

深圳大学实验报告

课程名称: 数据库系统

实验项目名称: SQL 的 DDL 语言和单表查询

学院: Computer Science and Software Engineering

专业:

指导教师: Basker George

报告人: 学号: 班级:

实验时间: 04th September 2024

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实验目的与要求: (Purpose of Experiment purpose and Requirements)

* Please show all work for these problems.

Just writing down the answer will not get full credit.

SQL的DDL语言和单表查询

Note: create a Table EMP and DEPT with all required constraints both Integrity and Referential Integrity Constraint.

EMP Table:

EMPNO	PRIMARY KEY NOT NULL IF PRIMARY KEY MODIFED THEN CHILD MUST BE UPDATED	NUMBER(4)
ENAME	NOT NULL	VARCHAR2(10)
JOB	NOT NULL	VARCHAR2(9)
MGR	REFERENCES EMP(EMPNO)	NUMBER(4)
HIREDATE		DATE
SAL	NOT NULL AND MORE THAN 5000	NUMBER(7,2)
COMM		NUMBER(7,2)
DEPTNO	REFERENCES DEPT TABLE DEFAULT 10	NUMBER(2)

DEPT TABLE:

DEPTNO	PRIMARY KEY NOT NULL DON'T ALLOW PRIMARY KEY TO BE MODIFIED IF CHILD RECORD EXIST	NUMBER(2)
DNAME		CHAR(10)
LOC		CHAR(10)

INSERT TUPLES FOR EMP TABLE:

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	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
EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40

INSERT TUPLES FOR DEPT TABLE:

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

- List all information about the employees.
- List all information about the departments
- List only the following information from the EMP table (Employee name, employee number, salary, department number)
- List details of employees in departments 10 and 30.
- List all the jobs in the EMP table eliminating duplicates.
- What are the names of the employees who earn less than £20,000?
- What is the name, job title and employee number of the person in department 20 who earns more than £25000?
- Find all employees whose job is either Clerk or Salesman.
- Find any Clerk who is not in department 10.
- Find everyone whose job is Salesman and all the Analysts in department 20.
- Find all the employees who earn between £15,000 and £20,000.
Show the employee name, department and salary.

- 12 Find the name of the President.
- 13 Find all the employees whose last names end with S
- 14 List the employees whose names have TH or LL in them
- 15 List only those employees who receive commission.
- 16 Find the name, job, salary, hiredate, and department number of all employees by alphabetical order of name.
17. Find the name, job, salary, hiredate and department number of all employees in ascending order by their salaries.
18. List all salesmen in descending order by commission divided by their salary.
19. Order employees in department 30 who receive commission, in ascending order by commission
- 20 Find the names, jobs, salaries and commissions of all employees who do not have managers.
- 21 Find all the salesmen in department 30 who have a salary greater than or equal to £18000.
- 22 Find the employees who were hired before 01-Jan-1998 and have salary above 5000 or below 1000.
- 23 What is the command to add primary key constraint to EMPNO
- 24 What is the command to add a new column EMP_family_name to existing EMP table
- 25 How to drop primary key constraint for EMPNO
- 26 rename EMP table to EMPLOYEE
- 27 rename EMPLOYEE back to EMP
- 28 What is the SQL command to remove column EMP_family_name from EMP table
- 29 What is the SQL command to copy emp table to employee table
- 30 What is the SQL command to drop employee table
- 31 What is the SQL command to find the employee whose commission is NULL

实验过程及内容: (Methods and steps)

Use PHPMYADMIN/WAMP Server to complete the exercise

- ① Set information for EMP table and insert data.

```
1 • use mysql;
2
3 • DROP TABLE IF EXISTS EMP;
4 • CREATE TABLE IF NOT EXISTS EMP (
5     EMPNO int NOT NULL,
6     ENAME varchar(10) NOT NULL,
7     JOB char(9) NOT NULL,
8     MGR int DEFAULT NULL REFERENCES EMP(EMPNO),
9     HIREDATE varchar(9) DEFAULT NULL,
10    SAL float NOT NULL CHECK(SAL>5000),
11    COMM float DEFAULT NULL,
12    DEPTNO float(2) NOT NULL REFERENCES DEPT,
13    PRIMARY KEY (EMPNO)
14 );
15
16 • INSERT INTO EMP (EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES
17 (7369,'SMITH','CLERK',7902,'17-DEC-90',13750,NULL,20),
18 (7499,'ALLEN','SALESMAN',7698,'20-FEB-89',19000,6400,30),
19 (7521,'WARD','SALESMAN',7698,'22-FEB-93',18500,4250,30),
20 (7566,'JONES','MANAGER',7839,'02-APR-89',26850,NULL,20),
21 (7654,'MARTIN','SALESMAN',7698,'28-SEP-97',15675,3500,30),
22 (7698,'BLAKE','MANAGER',7839,'01-MAY-90',24000,NULL,30),
23 (7782,'CLARK','MANAGER',7839,'09-JUN-88',27500,NULL,10),
24 (7788,'SCOTT','ANALYST',7566,'19-APR-87',19500,NULL,20),
25 (7839,'KING','PRESIDENT',NULL,'17-NOV-83',82500,NULL,10),
26 (7844,'TURNER','SALESMAN',7698,'08-SEP-92',18500,6250,30),
27 (7876,'ADAMS','CLERK',7788,'23-MAY-96',11900,NULL,20),
28 (7900,'JAMES','CLERK',7698,'03-DEC-95',12500,NULL,30),
29 (7902,'FORD','ANALYST',7566,'03-DEC-91',21500,NULL,20),
30 (7934,'MILLER','CLERK',7782,'23-JAN-95',13250,NULL,10),
31 (3258,'GREEN','SALESMAN',4422,'24-JUL-95',18500,2750,50),
32 (4422,'STEVENS','MANAGER',7839,'14-JAN-94',24750,NULL,50),
33 (6548,'BARNES','CLERK',4422,'16-JAN-95',11950,NULL,50),
34 (7500,'CAMPBELL','ANALYST',7566,'30-OCT-92',24500,0,40);
35
```

- ② Set information for DEPT table and insert data

```

36 • DROP TABLE IF EXISTS DEPT;
37 • CREATE TABLE IF NOT EXISTS DEPT (
38     DEPTNO INT NOT NULL,
39     DNAME varchar(10),
40     LOC varchar(10),
41     PRIMARY KEY(DEPTNO)
42 );
43
44 • INSERT INTO DEPT (DEPTNO,DNAME,LOC) VALUES
45     (10,'ACCOUNTING','LONDON'),
46     (30,'SALES','LIVERPOOL'),
47     (40,'OPERATIONS','STAFFORD'),
48     (50,'MARKETING','LUTON'),
49     (20,'RESEARCH','PRESTON');
50

```

1 List all information about the employees.

select * from EMP;

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
▶	3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50
	4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50
	6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50
	7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20
	7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30
	7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40
	7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30
	7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20
	7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30
	7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30
	7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10
	7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20
	7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10
	7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30
	7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20
	7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30
	7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20
	7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

2 List all information about the departments

select * from DEPT;

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

3 List only the following information from the EMP table (Employee name, employee number, salary, department number)

select ENAME from EMP;

	ENAME
▶	GREEN
	STEVENS
	BARNES
	SMITH
	ALLEN
	CAMPBELL
	WARD
	JONES
	MARTIN
	BLAKE
	CLARK
	SCOTT
	KING
	TURNER
	ADAMS
	JAMES
	FORD
	MILLER

select EMPNO from EMP;

	EMPNO
▶	3258
	4422
	6548
	7369
	7499
	7500
	7521
	7566
	7654
	7698
	7782
	7788
	7839
	7844
	7876
	7900
	7902
	7934
✱	NULL

select SAL from EMP;

	SAL
▶	18500
	24750
	11950
	13750
	19000
	24500
	18500
	26850
	15675
	24000
	27500
	19500
	82500
	18500
	11900
	12500
	21500
	13250

select DEPTNO from EMP;

	DEPTNO
▶	50
	50
	50
	20
	30
	40
	30
	20
	30
	30
	10
	20
	10
	30
	20
	30
	20
	10

4 List details of employees in departments 10 and 30.

select * from EMP WHERE DEPTNO = 10 OR DEPTNO = 30;

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
▶	7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30
	7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30
	7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30
	7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30
	7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10
	7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10
	7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30
	7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30
	7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

5 List all the jobs in the EMP table eliminating duplicates.

select distinct JOB from EMP;

	JOB
▶	SALESMAN
	MANAGER
	CLERK
	ANALYST
	PRESIDENT

6. What are the names of the employees who earn less than £20,000?

select ENAME from EMP WHERE SAL<20000;

	ENAME
▶	GREEN
	BARNES
	SMITH
	ALLEN
	WARD
	MARTIN
	SCOTT
	TURNER
	ADAMS
	JAMES
	MILLER

7. What is the name, job title and employee number of the person in department 20 who earns more than £25000?

select ENAME,JOB,EMPNO,SAL from EMP where DEPTNO=20 AND SAL>25000;

	ENAME	JOB	EMPNO	SAL
▶	JONES	MANAGER	7566	26850
*	NULL	NULL	NULL	NULL

8. Find all employees whose job is either Clerk or Salesman.

select ENAME,JOB from EMP WHERE JOB='CLERK' OR JOB='SALESMAN';

	ENAME	JOB
▶	GREEN	SALESMAN
	BARNES	CLERK
	SMITH	CLERK
	ALLEN	SALESMAN
	WARD	SALESMAN
	MARTIN	SALESMAN
	TURNER	SALESMAN
	ADAMS	CLERK
	JAMES	CLERK
	MILLER	CLERK

9. Find any Clerk who is not in department 10.

select ENAME,DEPTNO from EMP WHERE JOB='CLERK' AND DEPTNO!=10;

	ENAME	DEPTNO
▶	BARNES	50
	SMITH	20
	ADAMS	20
	JAMES	30

10. Find everyone whose job is Salesman and all the Analysts in department 20.

select ENAME from EMP WHERE JOB='SALESMAN';

	ENAME
▶	GREEN
	ALLEN
	WARD
	MARTIN
	TURNER

select ENAME,DEPTNO from EMP WHERE JOB='ANALYST' AND DEPTNO=20;

	ENAME	DEPTNO
▶	SCOTT	20
	FORD	20

11. Find all the employees who earn between £15,000 and £20,000.

Show the employee name, department and salary.

select ENAME,DEPTNO,SAL from EMP where SAL>15000 AND SAL<20000;

	ENAME	DEPTNO	SAL
▶	GREEN	50	18500
	ALLEN	30	19000
	WARD	30	18500
	MARTIN	30	15675
	SCOTT	20	19500
	TURNER	30	18500

12 Find the name of the President.

select ENAME,JOB from EMP where JOB='PRESIDENT';

	ENAME	JOB
▶	KING	PRESIDENT

13 Find all the employees whose last names end with S

select ENAME from EMP where ENAME LIKE '%S';

	ENAME
▶	STEVENS
	BARNES
	JONES
	ADAMS
	JAMES

14 List the employees whose names have TH or LL in them

select ENAME from EMP where ENAME LIKE '%TH%' OR ENAME LIKE '%LL%';

	ENAME
▶	SMITH
	ALLEN
	CAMPBELL
	MILLER

15 List only those employees who receive commission.

select ENAME from EMP where COMM>0;

	ENAME
▶	GREEN
	ALLEN
	WARD
	MARTIN
	TURNER

16 Find the name, job, salary, hiredate, and department number of all employees by alphabetical order of name.

select ENAME,JOB,SAL,HIREDATE,DEPTNO from EMP ORDER BY LOWER(ENAME);

	ENAME	JOB	SAL	HIREDATE	DEPTNO
►	ADAMS	CLERK	11900	23-MAY-96	20
	ALLEN	SALESMAN	19000	20-FEB-89	30
	BARNES	CLERK	11950	16-JAN-95	50
	BLAKE	MANAGER	24000	01-MAY-90	30
	CAMPBELL	ANALYST	24500	30-OCT-92	40
	CLARK	MANAGER	27500	09-JUN-88	10
	FORD	ANALYST	21500	03-DEC-91	20
	GREEN	SALESMAN	18500	24-JUL-95	50
	JAMES	CLERK	12500	03-DEC-95	30
	JONES	MANAGER	26850	02-APR-89	20
	KING	PRESIDENT	82500	17-NOV-83	10
	MARTIN	SALESMAN	15675	28-SEP-97	30
	MILLER	CLERK	13250	23-JAN-95	10
	SCOTT	ANALYST	19500	19-APR-87	20
	SMITH	CLERK	13750	17-DEC-90	20
	STEVENS	MANAGER	24750	14-JAN-94	50
	TURNER	SALESMAN	18500	08-SEP-92	30
	WARD	SALESMAN	18500	22-FEB-93	30

17. Find the name, job, salary, hiredate and department number of all employees in ascending order by their salaries.

select ENAME,JOB,SAL,HIREDATE,DEPTNO from EMP ORDER BY SAL ASC,ENAME ASC;

	ENAME	JOB	SAL	HIREDATE	DEPTNO
►	ADAMS	CLERK	11900	23-MAY-96	20
	BARNES	CLERK	11950	16-JAN-95	50
	JAMES	CLERK	12500	03-DEC-95	30
	MILLER	CLERK	13250	23-JAN-95	10
	SMITH	CLERK	13750	17-DEC-90	20
	MARTIN	SALESMAN	15675	28-SEP-97	30
	GREEN	SALESMAN	18500	24-JUL-95	50
	TURNER	SALESMAN	18500	08-SEP-92	30
	WARD	SALESMAN	18500	22-FEB-93	30
	ALLEN	SALESMAN	19000	20-FEB-89	30
	SCOTT	ANALYST	19500	19-APR-87	20
	FORD	ANALYST	21500	03-DEC-91	20
	BLAKE	MANAGER	24000	01-MAY-90	30
	CAMPB...	ANALYST	24500	30-OCT-92	40
	STEVENS	MANAGER	24750	14-JAN-94	50
	JONES	MANAGER	26850	02-APR-89	20
	CLARK	MANAGER	27500	09-JUN-88	10
	KING	PRESIDENT	82500	17-NOV-83	10

18. List all salesmen in descending order by commission divided by their salary.

select ENAME,COMM,SAL from EMP ORDER BY COMM/SAL DESC;

	ENAME	COMM	SAL
▶	TURNER	6250	18500
	ALLEN	6400	19000
	WARD	4250	18500
	MARTIN	3500	15675
	GREEN	2750	18500
	CAMPBELL	0	24500
	STEVENS	NULL	24750
	BARNES	NULL	11950
	SMITH	NULL	13750
	JONES	NULL	26850
	BLAKE	NULL	24000
	CLARK	NULL	27500
	SCOTT	NULL	19500
	KING	NULL	82500
	ADAMS	NULL	11900
	JAMES	NULL	12500
	FORD	NULL	21500
	MILLER	NULL	13250

19. Order employees in department 30 who receive commission, in ascending order by commission

select ENAME,COMM,DEPTNO from EMP WHERE COMM>0 AND DEPTNO=30 ORDER BY COMM ASC;

	ENAME	COMM	DEPTNO
▶	MARTIN	3500	30
	WARD	4250	30
	TURNER	6250	30
	ALLEN	6400	30

20 Find the names, jobs, salaries and commissions of all employees who do not have managers.

select ENAME,JOB,SAL,COMM,MGR from EMP WHERE MGR IS NULL;

	ENAME	JOB	SAL	COMM	MGR
▶	KING	PRESIDENT	82500	NULL	NULL

- 21 Find all the salesmen in department 30 who have a salary greater than or equal to £18000.

select ENAME, JOB, SAL from EMP WHERE DEPTNO=30 AND SAL>=18000 AND JOB="SALESMAN";

	ENAME	JOB	SAL
▶	ALLEN	SALESMAN	19000
	WARD	SALESMAN	18500
	TURNER	SALESMAN	18500

- 22 Find the employees who were hired before 01-Jan-1998 and have salary above 5000 or below 1000.

select EMPNO, ENAME, JOB, SAL, HIREDATE from EMP WHERE CAST(CONCAT('19', SUBSTRING(HIREDATE, 9, 2)) AS UNSIGNED) < 1998 AND (SAL > 5000 OR SAL < 1000);

	EMPNO	ENAME	JOB	SAL	HIREDATE
▶	3258	GREEN	SALESMAN	18500	24-JUL-95
	4422	STEVENS	MANAGER	24750	14-JAN-94
	6548	BARNES	CLERK	11950	16-JAN-95
	7369	SMITH	CLERK	13750	17-DEC-90
	7499	ALLEN	SALESMAN	19000	20-FEB-89
	7500	CAMPBELL	ANALYST	24500	30-OCT-92
	7521	WARD	SALESMAN	18500	22-FEB-93
	7566	JONES	MANAGER	26850	02-APR-89
	7654	MARTIN	SALESMAN	15675	28-SEP-97
	7698	BLAKE	MANAGER	24000	01-MAY-90
	7782	CLARK	MANAGER	27500	09-JUN-88
	7788	SCOTT	ANALYST	19500	19-APR-87
	7839	KING	PRESIDENT	82500	17-NOV-83
	7844	TURNER	SALESMAN	18500	08-SEP-92
	7876	ADAMS	CLERK	11900	23-MAY-96
	7900	JAMES	CLERK	12500	03-DEC-95
	7902	FORD	ANALYST	21500	03-DEC-91
	7934	MILLER	CLERK	13250	23-JAN-95
★	NULL	NULL	NULL	NULL	NULL

23 What is the command to add primary key constraint to EMPNO

ALTER TABLE EMP

ADD CONSTRAINT PK_EMP PRIMARY KEY (EMPNO);

24 What is the command to add a new column EMP_family_name to existing EMP table

ALTER TABLE EMP

ADD EMP_family_name VARCHAR(255);

```

105 • ALTER TABLE EMP
106   ADD EMP_family_name VARCHAR(255);
107 • select * from EMP;
108
109

```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	EMP_family_name
▶ 3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50	NULL
4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50	NULL
6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50	NULL
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20	NULL
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30	NULL
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40	NULL

25 How to drop primary key constraint for EMPNO

ALTER TABLE EMP DROP CONSTRAINT PK_EMP;

26 rename EMP table to EMPLOYEE

ALTER TABLE EMP RENAME TO EMPLOYEE;

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	EMP_family_name
3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50	NULL
4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50	NULL
6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50	NULL
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20	NULL
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30	NULL
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40	NULL
7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30	NULL
7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20	NULL
7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30	NULL
7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30	NULL
7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10	NULL
7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20	NULL
7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10	NULL
7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30	NULL
7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20	NULL
7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30	NULL
7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20	NULL
7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Result Grid

Form Editor

Field Types

Query Stats

Execution Plan

EMPLOYEE 279

Apply

Revert

27 rename EMPLOYEE back to EMP

ALTER TABLE EMPLOYEE RENAME TO EMP;

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	EMP_family_name
3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50	NULL
4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50	NULL
6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50	NULL
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20	NULL
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30	NULL
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40	NULL
7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30	NULL
7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20	NULL
7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30	NULL
7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30	NULL
7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10	NULL
7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20	NULL
7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10	NULL
7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30	NULL
7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20	NULL
7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30	NULL
7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20	NULL
7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

EMP 280

Apply

Revert

Result Grid

Form Editor

Field Types

Query Stats

Execution Plan

28 What is the SQL command to remove column EMP_family_name from EMP table

ALTER TABLE EMP

DROP COLUMN EMP_family_name;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50
4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50
6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40
7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30
7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20
7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30
7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30
7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10
7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20
7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10
7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30
7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20
7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30
7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20
7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

29 What is the SQL command to copy emp table to employee table
DROP TABLE IF EXISTS employee;
CREATE TABLE employee AS SELECT * FROM EMP;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
3258	GREEN	SALESMAN	4422	24-JUL-95	18500	2750	50
4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50
6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50
7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20
7499	ALLEN	SALESMAN	7698	20-FEB-89	19000	6400	30
7500	CAMPBELL	ANALYST	7566	30-OCT-92	24500	0	40
7521	WARD	SALESMAN	7698	22-FEB-93	18500	4250	30
7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20
7654	MARTIN	SALESMAN	7698	28-SEP-97	15675	3500	30
7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30
7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10
7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20
7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10
7844	TURNER	SALESMAN	7698	08-SEP-92	18500	6250	30
7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20
7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30
7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20
7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10

30 What is the SQL command to drop employee table
DROP TABLE employee;

31 What is the SQL command to find the employee whose commission is NULL
select * from EMP WHERE COMM IS NULL;

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
▶	4422	STEVENS	MANAGER	7839	14-JAN-94	24750	NULL	50
	6548	BARNES	CLERK	4422	16-JAN-95	11950	NULL	50
	7369	SMITH	CLERK	7902	17-DEC-90	13750	NULL	20
	7566	JONES	MANAGER	7839	02-APR-89	26850	NULL	20
	7698	BLAKE	MANAGER	7839	01-MAY-90	24000	NULL	30
	7782	CLARK	MANAGER	7839	09-JUN-88	27500	NULL	10
	7788	SCOTT	ANALYST	7566	19-APR-87	19500	NULL	20
	7839	KING	PRESIDENT	NULL	17-NOV-83	82500	NULL	10
	7876	ADAMS	CLERK	7788	23-MAY-96	11900	NULL	20
	7900	JAMES	CLERK	7698	03-DEC-95	12500	NULL	30
	7902	FORD	ANALYST	7566	03-DEC-91	21500	NULL	20
	7934	MILLER	CLERK	7782	23-JAN-95	13250	NULL	10
★	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

数据处理分析: (Experiment process and content)

通过这次数据库系统的实验，我对数据库管理系统（DBMS）有了更深入的理解，特别是在 SQL 的 DDL 语言和单表查询方面。

了解 DBMS 系统的功能和结构：通过安装和使用 MySQL，我对 DBMS 的功能和结构有了直观的认识。

◆ 创建数据库和关系表：在创建 EMP 和 DEPT 两个表的过程中，我学会了如何定义表结构、设置主键和外键约束。这让我意识到在设计数据库时，合理的数据结构和约束对于保证数据的准确性和完整性至关重要。

◆ 学习定义关系表的约束：在定义 EMP 和 DEPT 表的约束时，

我学会了如何设置主键、外键以及自定义约束。这些约束不仅保证了数据的一致性，还提高了数据库的健壮性。

◆ 了解 SQL 的数据定义和操纵功能：通过实验，我掌握了 SQL 的 DDL 和 DML 语句，学会了如何创建表、插入数据、更新数据和删除数据。这些基本操作是数据库管理的基础。

◆ 掌握典型的 SQL 语句功能：在单表查询的练习中，我学会了如何使用 SELECT 语句进行各种复杂的数据检索，包括条件查询、排序、分组和聚合等。这些技能对于数据分析和处理非常重要。

同时在实验过程中，我遇到了一些挑战，如在编写复杂查询时保证逻辑的正确性。通过不断尝试，我提高了解决问题的能力，也加深了对 SQL 语言的理解。

