Lab 9 – Week 10 (DDL & DML)

This week reviews and extends the knowledge of Data Definitional Language (Create and Alter) and DML (Data Manipulation Language).

Getting Started

Your submission will be a single text-based SQL file with appropriate header and commenting.

Tasks

You will:

- create tables first,
- add / modify /remove some columns and finally
- add / modify / remove some constraints in this lab.

1. Create table `L09SalesRep` and load it with data from table `EMPLOYEES` table. Use only the equivalent columns from `EMPLOYEE` as shown below and only for people in department 80.

Column	Type	
RepId	NUMBER (6)	
FName	VARCHAR2(20)	
LName	VARCHAR2(25)	
Phone#	VARCHAR2(20)	ALL these columns' data types match
Salary	NUMBER(8,2)	one's in table `EMPLOYEES`
Commission	NUMBER(2,2)	

You will have exactly 3 rows here.

2. Create `L09Cust` table.

```
CREATE TABLE L09Cust (
   CUST#      NUMBER(6),
   CUSTNAME   VARCHAR2(30),
   CITY       VARCHAR2(20),
   RATING     CHAR(1),
   COMMENTS   VARCHAR2(200),
   SALESREP#  NUMBER(7) );
```

NOTE: Caution that copying from WORD will create errors if WORD is using quotes that look like 'this' - SQL needs straight quotes like 'this'

The constraints were left off in the above. The constraints shown below are what would normally be applied as shown. These were applied at the table level. Do not add these at this time, you will do so through the following questions.

```
CREATE TABLE Cust (
Cust#    NUMBER(6),
CustName VARCHAR2(30) NOT NULL,
City     VARCHAR2(20)   NOT NULL,
Rating   CHAR(1),
Comments VARCHAR2(200),
SalesRep#   NUMBER(7),
CONSTRAINT cust_cust#_pk PRIMARY KEY (Cust#),
CONSTRAINT cust_custname_city_uk  UNIQUE (CustName, City),
CONSTRAINT cust_rating_ck CHECK (Rating IN ('A','B','C','D')),
CONSTRAINT cust_salesrep#_fk FOREIGN KEY (SalesRep#)
   REFERENCES Empl (Emp#) );
```

Load the table with these values in the chart.

CUST#	CUSTNAME	CITY	RAT	SALESREP#
501	ABC LTD.	Montreal	C	201
502	Black Giant	Ottawa	B	202
503	Mother Goose	London	B	202
701	BLUE SKY LTD	Vancouver	B	102
702	MIKE and SAM Inc.	Kingston	A	107
703	RED PLANET	Mississauga	C	107
717	BLUE SKY LTD	Regina	D	102

3. Create table `L09GoodCust` by using following columns but only if their rating is A or B.

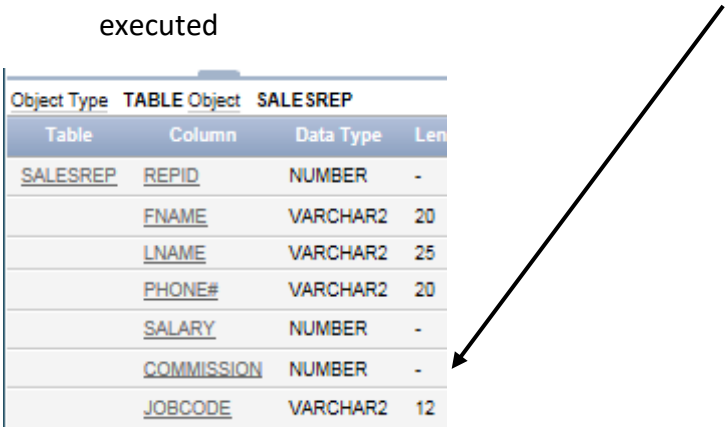
Column	Type
CustId	NUMBER (6)
Name	VARCHAR2(30)
Location	VARCHAR2(20)
RepId	NUMBER(7)

→ ALL these columns' data types match ones in table `L09Cust`

→ **You will have exactly 4 rows here.**

CUSTID	NAME	LOCATION	REPID
502	Black Giant	Ottawa	202
503	Mother Goose	London	202
504	BLUE SKY LTD	Vancouver	202
701	MIKE and SAM inc.	Kingston	10

4. Now add new column to table `L09SalesRep` called `JobCode` that will be of variable character type with max length of 12. Do a `DESCRIBE L09SalesRep` to ensure it executed



Object Type TABLE Object SALESREP

Table	Column	Data Type	Len
SALESREP	REPID	NUMBER	-
	FNAME	VARCHAR2	20
	LNAME	VARCHAR2	25
	PHONE#	VARCHAR2	20
	SALARY	NUMBER	-
	COMMISSION	NUMBER	-
	JOBCODE	VARCHAR2	12

5. Declare column `Salary` in table `L09SalesRep` as mandatory one and Column Location in table `L09GoodCust` as optional one. You can see location is already optional.

`L09GoodCust` before looks like the following

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullabl
GOODCUST	CUSTID	NUMBER	-	6	0	-	✓
	NAME	VARCHAR2	30	-	-	-	✓
	LOCATION	VARCHAR2	20	-	-	-	✓
	REPID	NUMBER	-	7	0	-	✓

AFTER the change it would look as follows:

Table	Column	Data Type	Length	Prec.	Scale	PK	Nullable	Default	Comment
SALESREP	REPID	NUMBER	-	6	0	1	-	-	-
	FNAME	VARCHAR2	37	-	-	-	✓	-	-
	LNAME	VARCHAR2	25	-	-	-	-	-	-
	PHONE#	VARCHAR2	20	-	-	-	✓	-	-
	SALARY	NUMBER	-	8	2	-	-	-	-
	COMMISSION	NUMBER	-	2	2	-	✓	-	-
	JOBCODE	VARCHAR2	12	-	-	-	✓		

5. Lengthen `FNAME` in `L09SalesRep` to 37. The result of a DESCRIBE should show it happening

Table	Column	Data Type	Length
SALESREP	REPID	NUMBER	-
	FNAME	VARCHAR2	37
	LNAME	VARCHAR2	25
	PHONE#	VARCHAR2	20

You can only decrease the size or length of `Name` in `L09GoodCust` to the maximum length of data already stored. Do it by using SQL and not by looking at each entry and counting the characters. May take two SQL statements

6. Now get rid of the column `JobCode` in table `L09SalesRep` in a way that will not affect daily performance.
7. Declare PK constraints in both new tables → `RepId` and `CustId`
8. Declare UK constraints in both new tables → `Phone#` and `Name`
9. Restrict amount of `Salary` column to be in the range [6000, 12000] and `Commission` to be not more than 50%.
10. Ensure that only valid `RepId` numbers from table `L09SalesRep` may be entered in the table `L09GoodCust`. Why this statement has failed?
11. Firstly write down the values for `RepId` column in table `L09GoodCust` and then make all these values blank. Now redo the question 10. Was it successful?
12. Disable this FK constraint now and enter old values for `RepId` in table `L09GoodCust` and save them. Then try to enable your FK constraint. What happened?
13. Get rid of this FK constraint. Then modify your CK constraint from question 9 to allow Salary amounts from 5000 to 15000.
14. Describe both new tables `L09SalesRep` and `L09GoodCust` and then show all constraints for these two tables by running the following query:

```
SELECT constraint_name, constraint_type,
       search_condition, table_name
    FROM user_constraints
    WHERE lower(table_name) IN ('l09salesrep','l09goodcust')
    ORDER BY table_name, constraint_type;
```