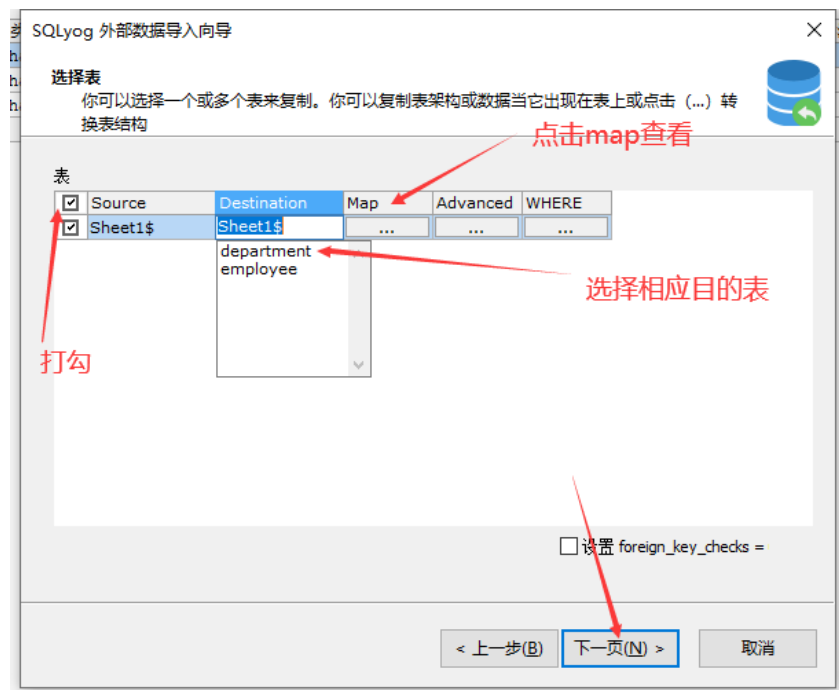


图 4-10

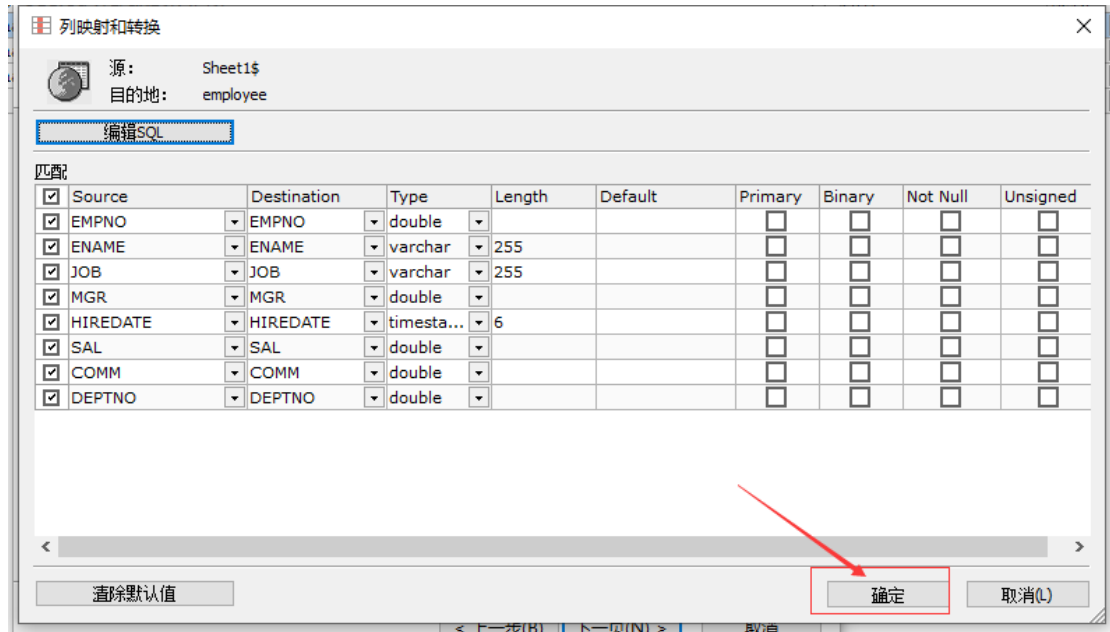


图 4-11

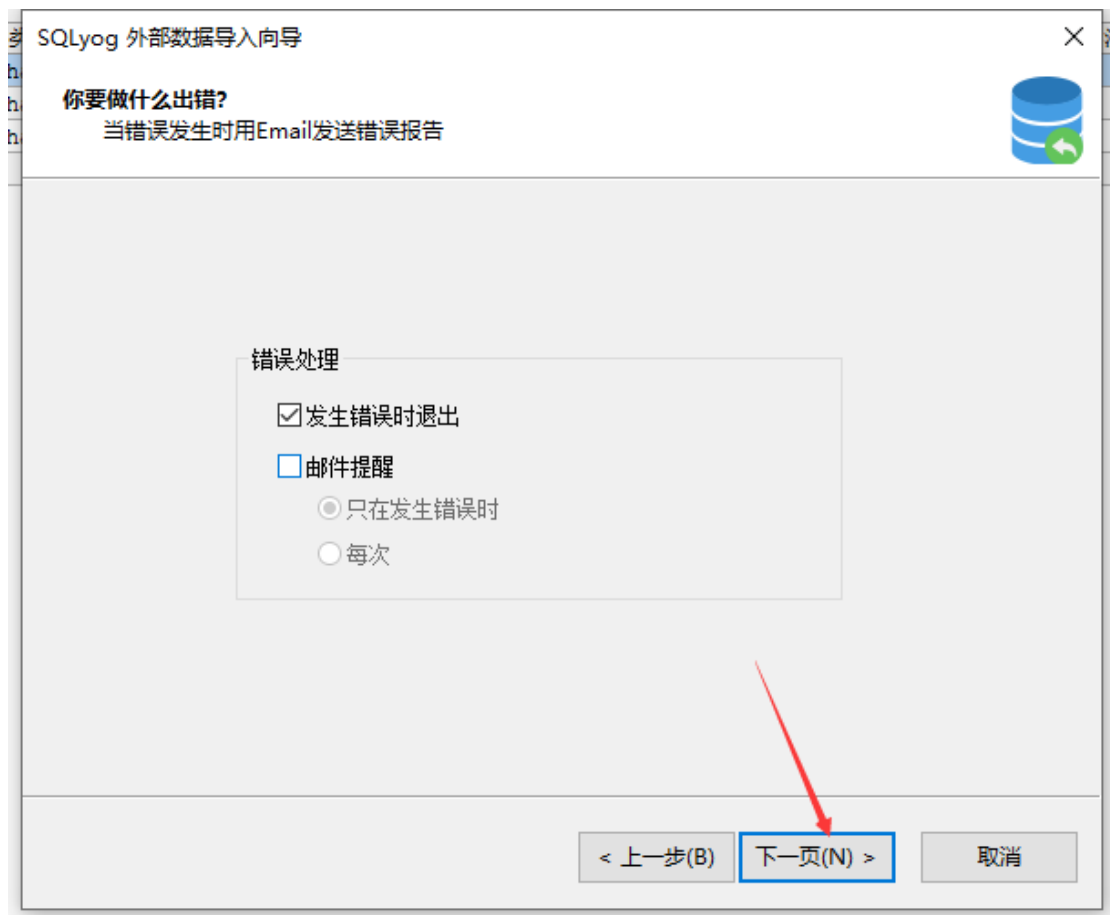


图 4-12

6、一直点击下一步知道出现图 4-13，稍等片刻显示 successful，即导入成功（图 4-14）！

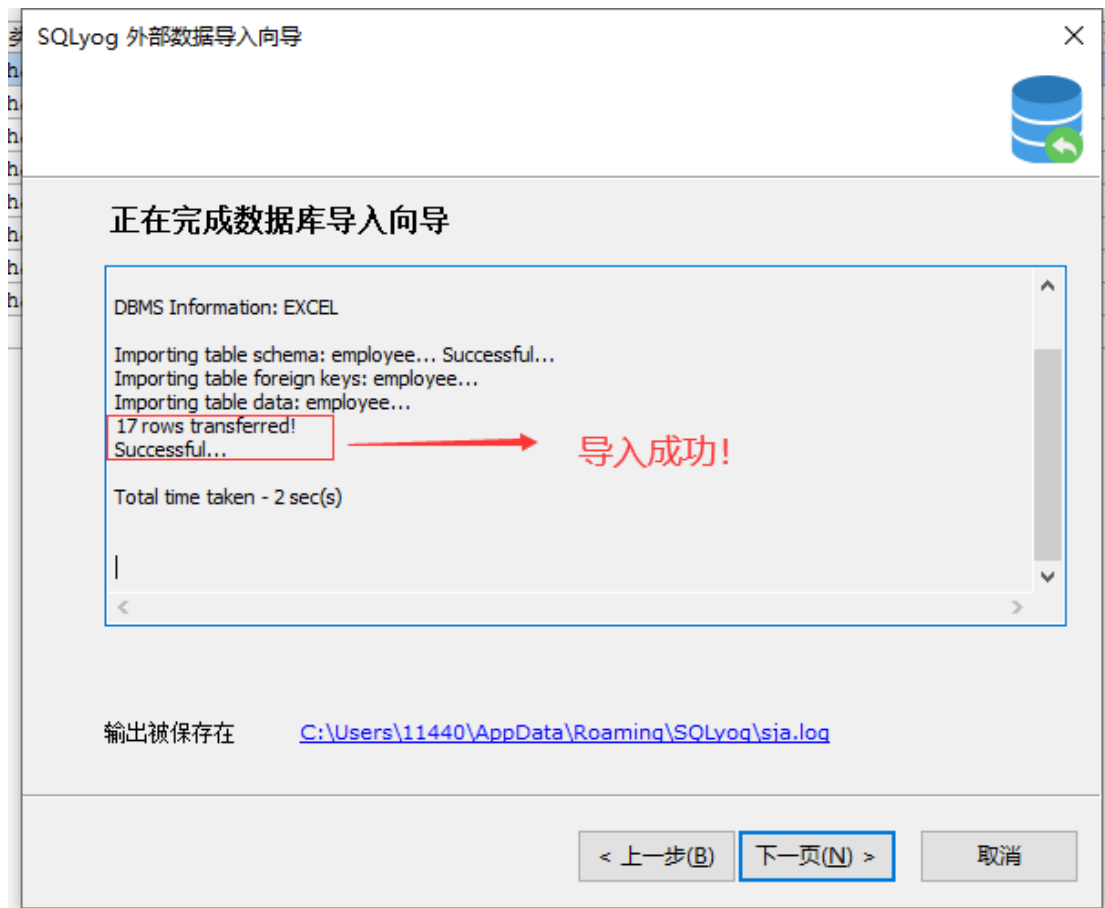


图 4-13

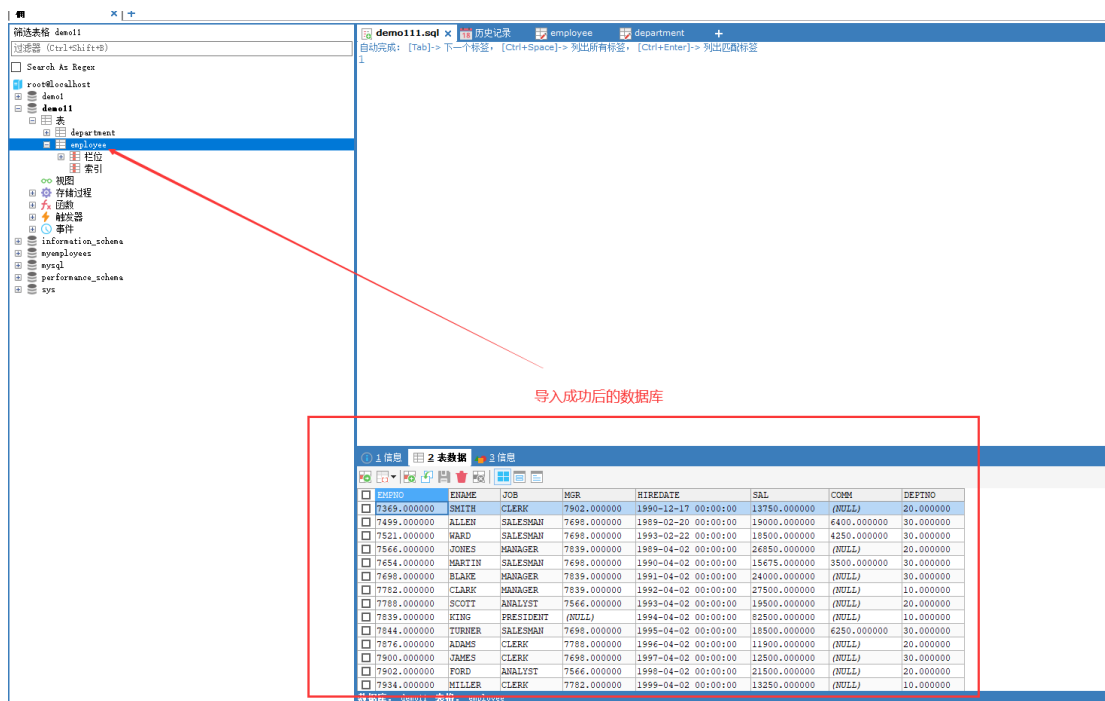


图 4-14

Exercise 2

q4. List all departments that do not have any employees.

Sql 语句:

运行结果:

q6. List the employees who have BLAKE as their manager.

Exercise 3

q1. Find how many employees have a title of manager without listing them.

q5. Count the number of people in department 30 who receive a salary and the number of people who receive a commission (single statement).

q6. List the average commission of employees who receive a commission, and the average commission of all employees (assume employees who do not receive a commission attract zero commission)

q8. Compute the daily and hourly salary for employees in department 30, round to the nearest penny. Assume there are 22 working days in a month and 8 working hours in a day.

q9. Issue the same query as the previous one except that this time truncate (TRUNC) to the nearest penny rather than round.

Exercise 4

q1. Select the name, job, and date of hire of the employees in department 20. (Format the HIREDATE column to MM/DD/YY)

q2. Then format the HIREDATE column into DoW (day of the week), Day (day of the month), MONTH (name of the month) and YYYY(year)

q3. Which employees were hired in April?

q4. Which employees were hired on a Tuesday?

q5. Are there any employees who have worked more than 30 years for the company?

q6. Show the weekday of the first day of the month in which each employee was

hired. (plus their names)

q7. Show details of employee hire dates and the date of their first payday. (Paydays occur on the last Friday of each month) (plus their names)

q8. Refine your answer to 7 such that it works even if an employee is hired after the last Friday of the month (cf Martin)

Exercise 5

q1. List the department number and average salary of each department.

q2. Divide all employees into groups by department and by job within department. Count the employees in each group and compute each group's average annual salary.

q3. Issue the same query as above except list the department name rather than the department number.

q4. List the average annual salary for all job groups having more than 2 employees in the group.

q5. Find all departments with an average commission greater than 25% of average salary.

q6. Find each department's average annual salary for all its employees except the managers and the president.

Exercise 6

q1. List the name and job of employees who have the same job as Jones.

q2. Find all the employees in Department 10 that have a job that is the same as anyone in department 30.

q3. List the name, job, and department of employees who have the same job as Jones or a salary greater than or equal to Ford.

q4. Find all employees in department 10 that have a job that is the same as anyone in the Sales department

q5. Find the employees located in Liverpool who have the same job as Allen. Return the results in alphabetical order by employee name.

q6. Find all the employees that earn more than the average salary of employees in their department.

q7. Find all the employees that earn more than JONES, using temporary labels to abbreviate table names.

五. 问题分析（碰到什么问题，如何解决）

1、由于端口 80 被占用，于是打开 D:\wamp64\bin\apache\apache2.4.46\conf 目录下的 httpd.conf，（图 5-1）并查找 Listen，修改端口 80 为 8080（图 5-2）。

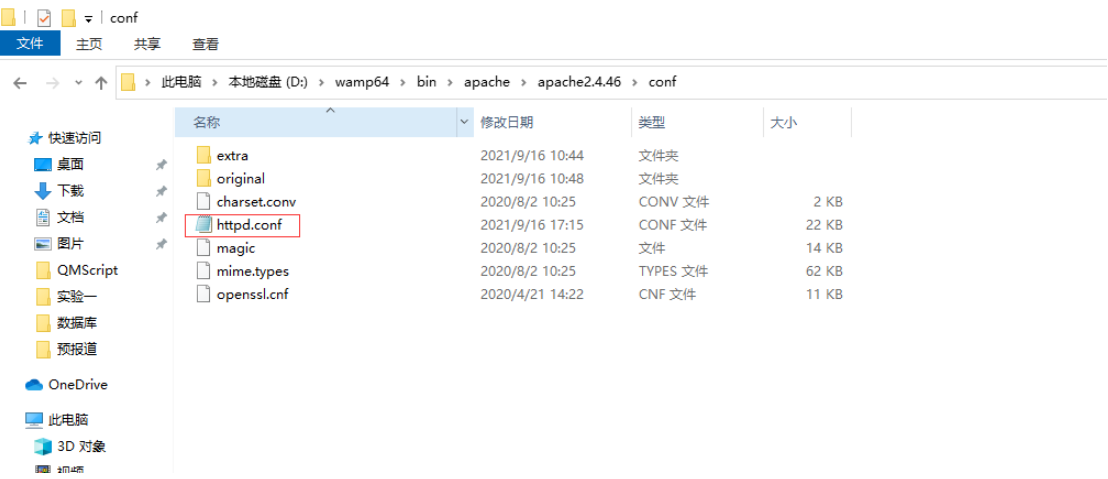


图 5-1

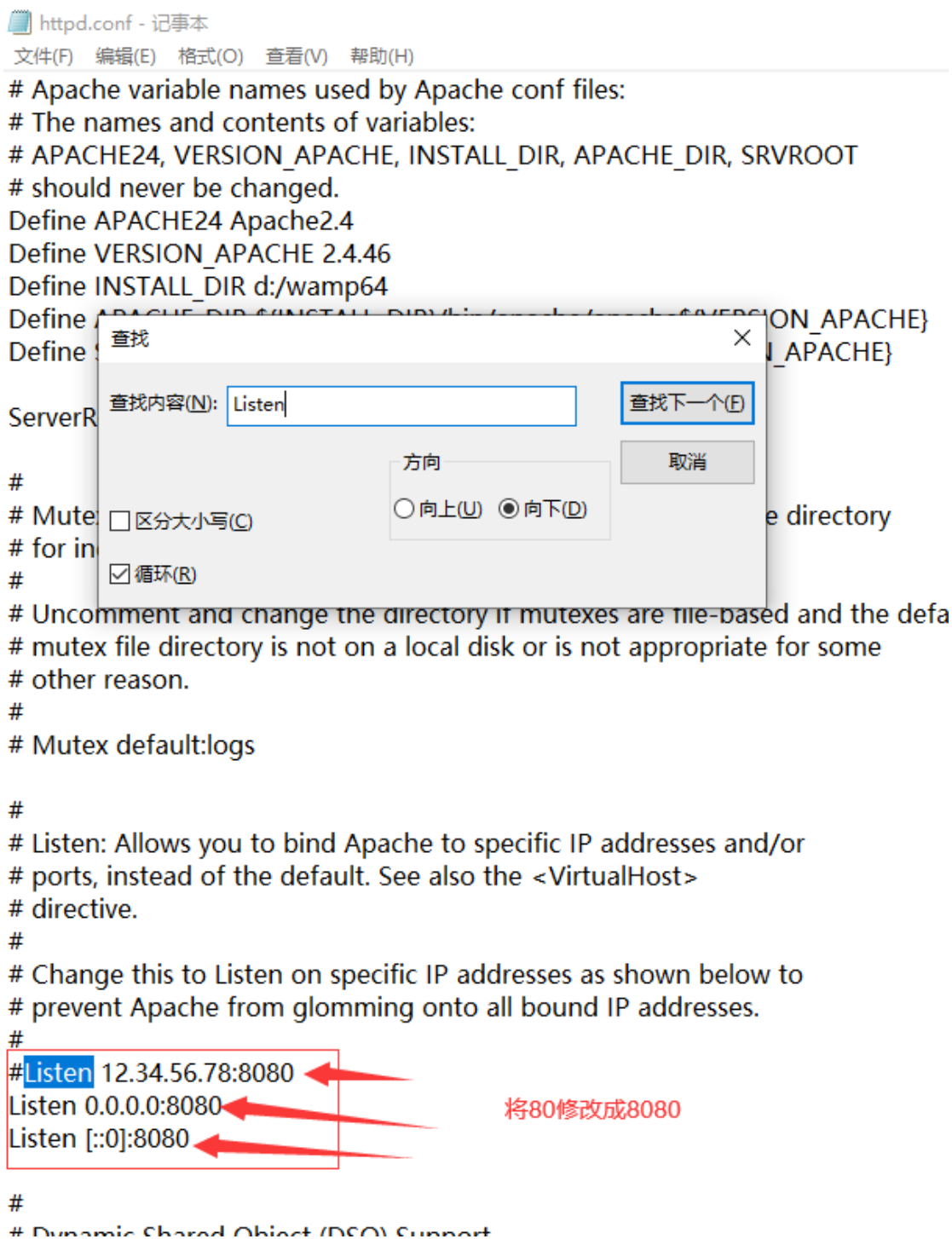


图 5-2

2、可能由于之前稍微学习过 mysql，配置过文件并且设置过密码，导致 wampserver 登录 localhost:8080 时需要登录账号。（图 5-3）



图 5-3

3、phpmyadmin 进入时显示 404（图 5-4），由于查不到资料只能重装 wampserver 从头开始（图 5-5）。



图 5-4

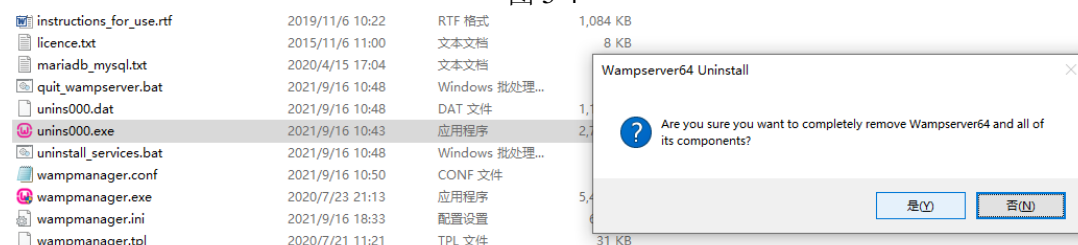


图 5-5

4、由于遇到太多问题，我决定用之前的 phpstudy 来配置环境，用 SQLyog 来打 sql 代码……(图 5-6)

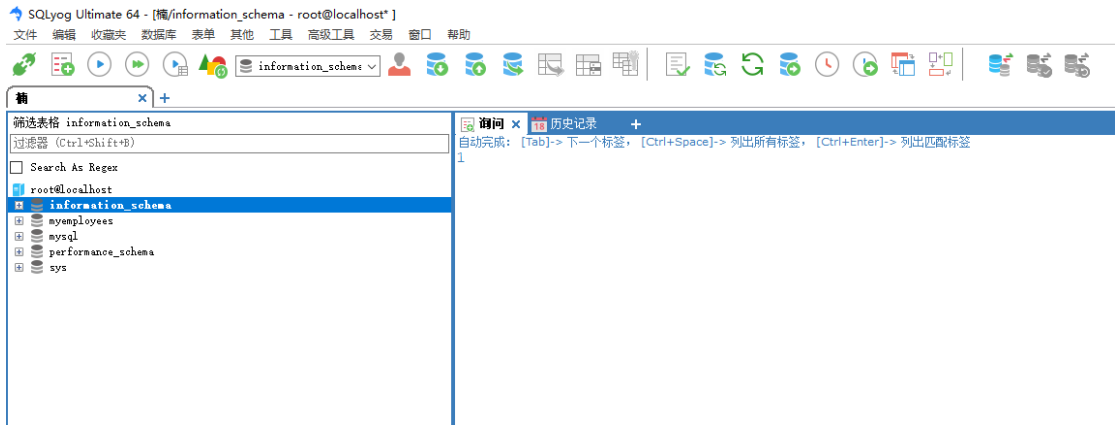


图 5-6

5、导入 excel 表一直失败，显示成功但是表内无数据，经过两个小时的尝试，发现问题在于 excel 里的数据是从 word 复制过去的，导致含有大量空格，通过 excel 的查找与替换把空格替换掉，最后成功导入 excel 数据，此外，数据库的列名要和 excel 第一行的名字完全一样且不能有空格。（图 5-7）

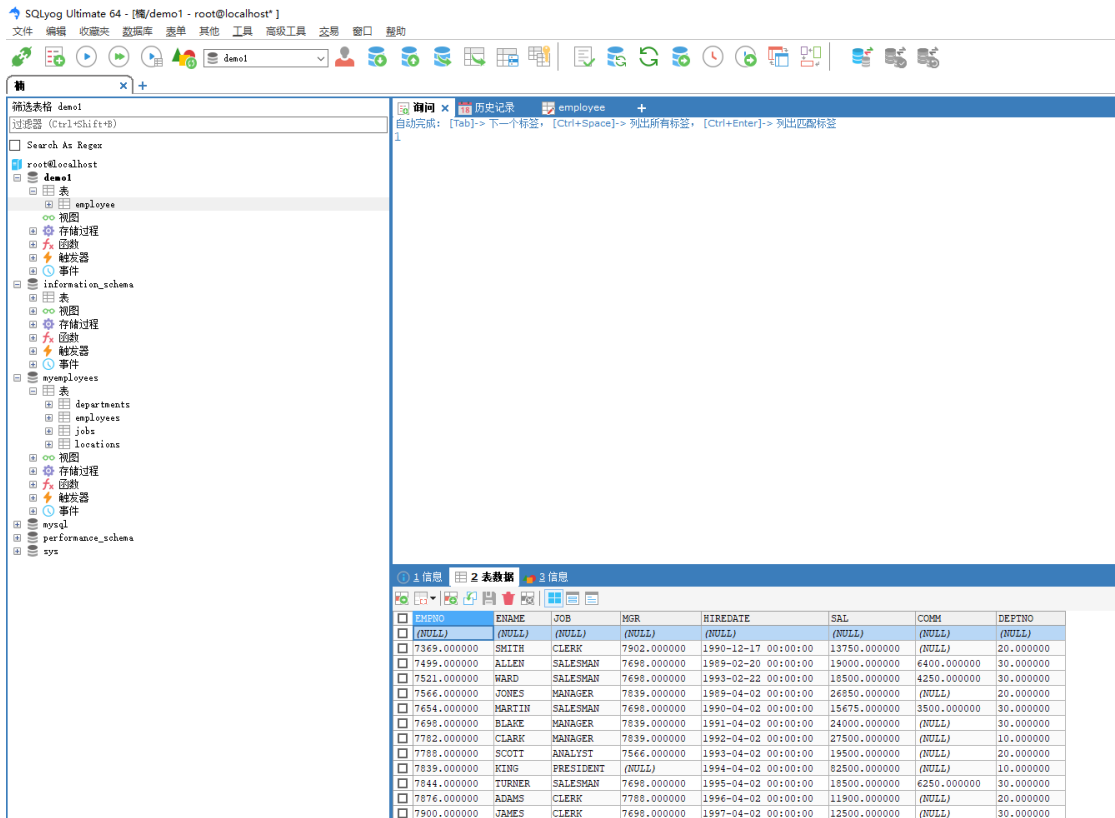


图 5-7

六. 实验心得

七. 诚信承诺

本人郑重承诺在 SQL 实验的实施的过程中不发生任何不诚信现象，一切不诚信所导致的后果均由本人承担。

签名（手签，不得打印）：

指导教师批阅意见：

成绩评定：

指导教师签字：

年 月 日

备注：