Report on Lab-02

DATABASE MANAGEMENT SYSTEMS LAB

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Course Title: CSE 4308

Submitted to

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Introduction

In the lab class, we were given five tasks to solve using SQL command line to understand the basics of using Oracle. All the commands used were written in visual studio code which was then saved with .sql extension. The .sql file was then run through the SQL command line to execute all the commands.

Task 1

Create a user with username = <C_student_id> and password = cse4308 and grant necessary privileges to log in and execute DDL and DML statements. Then log in as that user.

1.1 Solution

```
CREATE USER c_210042172 IDENTIFIED BY cse4308;
GRANT CREATE SESSION, RESOURCE, DBA to c_210042172;
CONNECT c_210042172/cse4308;
```

1.2 Analysis and Explanation

This problem was very straightforward and solved easily by following the instructions on the PDF document we were provided with.

1.3 Difficulties

I faced difficulty in figuring out that user name can’t start with numbers which restrained me creating the user name with my student id only.

1.4 Output

```
SQL>  @"D:\Study\Semester 3, Winter 2023\CSE 4308 Lab  Database Managemment System I\Lab 2\Task 1.sql";
CREATE USER c_210042172 IDENTIFIED BY cse4308
            *
ERROR at line 1:
ORA-01920: user name 'C_210042172' conflicts with another user or role name



Grant succeeded.

Connected.
```

Task 2

Write SQL statement to create a table ‘INSTRUCTOR’ which has 4 attributes:

• ID (assign it as Primary Key)

• NAME

• DEPT_NAME

• SALARY (ensure that SALARY is greater than 20000)

2.1 Solution

```sql
CREATE TABLE INSTRUCTOR
(
    ID NUMBER,
    NAME VARCHAR(50) NOT NULL,
    DEPT_NAME VARCHAR(50) NOT NULL,
    SALARY INT NOT NULL,
    CONSTRAINT PK_ID PRIMARY KEY (ID),
    CONSTRAINT SALARY_CHECK CHECK (SALARY>20000)
);
```

2.2 Analysis and Explanation

I created a table named INSTRUCTOR with 4 attributes. I learnt how to set the data type for different attributes and how to ensure that a field is not empty when inputting data into the table later (use of not null). I learnt to use constraint data type as well. PRIMARY KEY is such constraint which is used to uniquely identify a data. And CHECK constraint firstly checks a data whether it is true or false and only takes the input if it’s true.

2.3 Difficulties

I made the ID NUMBER null at the first run. But then I learnt that attributes having primary key shouldn’t be kept null as primary key must have a value.

2.4 Output

```
SQL>  @"D:\Study\Semester 3, Winter 2023\CSE 4308 Lab  Database Managemment System I\Lab 2\Task 2.sql";

Table created.
```

Task 3

Write SQL statements to insert the following records into ‘INSTRUCTOR’ table:

ID	NAME	DEPT_NAME	SALARY
10101	Srinivasan	Comp. Sci.	65000
12121	Wu	Finance	90000
15151	Mozart	Music	40000
22222	Einstein	Physics	95000
32343	El Said	History	60000
00456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
03821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000

3.1 Solution

```sql
INSERT INTO INSTRUCTOR VALUES(10101, 'Srinivasan', 'Comp. Sci.', 65000);
INSERT INTO INSTRUCTOR VALUES(12121, 'Wu', 'Finance', 90000);
INSERT INTO INSTRUCTOR VALUES(15151, 'Mozart', 'Music', 40000);
INSERT INTO INSTRUCTOR VALUES(22222, 'Einstein', 'Physics', 95000);
INSERT INTO INSTRUCTOR VALUES(32343, 'El Said', 'History', 60000);
INSERT INTO INSTRUCTOR VALUES(00456, 'Gold', 'Physics', 87000);
INSERT INTO INSTRUCTOR VALUES(45565, 'Katz', 'Comp. Sci.', 75000);
INSERT INTO INSTRUCTOR VALUES(58583, 'Califieri', 'History', 62000);
INSERT INTO INSTRUCTOR VALUES(76543, 'Singh', 'Finance', 80000);
INSERT INTO INSTRUCTOR VALUES(76766, 'Crick', 'Biology', 72000);
INSERT INTO INSTRUCTOR VALUES(03821, 'Brandt', 'Comp. Sci.', 92000);
INSERT INTO INSTRUCTOR VALUES(98345, 'Kim', 'Elec. Eng.', 80000);
```

3.2 Analysis and Explanation

I inserted some records into the table I created in task 2. This task was also easy to complete.

3.3 Difficulties

I did not face any difficulties when doing this task.

3.4 Output

```
SQL>  @"D:\Study\Semester 3, Winter 2023\CSE 4308 Lab  Database Managemment System I\Lab 2\Task 3.sql";
1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.

1 row created.
```

Task 4

Write SQL statements to perform the following queries:

(a) Display all records of ‘INSTRUCTOR’ table.

(b) Show instructor ID and name only.

(c) Find name and department of instructors who have salary more than 70000.

(d) Find name and department of instructors who have salary in between 80000 and 100000 (inclusive).

(e) Find ID and name of instructors of Comp. Sci. department.

(f) Find name and salary of instructors of Finance department.

(g) Find ID and name of instructors of Comp. Sci. department or instructors who are paid more than 75000.

(h) Find the names of the department.

4.1 Solution

```
SELECT * FROM INSTRUCTOR;
SELECT ID, NAME FROM INSTRUCTOR;
SELECT NAME, DEPT_NAME FROM INSTRUCTOR WHERE SALARY>70000;
SELECT NAME, DEPT_NAME FROM INSTRUCTOR WHERE SALARY>=80000 AND SALARY<=100000;
SELECT ID, NAME FROM INSTRUCTOR WHERE DEPT_NAME='Comp. Sci.';
SELECT NAME, SALARY FROM INSTRUCTOR WHERE DEPT_NAME='Finance';
SELECT ID, NAME FROM INSTRUCTOR WHERE DEPT_NAME='Comp. Sci.' OR SALARY>75000;
SELECT DEPT_NAME FROM INSTRUCTOR;
```

4.2 Analysis and Explanation

I learned about what the SELECT, FROM and WHERE commands do. The * after SELECT shows all the columns available in the table that is why it was used for part (a) of the task. To show some selected attributes like only NAME, ID, SALARY and DEPT_NAME in the other parts of the task, I listed them after writing the SELECT command. Comparison operators for SQL were similar to the operators in C++ programming language which made it easier to use for (c) to (h) parts of the task. The few differences were using = operator for equality and using the words and and or instead of any symbols. The last part (h) required printing all the different departments available in the table so the keyword distinct was used to avoid repetitions.

4.3 Difficulties

My output was not showing clearly during executing this task. So, I just added a command “SET LINESIZE 500” and could get the output properly.

4.4 Output

```
SQL>  SET LINESIZE 500;
SQL>  @"D:\Study\Semester 3, Winter 2023\CSE 4308 Lab  Database Managemment System I\Lab 2\Task 4.sql";

        ID NAME                                               DEPT_NAME                                          SALARY
---------- -------------------------------------------------- -------------------------------------------------- ----------
     10101 Srinivasan                                         Comp. Sci.                                          65000
     12121 Wu                                                 Finance                                             90000
     15151 Mozart                                             Music                                               40000
     22222 Einstein                                           Physics                                             95000
     32343 El Said                                            History                                             60000
       456 Gold                                               Physics                                             87000
     45565 Katz                                               Comp. Sci.                                          75000
     58583 Califieri                                          History                                             62000
     76543 Singh                                              Finance                                             80000
     76766 Crick                                              Biology                                             72000
      3821 Brandt                                             Comp. Sci.                                          92000

        ID NAME                                               DEPT_NAME                                          SALARY
---------- -------------------------------------------------- -------------------------------------------------- ----------
     98345 Kim                                                Elec. Eng.                                          80000

12 rows selected.


        ID NAME
---------- --------------------------------------------------
     10101 Srinivasan
     12121 Wu
     15151 Mozart
     22222 Einstein
     32343 El Said
       456 Gold
     45565 Katz
     58583 Califieri
     76543 Singh
     76766 Crick
      3821 Brandt
```

```
NAME                                               DEPT_NAME
-------------------------------------------------- --------------------------------------------------
Wu                                                 Finance
Einstein                                           Physics
Gold                                               Physics
Katz                                               Comp. Sci.
Singh                                              Finance
Crick                                              Biology
Brandt                                             Comp. Sci.
Kim                                                Elec. Eng.

8 rows selected.


NAME                                               DEPT_NAME
-------------------------------------------------- --------------------------------------------------
Wu                                                 Finance
Einstein                                           Physics
Gold                                               Physics
Singh                                              Finance
Brandt                                             Comp. Sci.
Kim                                                Elec. Eng.

6 rows selected.


        ID NAME
---------- --------------------------------------------------
     10101 Srinivasan
     45565 Katz
      3821 Brandt


NAME                                                  SALARY
-------------------------------------------------- ----------
Wu                                                     90000
Singh                                                  80000
```

```
        ID NAME
---------- --------------------------------------------------
     10101 Srinivasan
     12121 Wu
     22222 Einstein
       456 Gold
     45565 Katz
     76543 Singh
      3821 Brandt
     98345 Kim

8 rows selected.


DEPT_NAME
--------------------------------------------------
Comp. Sci.
Finance
Music
Physics
History
Physics
Comp. Sci.
History
Finance
Biology
Comp. Sci.

DEPT_NAME
--------------------------------------------------
Elec. Eng.

12 rows selected.
```

Task 5

Drop the ’INSTRUCTOR’ table with all its constraints.

5.1 Solution

```
DROP TABLE INSTRUCTOR CASCADE CONSTRAINTS;
```

5.2 Analysis and Explanation

I just added CASCADE CONSTRAINTS so that the table is deleted with constraints.

5.3 Difficulties

I did not face any difficulties when doing this task.

5.4 Output

```
SQL>  @"D:\Study\Semester 3, Winter 2023\CSE 4308 Lab  Database Managemment System I\Lab 2\Task 5.sql";

Table dropped.
```