Islamic University of Technology (IUT)

Report on Lab 02

Submitted By

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CSE 4308 Database Management Systems Lab

Submitted To

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Introduction

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

1 Task 1

Create a user with user_name = <student_id> and password = **cse4308** and grant necessary privileges.

1.1 Solution

```
create user swe200042172 identified by cse4308;
grant create session, resource, dba to swe200042172;
conn swe200042172/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 could not be composed of numbers only which made me attempt the task three times to create a valid username before figuring out the problem.

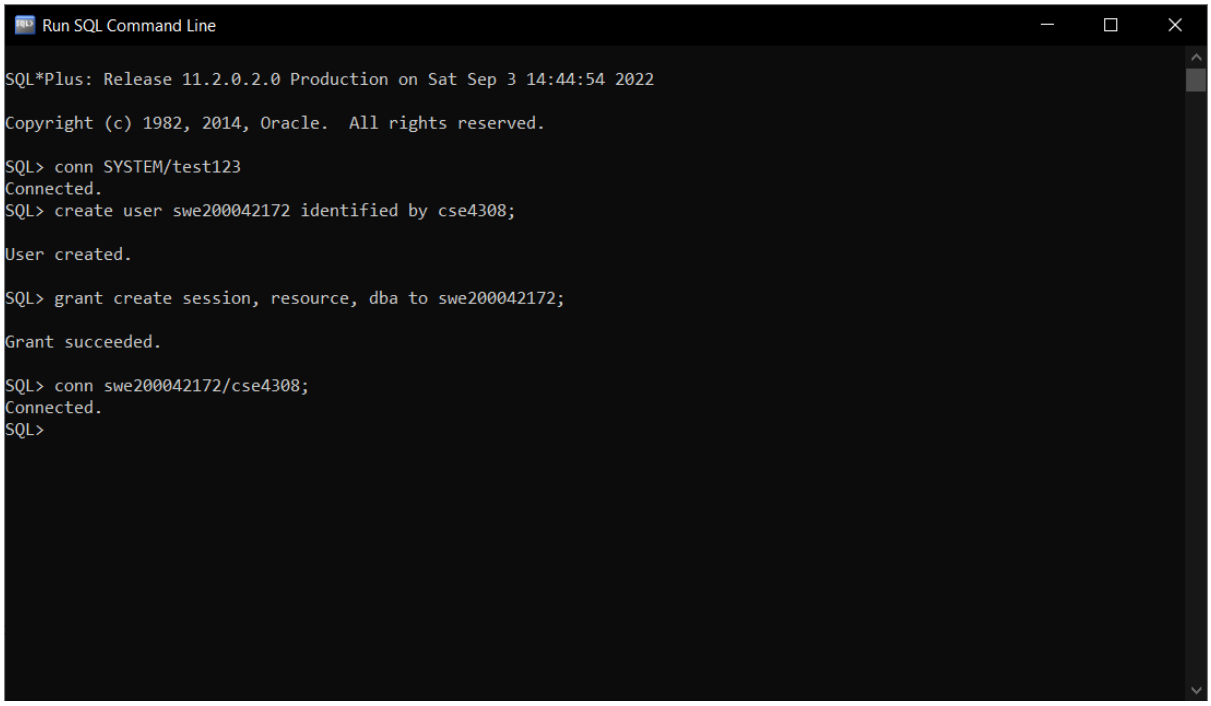

Figure 1: Task 1

2 Task 2

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

- ID
- NAME
- DEPT_NAME
- SALARY

2.1 Solution

```
create table instructor
(
id number not null,
name varchar(20) not null,
```

```
dept_name varchar(20) not null,
salary number not null
);
```

2.2 Analysis and Explanation

I created a table named `INSTRUCTOR` with 4 attributes. I learned 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`).

2.3 Difficulties

I did not face any difficulties when doing this task.

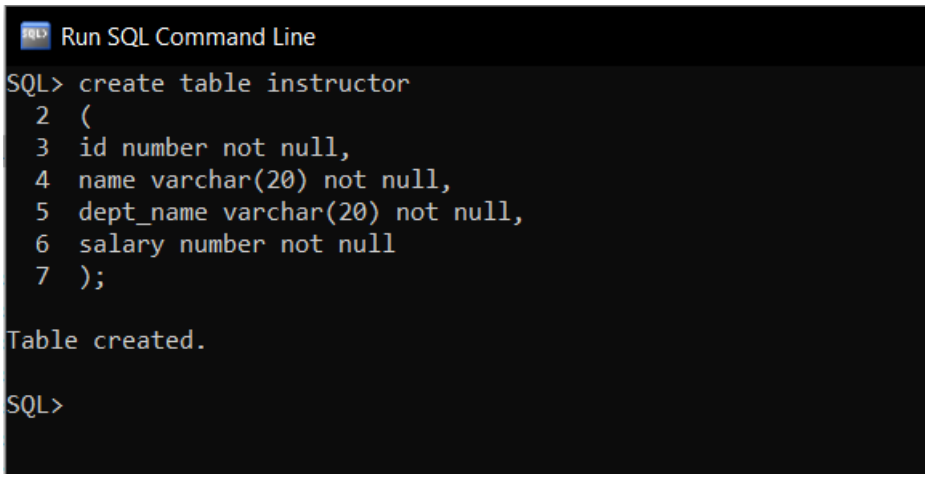

Figure 2: Task 2

3 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
33456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
83821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000

3.1 Solution

```
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(33456, '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(83821, '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.

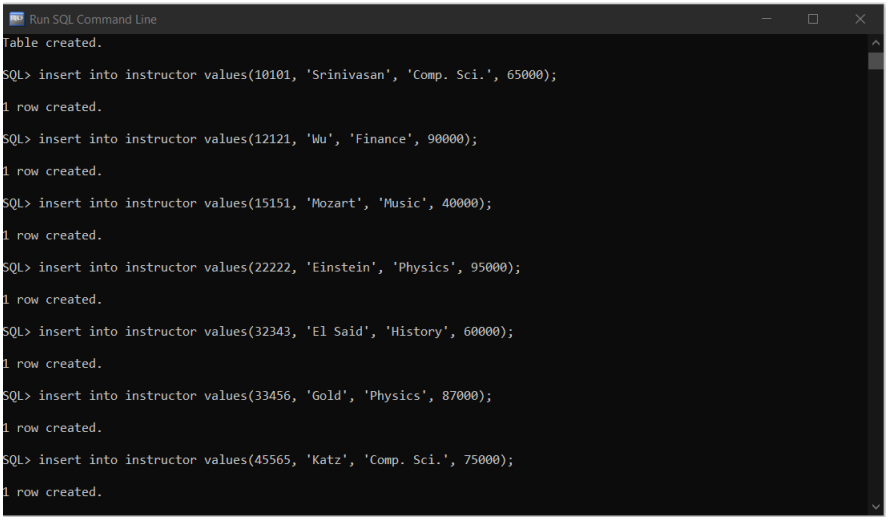

Figure 3: Task 3 part 1

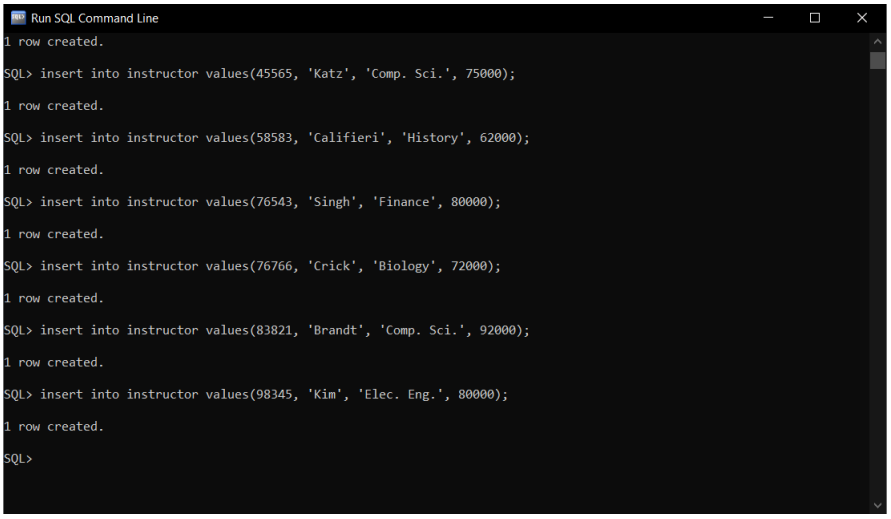

Figure 4: Task 3 part 2

4 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 10000 (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>=10000 and salary<=80000;

select name, id from instructor where dept_name='Comp. Sci.';

select name, salary from instructor where dept_name='Finance';

select name, id from instructor where dept_name='Comp. Sci.' or salary>=75000;

select distinct 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

I faced difficulty in figuring out how to print all the department names without any repetitions but other than that, I was able to solve the task without any problems.

```
SQL> select * from instructor;

        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
     33456 Gold                 Physics                 87000
     45565 Katz                 Comp. Sci.              75000
     58583 Califieri            History                 62000
     76543 Singh                Finance                 80000
     76766 Crick                Biology                 72000
     83821 Brandt               Comp. Sci.              92000

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

12 rows selected.
```

Figure 5: Task 4 (a)

```
SQL> select id, name from instructor;

        ID NAME
---------- --------------------
     10101 Srinivasan
     12121 Wu
     15151 Mozart
     22222 Einstein
     32343 El Said
     33456 Gold
     45565 Katz
     58583 Califieri
     76543 Singh
     76766 Crick
     83821 Brandt

        ID NAME
---------- --------------------
     98345 Kim

12 rows selected.
```

Figure 6: Task 4 (b)

```
SQL> select name, dept_name from instructor where salary>70000;

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.
```

Figure 7: Task 4 (c)

```
SQL> select name, dept_name from instructor where salary>=10000 and salary<=80000;

NAME                 DEPT_NAME
-------------------- --------------------
Srinivasan           Comp. Sci.
Mozart               Music
El Said              History
Katz                 Comp. Sci.
Califieri            History
Singh                Finance
Crick                Biology
Kim                  Elec. Eng.

8 rows selected.
```

Figure 8: Task 4 (d)

```
SQL> select name, id from instructor where dept_name='Comp. Sci.';

NAME                         ID
-------------------- ----------
Srinivasan                10101
Katz                      45565
Brandt                    83821
```

Figure 9: Task 4 (e)

```
SQL> select name, salary from instructor where dept_name='Finance';

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

Figure 10: Task 4 (f)

```
SQL> select name, id from instructor where dept_name='Comp. Sci.' or salary>=75000;

NAME                         ID
-------------------- ----------
Srinivasan                10101
Wu                        12121
Einstein                  22222
Gold                      33456
Katz                      45565
Singh                     76543
Brandt                    83821
Kim                       98345

8 rows selected.
```

Figure 11: Task 4 (g)

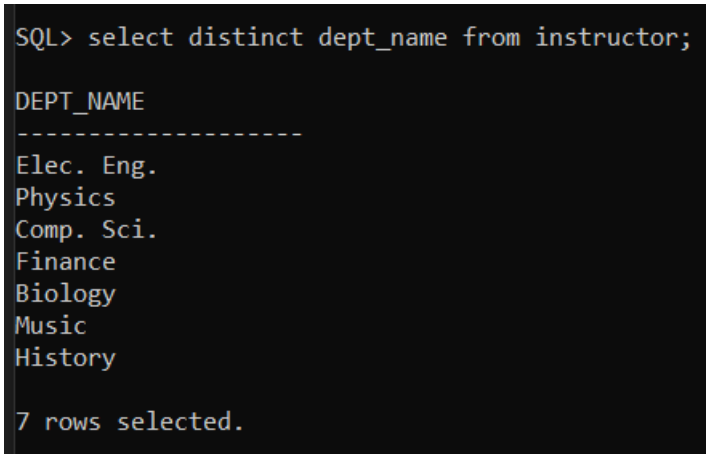

Figure 12: Task 4 (h)

Conclusion

As shown in the report, I have solved and tested the solutions for all four of the tasks given in the lab. All the commands used were written in notepad which was then saved with .sql extension. The .sql file was then run through the SQL command line to execute all the commands.