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L09-DBS301-Create alter and more

You will **create tables** first, then **add / modify /remove some columns** and finally **add / modify / remove some constraints** in this lab.

1. Create table SALESREP and load it with data from table EMPLOYEES table. Use only the equivalent columns from EMPLOYEE as shown below. (Do NOT create this table from scratch), AND only for people in department 80.

*SALESREP*

Column Type

RepId NUMBER (6)

FName VARCHAR2(20)

LName VARCHAR2(25)

Phone# VARCHAR2(20) ALL these columns’ data types match ones

Salary NUMBER(8,2) in table EMPLOYEES

Commission NUMBER(2,2)

**You will have exactly 3 rows here**.

**ANSWER**:

CREATE TABLE SALESREP AS

(SELECT EMPLOYEE\_ID REPID, FIRST\_NAME LNAME, LAST\_NAME FNAME, PHONE\_NUMBER AS "PHONE#", SALARY, COMMISSION\_PCT AS COMMISSION

FROM EMPLOYEES

WHERE DEPARTMENT\_ID = 80);

**OUTPUT:**

**REPID LNAME FNAME PHONE# SALARY COMMISSION**

**---------- -------------------- ------------------------- -------------------- ---------- ----------**

**149 Eleni Zlotkey 011.44.1344.429018 10500 .2**

**174 Ellen Abel 011.44.1644.429267 11000 .3**

**176 Jonathon Taylor 011.44.1644.429265 8600 .2**

2a. Create CUST table.

CREATE TABLE CUST

(CUST# NUMBER(6),

CUSTNAME VARCHAR2(30),

CITY VARCHAR2(20),

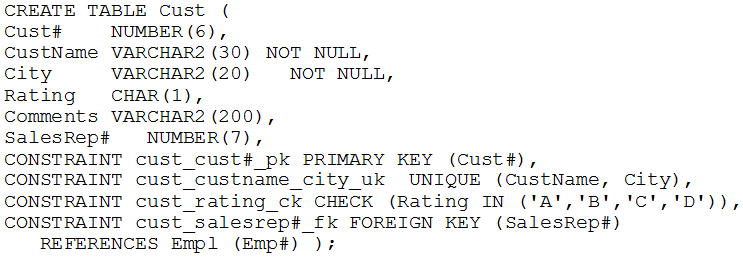
RATING CHAR(1),

COMMENTS VARCHAR2(200),

SALESREP# NUMBER(7)

)

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



Load the table with these values in the chart. Some of the inserts have been done for you.

See below 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 |

7 rows selected.

NOTE: Caution that copying from WORD will create errors if WORD is using quotes that look like ‘this’

SQL needs straight quotes like 'this'

These have been corrected for you

INSERT INTO CUST VALUES (501, 'ABC LTD', 'Montreal', 'C', NULL, 201)

Insert the rest of the rows. Here is a few but not all of them done for you

INSERT INTO CUST VALUES (502, 'Black Giant', 'Ottawa', 'B', NULL, 202);

INSERT INTO CUST VALUES (503, 'Mother Goose', 'London', 'B', NULL, 202);

INSERT INTO CUST VALUES (702, 'MIKE and SAM Inc', 'Kingston', 'A', NULL, 107);

INSERT INTO CUST values (701, 'MIKE and SAM inc.', 'Kingston', 'A', NULL, 102);

INSERT INTO CUST values (703, 'RED PLANET', 'Mississauga', 'C', NULL, 107);

INSERT INTO CUST values (717, 'blue sky ltd', 'Regina', 'D', NULL, 102);

2b. Create table GOODCUST **from table CUST** by using following columns (do NOT create this table from scratch), but only if their rating is A or B.

*GOODCUST*

Column Type

CustId NUMBER (6)

Name VARCHAR2(30)

Location VARCHAR2(20) 🡪 ALL these columns’ data types match ones

RepId NUMBER(7) in table CUST

**🡪 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 |

**ANSWER:**

**CREATE TABLE GOODCUST AS**

**(SELECT CUST# CUSTID, CUSTNAME AS NAME, CITY AS LOCATION, SALESREP# REID**

**FROM CUST**

**WHERE RATING = 'A' OR RATING = 'B');**

**OUTPUT:**

**CUSTID NAME LOCATION REPID**

**---------- ------------------------------ -------------------- ----------**

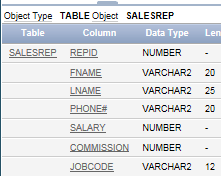
**502 Black Giant Ottawa 202**

**503 Mother Goose London 202**

**702 MIKE and SAM Inc Kingston 107**

**701 MIKE and SAM inc Kingston 102**

3. Now add new column to table SALESREP called JobCode that will be of variable character type with maximum length of 12. Do a DESC SALESREP to ensure it executed



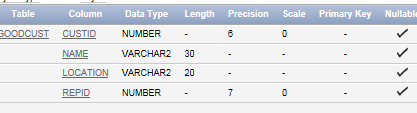
**ANSWER:**

**ALTER TABLE SALESREP ADD JOBCODE VARCHAR2(12);**

4. Declare column Salary in table SALESREP as mandatory one and

Column Location in table GOODCUST as optional one. You can see location is already optional.

GODCUST before looks like the following



AFTER the change it would look as follows:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table** | **Column** | **Data Type** | **Length** | **Precision** | **Scale** | **Primary Key** | **Nullable** | **Default** | **Comment** |
| [SALESREP](javascript:ret_Column('RON.SALESREP');) | [REPID](javascript:ret_Column('REPID');) | NUMBER | - | 6 | 0 | 1 | - | - | - |
|  | [FNAME](javascript:ret_Column('FNAME');) | VARCHAR2 | 37 | - | - | - | nullable | - | - |
|  | [LNAME](javascript:ret_Column('LNAME');) | VARCHAR2 | 25 | - | - | - | - | - | - |
|  | [PHONE#](javascript:ret_Column('PHONE#');) | VARCHAR2 | 20 | - | - | - | nullable | - | - |
|  | [SALARY](javascript:ret_Column('SALARY');) | NUMBER | - | 8 | 2 | - | - | - | - |
|  | [COMMISSION](javascript:ret_Column('COMMISSION');) | NUMBER | - | 2 | 2 | - | nullable | - | - |
|  | [JOBCODE](javascript:ret_Column('JOBCODE');) | VARCHAR2 | 12 | - | - | - | nullable |  |  |

**ANSWER:**

**ALTER TABLE SALESREP MODIFY (SALARY NOT NULL);**

**OUTPUT:**

**Name Null Type**

**---------- -------- ------------**

**REPID NUMBER(6)**

**LNAME VARCHAR2(20)**

**FNAME NOT NULL VARCHAR2(25)**

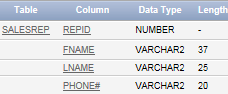
**PHONE# VARCHAR2(20)**

**SALARY NOT NULL NUMBER(8,2)**

**COMMISSION NUMBER(2,2)**

**JOBCODE VARCHAR2(12)**

5. Lengthen FNAME in SALESREP to 37. The result of a DESCIBE should show it happening



**ANSWER:**

**ALTER TABLE SALESREP MODIFY LNAME VARCHAR2(37);**

**OUTPUT:**

**Name Null Type**

**---------- -------- ------------**

**REPID NUMBER(6)**

**LNAME VARCHAR2(37)**

**FNAME NOT NULL VARCHAR2(25)**

**PHONE# VARCHAR2(20)**

**SALARY NOT NULL NUMBER(8,2)**

**COMMISSION NUMBER(2,2)**

**JOBCODE VARCHAR2(12)**

You can only decrease the size or length of NAME in GOODCUST 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 SALESREP in a way that will not affect daily performance.

**ANSWER:**

**ALTER TABLE SALESREP SET UNUSED(JOBCODE);**

**OUTPUT:**

**Table SALESREP altered.**

**Name Null Type**

**---------- -------- ------------**

**REPID NUMBER(6)**

**LNAME VARCHAR2(37)**

**FNAME NOT NULL VARCHAR2(25)**

**PHONE# VARCHAR2(20)**

**SALARY NOT NULL NUMBER(8,2)**

**COMMISSION NUMBER(2,2)**

7. Declare PK constraints in both new tables 🡪 RepId and CustId

**ANSWER:**

**ALTER TABLE SALESREP ADD CONSTRAINT REPID\_PK PRIMARY KEY(REPID);**

**OUTPUT:**

**Name Null Type**

**---------- -------- ------------**

**REPID NOT NULL NUMBER(6)**

**LNAME VARCHAR2(37)**

**FNAME NOT NULL VARCHAR2(25)**

**PHONE# VARCHAR2(20)**

**SALARY NOT NULL NUMBER(8,2)**

**COMMISSION NUMBER(2,2)**

**ALTER TABLE GOODCUST ADD CONSTRAINT CUSTID\_PK PRIMARY KEY(CUSTID);**

**Name Null Type**

**-------- -------- ------------**

**CUSTID NOT NULL NUMBER(6)**

**NAME VARCHAR2(30)**

**LOCATION VARCHAR2(20)**

**REID NUMBER(7)**

8. Declare UK constraints in both new tables 🡪 Phone# and Name

**ANSWER:**

**ALTER TABLE GOODCUST ADD CONSTRAINT GOODCUST\_UK UNIQUE(NAME);**

**ALTER TABLE SALESREP ADD CONSTRAINT REP\_UK UNIQUE(PHONE#);**

**OUTPUT:**

**CONSTRAINT\_NAME C TABLE\_NAME**

**-------------------------------------------------------------------------------------------------------------------------------- - --------------------------------------------------------------------------------------------------------------------------------**

**GOODCUST\_UK U GOODCUST**

**CUSTID\_PK P GOODCUST**

**CONSTRAINT\_NAME C TABLE\_NAME**

**-------------------------------------------------------------------------------------------------------------------------------- - --------------------------------------------------------------------------------------------------------------------------------**

**REPID\_PK P SALESREP**

**REP\_UK U SALESREP**

**SYS\_C00398599 C SALESREP**

**SYS\_C00399012 C SALESREP**

9. Restrict amount of Salary column to be in the range [6000, 12000] and Commission to be not more than 50%.

**ANSWER:**

**ALTER TABLE SALESREP ADD CONSTRAINT REP\_CK CHECK((SALARY BETWEEN 6000 AND 12000)**

**AND COMMISSION > (COMMISSION /2));**

**OUTPUT:**

**CONSTRAINT\_NAME C TABLE\_NAME**

**-------------------------------------------------------------------------------------------------------------------------------- - --------------------------**

**REPID\_PK P SALESREP**

**REPS\_UK C SALESREP**

**REP\_UK U SALESREP**

**SYS\_C00398599 C SALESREP**

**SYS\_C00399012 C SALESREP**

10. Ensure that only valid RepId numbers from table SALESREP may be entered in the table GOODCUST. Why this statement has failed?

**ALTER TABLE GOODCUST ADD CONSTRAINT GOOD\_REPID\_FK FOREIGN KEY (REPID) REFERENCES**

**SALESREP(REPID);**

**This statement failed because GOODCUST has REPID data that is not in SALESREP(REPID).**

11. Firstly write down the values for RepId column in table GOODCUST and then make all these values blank. Now redo the question 10. Was it successful?

**ANSWER:**

**CUSTID NAME LOCATION REPID**

**---------- ------------------------------ -------------------- ----------**

**502 Black Giant Ottawa 202**

**503 Mother Goose London 202**

**702 MIKE and SAM Inc Kingston 107**

**701 MIKE and SAM inc. Kingston 102**

**UPDATE GOODCUST SET REPID = NULL;**

**CUSTID NAME LOCATION REPID**

**---------- ------------------------------ -------------------- ----------**

**502 Black Giant Ottawa**

**503 Mother Goose London**

**702 MIKE and SAM Inc Kingston**

**701 MIKE and SAM inc. Kingston**

**ALTER TABLE GOODCUST ADD CONSTRAINT GOOD\_REPID\_FK FOREIGN KEY (REPID) REFERENCES**

**SALESREP(REPID);**

**Table GOODCUST altered.**

**CONSTRAINT\_NAME C TABLE\_NAME**

**-------------------------------------------------------------------------------------------------------------------------------- - ---------------------------------**

**CUSTID\_PK P GOODCUST**

**GOODCUST\_UK U GOODCUST**

**GOOD\_REPID\_FK R GOODCUST**

**YES, IS SUCCESSFUL**

12. Disable this FK constraint now and enter old values for RepId in table GOODCUST and save them. Then try to enable your FK constraint. What happened?

**ANSWER:**

**ALTER TABLE GOODCUST DISABLE CONSTRAINT GOOD\_REPID\_FK;**

**Table GOODCUST altered.**

**UPDATE GOODCUST SET REPID = 202 WHERE CUSTID = 502;**

**UPDATE GOODCUST SET REPID = 202 WHERE CUSTID = 503;**

**UPDATE GOODCUST SET REPID = 107 WHERE CUSTID = 702;**

**UPDATE GOODCUST SET REPID = 102 WHERE CUSTID = 701;**

**ALTER TABLE GOODCUST ENABLE CONSTRAINT GOOD\_REPID\_FK;**

**An alter table validating constraint failed because the table has**

**child records**

13. Get rid of this FK constraint. Then modify your CK constraint from question 9 to allow Salary amounts from 5000 to 15000.

**ANSWER:**

**ALTER TABLE GOODCUST DROP CONSTRAINT GOOD\_REPID\_FK;**

**ALTER TABLE SALESREP DROP CONSTRAINT REP\_CK;**

**ALTER TABLE SALESREP ADD CONSTRAINT REP\_CK**

**CHECK((SALARY BETWEEN 5000 AND 15000));**

**OUTPUT:**

14. Describe both new tables SALESREP and GOODCUST 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 table\_name IN ('SALESREP','GOODCUST')

ORDER BY 4 , 2

**OUTPUT:**

**DESC SALESREP;**

**Name Null Type**

**---------- -------- ------------**

**REPID NOT NULL NUMBER(6)**

**LNAME VARCHAR2(37)**

**FNAME NOT NULL VARCHAR2(25)**

**PHONE# VARCHAR2(20)**

**SALARY NOT NULL NUMBER(8,2)**

**COMMISSION NUMBER(2,2)**

**DESC GOODCUST;**

**Name Null Type**

**-------- -------- ------------**

**CUSTID NOT NULL NUMBER(6)**

**NAME VARCHAR2(30)**

**LOCATION VARCHAR2(20)**

**REPID NUMBER(7)**

