18CSC303J/ DBMS

Submitted By:- ANANNYA P. NEOG (RA1911003010367)

Exp-2: DATA DEFINITION LANGUAGE (DDL)

Aim:- To write the SQL queries using DDL Commands with and without constraints.

DDL STATEMENTS

- CREATE TABLE - It is used to create a relational table
- ALTER TABLE - It is used to add, delete, or modify columns in an existing table
- DROP TABLE - It is used to delete the table permanently from the storage

Procedure:-

QUERIES:

1. CREATE THE TABLE (with no constraint)

Query:

```
CREATE TABLE emp
(
        empno NUMBER,
        empname VARCHAR2(25),
        dob DATE,
        salary NUMBER,
        designation VARCHAR2(20)
);
```

Output:

Table Created

Query:

```
DESC emp;
```

Output:

Tabl	Column	Data Type	Length	Precision	Scal	Primary	Nullable	Defaul	Com

e				e	Key	t	ment
EMP	EMPNO	NUMBER	22	- -	-	-	-
	EMPNAME	VARCHAR2	255	- -	-	-	-
	DOB	DATE	7	- -	-	-	-
	SALARY	NUMBER	22	- -	-	-	-
	DESIGNATION	VARCHAR2	20	- -	-	-	-

2. ALTER THE TABLE

a. ADD

// To alter the table emp by adding new attribute department

Query:

ALTER TABLE emp ADD department VARCHAR2(50);

Output:

Table Altered

Query:

DESC emp;

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP	EMPNO	NUMBER	22	-	-	-		-	-
	EMPNAME	VARCHAR2	255	-	-	-		-	-
	DOB	DATE	7	-	-	-		-	-
	SALARY	NUMBER	22	-	-	-		-	-
	DESIGNATION	VARCHAR2	20	-	-	-		-	-
	DEPARTMENT	VARCHAR2	50	-	-	-		-	-

b. MODIFY

//To alter the table emp by modifying the size of the attribute department

Query:

ALTER TABLE emp MODIFY (department VARCHAR2(100));

Output:

Table Altered

Query:

DESC emp;

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP	EMPNO	NUMBER	22	-	-	-		-	-

	EMPNAME	VARCHAR2	255	-	-	-	-	-
	DOB	DATE	7	-	-	-	-	-
	SALARY	NUMBER	22	-	-	-	-	-
	DESIGNATION	VARCHAR2	20	-	-	-	-	-
	DEPARTMENT	VARCHAR2	100	-	-	-	-	-

c. DROP

// To alter the table emp by deleting the attribute department

Query:

ALTER TABLE emp DROP(department);

Output:

Table Altered

Query:

DESC emp;

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP	EMPNO	NUMBER	22	-	-	-		-	-
	EMPNAME	VARCHAR2	255	-	-	-		-	-
	DOB	DATE	7	-	-	-		-	-
	SALARY	NUMBER	22	-	-	-		-	-
	DESIGNATION	VARCHAR2	20	-	-	-		-	-

d. RENAME

// To alter the table name by using rename keyword

Query:

ALTER TABLE emp RENAME TO emp1 ;

Output:

Table Altered

Query:

DESC emp1;

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP1	EMPNO	NUMBER	22	-	-	-		-	-
	EMPNAME	VARCHAR2	255	-	-	-		-	-
	DOB	DATE	7	-	-	-		-	-
	SALARY	NUMBER	22	-	-	-		-	-
	DESIGNATION	VARCHAR2	20	-	-	-		-	-
	DEPARTMENT	VARCHAR2	100	-	-	-		-	-

3. DROP

//To delete the table from the database

Query:

```
DROP TABLE emp1;
```

Output:

Table Dropped

Query:

```
DESC emp1;
```

Output:

Ouubject to be described could not be found.

CONSTRAINT TYPES:

- NOT NULL
- UNIQUE
- PRIMARY KEY
- FOREIGN KEY
- CHECK
- DEFAULT

QUERIES:

1. CREATE THE TABLE

Query:

```
CREATE TABLE student
(
    studentID NUMBER PRIMARY KEY,
    sname VARCHAR2(30) NOT NULL,
    department CHAR(5),
    sem NUMBER,
    dob DATE,
    email_id VARCHAR2(20) UNIQUE,
    college VARCHAR2(20) DEFAULT 'MEC'
);
```

Output:

Table created.

Query:

```
DESC student;
```

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENT	STUDENTID	NUMBER	22	-	-	1	-	-	-
	SNAME	VARCHAR2	30	-	-	-	-	-	-
	DEPARTMENT	CHAR	5	-	-	-	✓	-	-
	SEM	NUMBER	22	-	-	-	✓	-	-
	DOB	DATE	7	-	-	-	✓	-	-
	EMAIL_ID	VARCHAR2	20	-	-	-	✓	-	-
	COLLEGE	VARCHAR2	20	-	-	-	✓	'MEC'	-

Query:

```
CREATE TABLE exam
(
    examID NUMBER ,
    studentID NUMBER REFERENCES student(studentID),
    department CHAR(5) NOT NULL,
```

```
        mark1 NUMBER CHECK (mark1<=100 and
mark1>=0),
        mark2 NUMBER CHECK (mark2<=100 and
mark2>=0),
        mark3 NUMBER CHECK (mark3<=100 and
mark3>=0),
        mark4 NUMBER CHECK (mark4<=100 and
mark4>=0),
        mark5 NUMBER CHECK (mark5<=100 and
mark5>=0),
        total NUMBER,
        average NUMBER,
        grade CHAR(1)
    );
```

Output:

Table created.

//To alter the table student by adding new constraint to the examID attribute

Query:

```
ALTER TABLE student ADD CONSTRAINT pr
                                PRIMARY KEY
                            (examid);
```

Output:

Table altered.

2. CREATE THE TABLE USING COMPOSITE PRIMARY KEY

Create the following table with the attributes reg_no and stu_name as primary key.

stu_details (reg_no, stu_name, DOB, address, city)

Query:

```
CREATE TABLE stu_details
(
    reg_no number,
    stu_name varchar2(30),
    DOB date,
    address varchar2(30),
    city char(30),
    primary key(reg_no, stu_name)
);
```

Output:

Table created.

Query:

```
DESCstu_details
```

Output:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STU_DETAILS	REG_NO	NUMBER	22	-	-	1	-	-	-
	STU_NAME	VARCHAR2	30	-	-	2	-	-	-
	DOB	DATE	7	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	30	-	-	-	✓	-	-
	CITY	CHAR	30	-	-	-	✓	-	-

Execution:-

SQL*Plus: Release 11.2.0.4.0 Production on Wed Feb 9 16:01:57 2022

Enter user-name: **RA1911003010367/RA1911003010367@f1-drjebakumar.co86hfjmfjkx.us-west-2.rds.amazonaws.com:1521/F1**

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

SQL> **spool RA367_Exp2.lst**
SQL> CREATE TABLE emp
  2 2 (
  3 3 empno NUMBER,
  4 4 empname VARCHAR2(25),
  5 5 dob DATE,
  6 6 salary NUMBER,
  7 7 designation VARCHAR2(20)
  8 8);
2 (
*
ERROR at line 2:
ORA-00922: missing or invalid option

SQL> **CREATE TABLE emp**
  2 **(**
  3 **empno NUMBER,**
  4 **empname VARCHAR2(25),**
  5 **dob DATE,**
  6 **salary NUMBER,**
  7 **designation VARCHAR2(20)**
  8 **);**

Table created.

SQL> **CREATE TABLE employ (empno NUMBER,empname VARCHAR2(25),dob DATE,salary NUMBER,designation VARCHAR2(20));**

Table created.

SQL> **desc employ;**

Name	Null?	Type
EMPNO		NUMBER
EMPNAME		VARCHAR2(25)
DOB		DATE
SALARY		NUMBER
DESIGNATION		VARCHAR2(20)

SQL> **alter table employ add department VARCHAR2(50);**

Table altered.

SQL> **desc employ;**

Name	Null?	Type
EMPNO		NUMBER
EMPNAME		VARCHAR2(25)
DOB		DATE
SALARY		NUMBER
DESIGNATION		VARCHAR2(20)
DEPARTMENT		VARCHAR2(50)

SQL> **alter table employ modify department VARCHAR2(100);**

Table altered.

SQL> **desc employ;**

Name	Null?	Type
EMPNO		NUMBER
EMPNAME		VARCHAR2(25)
DOB		DATE
SALARY		NUMBER
DESIGNATION		VARCHAR2(20)
DEPARTMENT		VARCHAR2(100)

SQL> **alter table employ drop (department);**

Table altered.

SQL> **desc employ**

Name	Null?	Type
EMPNO		NUMBER
EMPNAME		VARCHAR2(25)

DOB	DATE
SALARY	NUMBER
DESIGNATION	VARCHAR2(20)

SQL> **drop table employ;**

Table dropped.

SQL> **CREATE TABLE student (studif NUMBER PRIMARY KEY,sname VARCHAR2(30) not null,department CHAR(5),email VARCHAR2(20));**

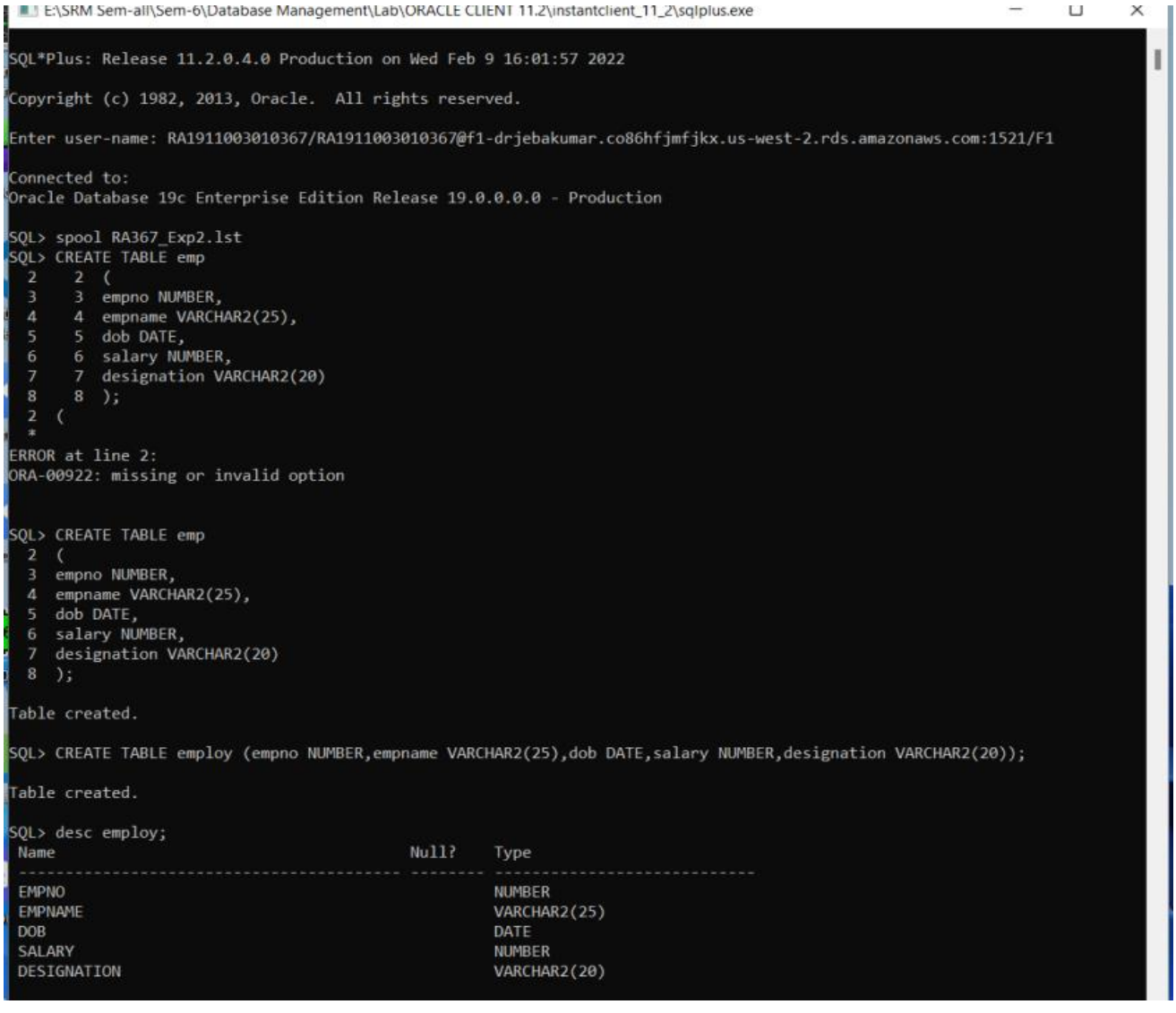
Table created.

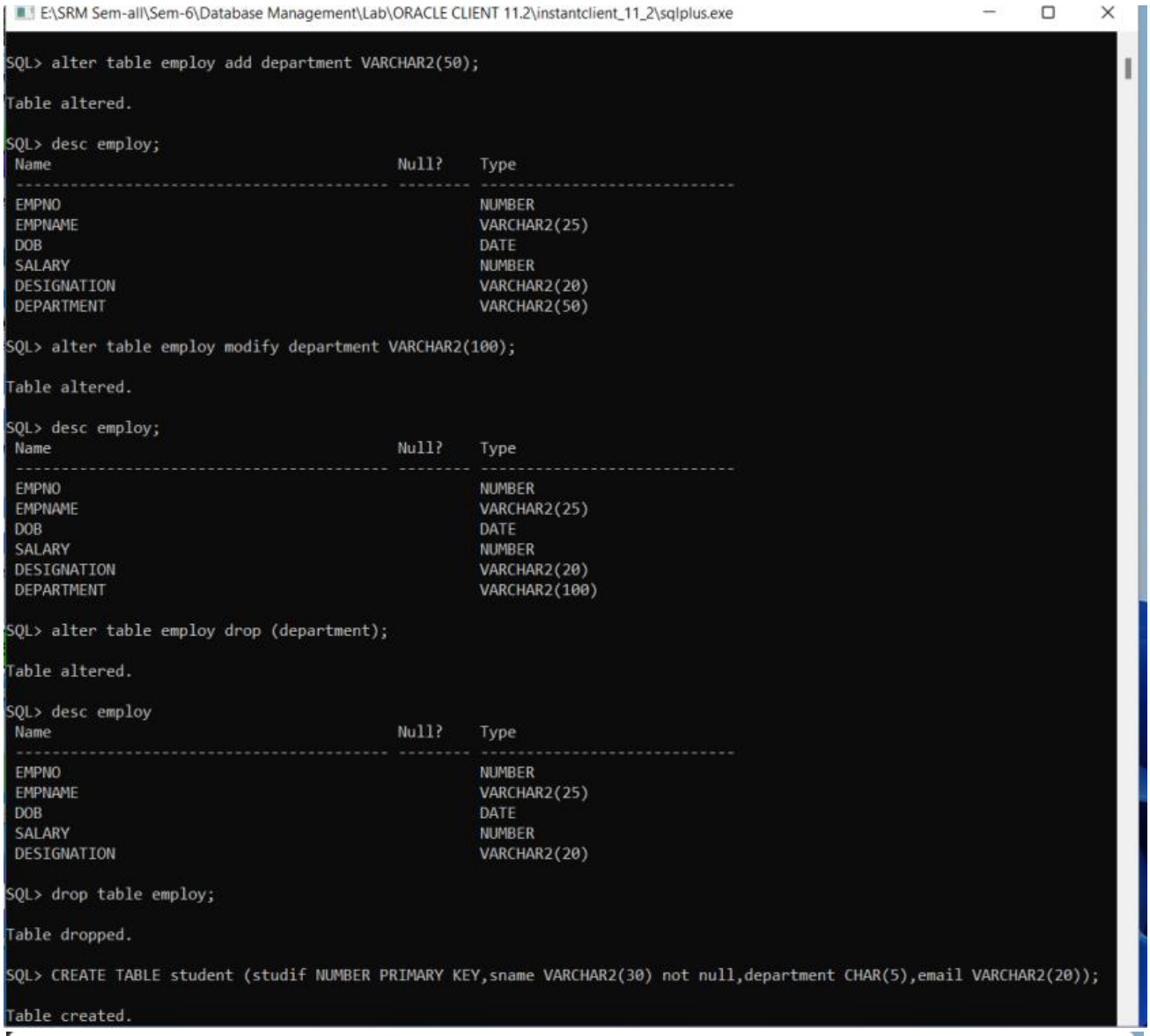
SQL> **desc student**

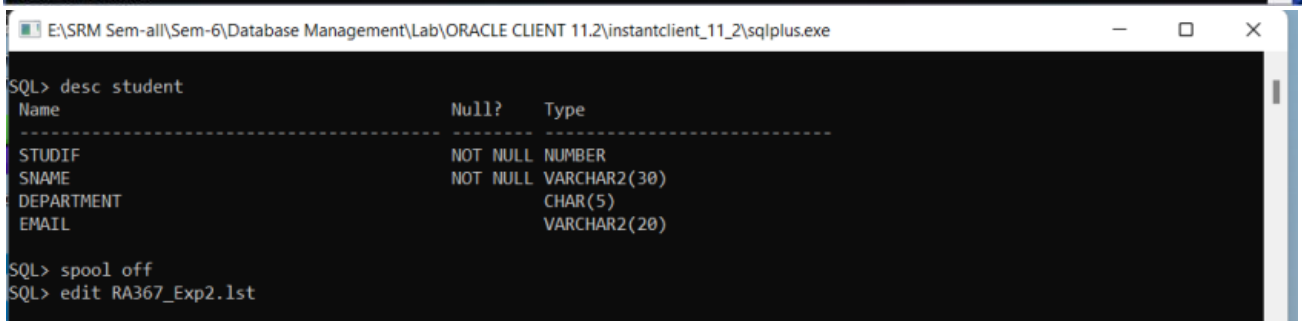
Name	Null?	Type
STUDIF	NOT NULL	NUMBER
SNAME	NOT NULL	VARCHAR2(30)
DEPARTMENT		CHAR(5)
EMAIL		VARCHAR2(20)

SQL> **spool off**

SQL> **edit RA367_Exp2.lst**




E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe
SQL> alter table employ add department VARCHAR2(50);
Table altered.
SQL> desc employ;
Name Null? Type
EMPNO NUMBER
EMPNAME VARCHAR2(25)
DOB DATE
SALARY NUMBER
DESIGNATION VARCHAR2(20)
DEPARTMENT VARCHAR2(50)
SQL> alter table employ modify department VARCHAR2(100);
Table altered.
SQL> desc employ;
Name Null? Type
EMPNO NUMBER
EMPNAME VARCHAR2(25)
DOB DATE
SALARY NUMBER
DESIGNATION VARCHAR2(20)
DEPARTMENT VARCHAR2(100)
SQL> alter table employ drop (department);
Table altered.
SQL> desc employ
Name Null? Type
EMPNO NUMBER
EMPNAME VARCHAR2(25)
DOB DATE
SALARY NUMBER
DESIGNATION VARCHAR2(20)
SQL> drop table employ;
Table dropped.
SQL> CREATE TABLE student (studif NUMBER PRIMARY KEY,sname VARCHAR2(30) not null,department CHAR(5),email VARCHAR2(20));
Table created.


E:\SRM Sem-all\Sem-6\Database Management\Lab\ORACLE CLIENT 11.2\instantclient_11_2\sqlplus.exe
SQL> desc student
Name Null? Type
STUDIF NOT NULL NUMBER
SNAME NOT NULL VARCHAR2(30)
DEPARTMENT CHAR(5)
EMAIL VARCHAR2(20)
SQL> spool off
SQL> edit RA367_Exp2.lst

RA367_Exp2.lst - Notepad

File Edit Format View Help

```
SQL> CREATE TABLE emp
  2    2  (
  3    3  empno NUMBER,
  4    4  empname VARCHAR2(25),
  5    5  dob DATE,
  6    6  salary NUMBER,
  7    7  designation VARCHAR2(20)
  8    8  );
  2  (
  *
ERROR at line 2:
ORA-00922: missing or invalid option


SQL> CREATE TABLE emp
  2  (
  3  empno NUMBER,
  4  empname VARCHAR2(25),
  5  dob DATE,
  6  salary NUMBER,
  7  designation VARCHAR2(20)
  8  );

Table created.

SQL> CREATE TABLE employ (empno NUMBER,empname VARCHAR2(25),dob DATE,salary
NUMBER,designation VARCHAR2(20));

Table created.

SQL> desc employ;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPNO                                              NUMBER
 EMPNAME                                            VARCHAR2(25)
 DOB                                                DATE
 SALARY                                             NUMBER
 DESIGNATION                                        VARCHAR2(20)

SQL> alter table employ add department VARCHAR2(50);
```

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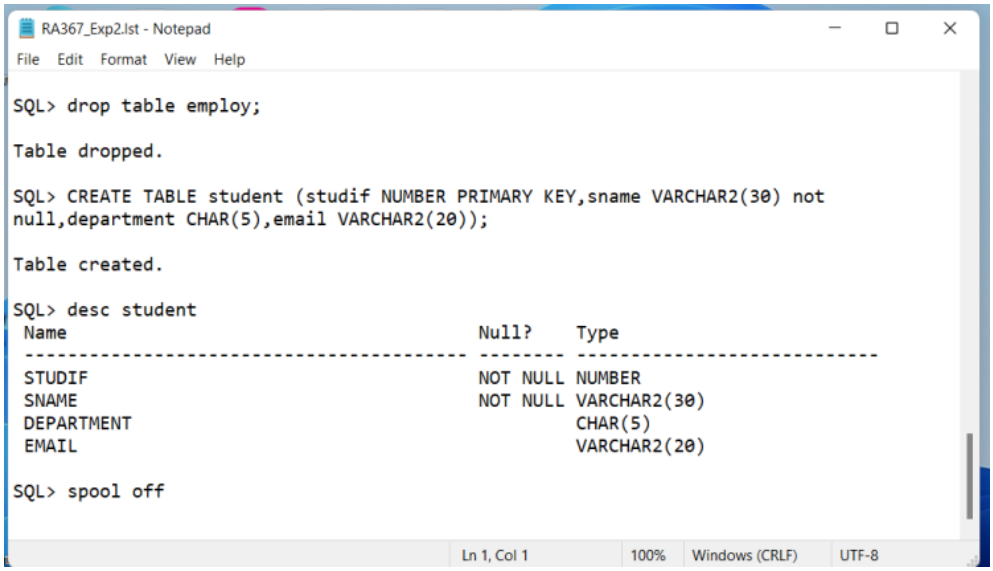
RA367_Exp2.lst - Notepad

File Edit Format View Help

```
Table altered.

SQL> desc employ;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPNO                                              NUMBER
 EMPNAME                                            VARCHAR2(25)
 DOB                                                DATE
 SALARY                                             NUMBER
 DESIGNATION                                        VARCHAR2(20)
 DEPARTMENT                                         VARCHAR2(50)

SQL> alter table employ modify department VARCHAR2(100);

Table altered.

SQL> desc employ;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPNO                                              NUMBER
 EMPNAME                                            VARCHAR2(25)
 DOB                                                DATE
 SALARY                                             NUMBER
 DESIGNATION                                        VARCHAR2(20)
 DEPARTMENT                                         VARCHAR2(100)

SQL> alter table employ drop (department);

Table altered.

SQL> desc employ
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPNO                                              NUMBER
 EMPNAME                                            VARCHAR2(25)
 DOB                                                DATE
 SALARY                                             NUMBER
 DESIGNATION                                        VARCHAR2(20)
```

Ln 1, Col 1 | 100% | Windows (CRLF) | UTF-8



RESULT:

Thus the SQL queries using DDL Commands with and without constraints were successfully executed and verified.