Database Management Systems Lab

CSE 4308

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Introduction

In the second lab of Database Management Systems our task was to write all the given SQL statements in an editor first and save them with .sql extension. Then execute the SQL script.

SQL stands for Structured Query Language. It is used to manage data stored in a relational database management system. It is useful in handling structured data.

Throughout the task, we used the Oracle 10g XE database. For an editor I used Visual Studio Code.

Solution of the task

Firstly, I created a user with username s<200042137> and password cse4308 and granted privileges.

```
create user s<200042137> identified by cse4308;
grant dba to s<200042137>;
```

Then created a table named 'STUDENT' with 4 attributes - ID,NAME,DEPT_NAME and TOT_CRED using DDL.

```
create table STUDENT(
ID varchar(20) primary key,
NAME varchar2(20),
DEPT_NAME varchar2(20),
TOT_CRED int
);
```

Then our task was to insert values into the table to create records. For that my working code was this -

```
insert into STUDENT values('00128', 'Zhang' , 'Comp.Sci.'
,'102');
insert into STUDENT values('12345', 'Shankar' , 'Comp.Sci.'
```

```
,'32');
insert into STUDENT values('19991', 'Brandt' , 'History' ,'80');
insert into STUDENT values('23121', 'Chavez' , 'Finance'
,'110');
insert into STUDENT values('44553', 'Peltier' , 'Physics'
,'56');
insert into STUDENT values('45678', 'Levy' , 'Physics' ,'46');
insert into STUDENT values('54321', 'Williams' , 'Comp.Sci.'
,'5');
insert into STUDENT values('55739', 'Sanchez' , 'Music' ,'38');
insert into STUDENT values('70557', 'Snow' , 'Physics' ,'0');
insert into STUDENT values('76543', 'Brown' , 'Comp.Sci.'
,'58');
insert into STUDENT values('76653', 'Aoi' , 'Elec.Eng.' ,'60');
insert into STUDENT values('98765', 'Bourikas' , 'Elec.Eng.'
,'9');
insert into STUDENT values('98988', 'Tanaka' , 'Biology'
,'120');
```

Then I wrote several SQL statements using DML to perform given queries:

(a) Given query: Display all records of the 'STUDENT' table.

SQL Statement:

```
SELECT * FROM STUDENT ;
```

Output:

```
ID                   NAME                 DEPT_NAME            TOT_CRED
-------------------- -------------------- -------------------- ----------
00128                Zhang                Comp.Sci.                 102
12345                Shankar              Comp.Sci.                  32
19991                Brandt               History                    80
23121                Chavez               Finance                   110
44553                Peltier              Physics                    56
45678                Levy                 Physics                    46
54321                Williams             Comp.Sci.                   5
55739                Sanchez              Music                      38
70557                Snow                 Physics                     0
76543                Brown                Comp.Sci.                  58
76653                Aoi                  Elec.Eng.                  60

ID                   NAME                 DEPT_NAME            TOT_CRED
-------------------- -------------------- -------------------- ----------
98765                Bourikas             Elec.Eng.                   9
98988                Tanaka               Biology                   120

13 rows selected.
```

(b) Given query: Show student ID and name only.

SQL Statement:

```
SELECT ID,NAME FROM STUDENT ;
```

Output:

```
ID                   NAME
-------------------- --------------------
00128                Zhang
12345                Shankar
19991                Brandt
23121                Chavez
44553                Peltier
45678                Levy
54321                Williams
55739                Sanchez
70557                Snow
76543                Brown
76653                Aoi

ID                   NAME
-------------------- --------------------
98765                Bourikas
98988                Tanaka
```

(c) Given query: Find the name and department of students who have completed more than 100 credits.

SQL Statement:

```
SELECT NAME,DEPT_NAME FROM STUDENT WHERE TOT_CRED > 100;
```

Output:

```
NAME                 DEPT_NAME
-------------------- --------------------
Zhang                Comp.Sci.
Chavez               Finance
Tanaka               Biology
```

(d) Given query: Find name and department of students who have completed in between 80 and 120 credits (inclusive).

SQL Statement:

```
SELECT NAME,DEPT_NAME FROM STUDENT WHERE TOT_CRED>=80 AND
TOT_CRED<=120;
```

Output:

```
NAME                 DEPT_NAME
-------------------- --------------------
Zhang                Comp.Sci.
Brandt               History
Chavez               Finance
Tanaka               Biology
```

(e) Given query: Find ID and name of students of Comp. Sci. department.

SQL Statement:

```
SELECT ID,NAME FROM STUDENT WHERE DEPT_NAME = 'Comp.Sci.';
```

Output:

```
ID                   NAME
-------------------- --------------------
00128                Zhang
12345                Shankar
54321                Williams
76543                Brown
```

(f)Given query: Find name and total credit of students of Physics department.

SQL Statement:

```
SELECT NAME,TOT_CRED FROM STUDENT WHERE DEPT_NAME = 'Physics';
```

Output:

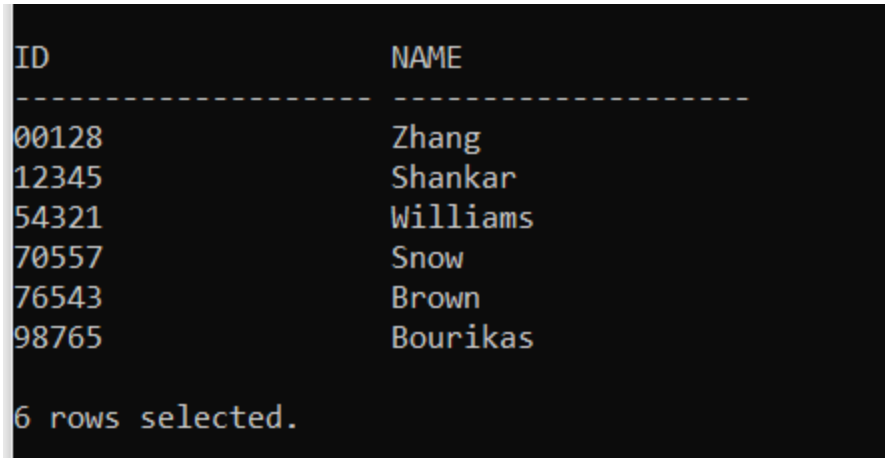
```
NAME                 TOT_CRED
-------------------- ----------
Peltier                      56
Levy                         46
Snow                          0
```

(g) Given query: Find ID and name of students of Comp. Sci. department or students who have completed less than 10 credits.

SQL Statement:

```
select ID,NAME FROM STUDENT WHERE DEPT_NAME = 'Comp.Sci.' OR
TOT_CRED <10;
```

Output:



```
ID                   NAME
-------------------- --------------------
00128                Zhang
12345                Shankar
54321                Williams
70557                Snow
76543                Brown
98765                Bourikas

6 rows selected.
```

(h) Given query: Find the names of the departments.

SQL Statement:

```
select  distinct DEPT_NAME FROM STUDENT ;
```

Output:

```
DEPT_NAME
--------------------
Physics
Finance
Elec.Eng.
Comp.Sci.
Biology
History
Music

7 rows selected.
```

After writing the SQL statement we ran the file in our SQL command line and got the output.

Conclusion

It was my very first experience of working with SQL. I did the task with the help of our teacher's instructions. I faced some syntax errors which were resolved soon back then. At first I didn't include the 'distinct' keyword. So it was showing the names of the department repeatedly. After putting the keyword that issue was resolved.