Islamic University of Technology

Lab Task 02

CSE 4308 - DBMS Lab

Submitted To :

Zannatun Naim Sristy
Lecturer, CSE Department
Islamic University of Technology

Submitted By :

Sian Ashsad
ID : 200042151
Prog. : SWE
Dept. : CSE

Task 1 :

Working code :

```
conn SYSTEM/12345678

CREATE USER s200042151 IDENTIFIED BY cse4308;

GRANT ALL PRIVILEGES TO s200042151;

conn s200042151/cse4308
```

Report :

Analysis : Here the key objective is to create a user with the given username and password then grant privileges and log in as that user.

Explanation of solution : Firstly we connect to Oracle database using the conn (CONNECT) command. Now a user s200042151 is created and given the password cse4208. The next line gives all privileges to this user so that necessary operations can be done later on. Finally, I will connect to the user by inputting the username and password.

Findings : Connecting to Oracle Database using SQL was a new learning. So was creating a user in that database. I also found that you have to grant privileges which enables DDL and DML statements to execute.

Problems : There were some issues with coding in SQL language. Since it was a relatively new language, syntax errors made things unnecessarily frustrating. Other than that, there were no issues.

Task 2 :

Working code :

```
CREATE TABLE STUDENT
(
      ID VARCHAR2(7) NOT NULL,
      NAME VARCHAR2(15) NOT NULL,
      DEPT_NAME VARCHAR2(20) NOT NULL,
      TOT_CRED NUMBER NOT NULL
);
```

Report :

Analysis : Here the key objective is to make a table named STUDENT with 4 given attributes.

Explanation of solution : The CREATE TABLE command initiates a table with a name which follows the command. Here the name of the table will be STUDENT.
The first attribute of the STUDENT table will be the ID which will be set as the datatype VARCHAR2. This is to prevent the removal of any leading zero by the system. Its size will be set to 7. Similarly Name and DEPT_NAME attributes will be created. Finally the TOT_CRED attribute will be set as a NUMBER data type. All of the attributes will be set as NOT NULL so that no null value can be inputed.

Findings : Creating a table in SQL command line is extremely difficult and so it's better to create it separately in another IDE. Preferable one made to write SQL code. I had to be cautious about syntaxes here as well. Especially the first bracket after the CREATE TABLE command.

Problems : Surprisingly, there were no issues creating the table.

Task 3 :

Working code :

```
INSERT INTO STUDENT VALUES ('00128', 'Zhang', 'Comp. Sci.', 102);
INSERT INTO STUDENT VALUES ('12345', 'Shankar', 'Comp. Sci.', 32);
INSERT INTO STUDENT VALUES ('19991', 'Brandt', 'Finance', 80);
INSERT INTO STUDENT VALUES ('23121', 'Chavez', 'History', 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);
```

Report :

Analysis : In this task, given records have to be inserted into the table.

Explanation of solution : INSERT INTO command is used to insert data into the provided table. Value command holds the data. All of the 13 lines here are very much self explanatory as these commands only insert given data into the STUDENT table.

Findings : Inserting large numbers of data can be a monotonous task to perform. Usage of single quotation marks was new to me. Another example of handling syntaxes of a new language.

Problems : No problems were encountered during this task.

Task 4 :

Working code :

```
SET PAGESIZE 100;

SELECT * FROM STUDENT;


SELECT ID, NAME FROM STUDENT;


SELECT NAME, DEPT_NAME FROM STUDENT WHERE TOT_CRED>100;


SELECT NAME, DEPT_NAME FROM STUDENT WHERE TOT_CRED BETWEEN 80 AND
120;


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


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


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


SELECT DISTINCT DEPT_NAME FROM STUDENT;
```

Report :

Analysis : In this task, given queries have to be performed using SQL statements.

Explanation of solution : The first line of command makes it so that when the full table is shown, none of the records split into a different segment.

(a) Second line displays the full table by using the ' * ' operand after SELECT command.
(b) SELECTING only ID and NAME shows only the student ID and name from the table.
(c) In the same way it shows only the name and department name. However using the WHERE command the code filters out the students who have completed more than 100 credits from the TOT_CRED attribute.
(d) Similarly to (c) , shows name and department name of students who have completed between 80 and 120 credits by using the BETWEEN and AND command.
(e) Identical to (c) , shows ID and name of students of Comp. Schi. department. WHERE statement filters out the students from the DEPT_NAME attribute.
(f) Same as (e) but shows name and total credit of students of Physics department.
(g) We select ID and Name from the STUDENT table and using the WHERE statement we filter out students of Comp. Sci. department. Here the OR command is used to also filter out students who have completed less than 10 credits.
(h) We have to show only the DEPT_NAME attribute from the table. To avoid repetitions, we will use the command DISTINCT after SELECT.

Findings : Filtering out data using WHERE command felt like a powerful and handy feature of SQL. Usage of BETWEEN, AND & OR commands was quite convenient. The DISTINCT command is necessary to avoid repeated data. We can also use GROUP BY to avoid this.

Problems : The only problem faced was ignoring repeated department names in task (h). However, using the DISTINCT command, it was solved easily.