SQL Assignment-3

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ASSIGNMENT III

❑ *Problem 1:*

In an organization, number of departments exists. Each department has a name & unique code. Number of employees work in each department. Each employee has unique employee code. Detailed information like name, address, city, basic, date of join are also stored. In a leave register for each employee leave records are kept showing   leave type (CL/EL/ML etc.), fromdate and to-date. When an employee retires or resigns then all the leave information pertaining to him are also deleted. Basic salary must be within Rs.5000 to Rs.9000.   A department cannot be deleted if any employee record refers to it. Valid grades are A/B/C. Employee name must be in uppercase only. Default value for joining date is system date. Design & implement the tables with necessary constraints to support the scenario depicted above.

Solution:

SQL> CREATE TABLE DEPARTMENT(

2 DEPT_CODE char(10) PRIMARY KEY,

3 DEPT_NAME char(30),

4 NO_OF_EMPLOYEE INTEGER);

Table created.

SQL> CREATE TABLE EMPLOYEE(

2   EMP_CODE char(10) PRIMARY KEY,

3   DEPT_CODE char(10),

4   EMP_NAME char(30),

5   ADDRESS char(50),

6   CITY char(20),

7   BASIC number(5),

8   JOIN_DATE DATE DEFAULT SYSDATE,

9   GRADE char(1),

10   CONSTRAINT UPPER_CASE_NAME CHECK(EMP_NAME = UPPER(EMP_NAME)),

11   CONSTRAINT GRADE_VALID CHECK(GRADE IN ('A', 'B', 'C')),

12   CONSTRAINT SALARY_RANGE CHECK(BASIC BETWEEN 5000 AND 9000),

13   CONSTRAINT DEPT_FOREIGN_KEY FOREIGN KEY(DEPT_CODE) REFERENCES DEPARTMENT(DEPT_CODE));

Table created.

SQL> CREATE TABLE LEAVE(

2   RECORD_ID char(5) PRIMARY KEY,

3   EMP_CODE char(10),

4   TYPE char(2),

5   FROM_DATE DATE,

6   TO_DATE DATE,

7   CONSTRAINT VALID_TYPE CHECK(TYPE IN ('CL', 'EL', 'ML')),

8   FOREIGN KEY(EMP_CODE) REFERENCES EMPLOYEE(EMP_CODE));

Table created.

❖ *Problem 2:*

Try to violate the constraints that you have implemented in the table & note, what happens. [Try with suitable INSERT/UPDATE/DELETE instruction]

Solution:

SQL> INSERT INTO DEPARTMENT VALUES('D1', 'ACCOUNTS', 5);

1 row created.

SQL> INSERT INTO DEPARTMENT VALUES('D2', 'MARKETING', 12);

1 row created.

SQL> INSERT INTO DEPARTMENT VALUES('D3', 'DEVELOPMENT', 10);

1 row created.

SQL> INSERT INTO DEPARTMENT VALUES('D4', 'SALES', 20);

1 row created.

SQL> INSERT INTO DEPARTMENT VALUES('D5', 'PURCHASE', 18);

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E1', 'D2', 'Dhruv', '20B Old P.O. Road','Kolkata',5500,'06-JAN-2019', 'B');

INSERT INTO EMPLOYEE VALUES('E1', 'D2', 'Dhruv', '20B Old P.O. Road','Kolkata',5500,'06-JAN-2019', 'B')

*

ERROR at line 1:

ORA-02290: check constraint (SYSTEM.UPPER_CASE_NAME) violated

NOTE: Here I have intentionally violated my mentioned constraint that employee names must be in uppercase letters. I note that I get an error saying "check constraint violated".

SQL> INSERT INTO EMPLOYEE VALUES('E1', 'D2', 'DHRUV', '20B Old P.O. Road','Kolkata',5500,'06-JAN-2019', 'B');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E2', 'D1', 'KAVYA', '35 Pali Hill','Mumbai',6000,'02-JUNE-2020', 'A');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E3', 'D2', 'PRIYA', '14A Gopal Banerjee Lane','Kolkata',7000,'06-JAN-2020', 'C');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E4', 'D5', 'DIVYA', 'Lajpat Nagar','Delhi',6500,'10-AUG-2019', 'B');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E5', 'D3', 'JIGYASA', 'New Palace Lane','Pune',8000,'01-MAR-2019', 'A');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E6', 'D3', 'SOURAV', '51A Shyama Prosad Road','Kolkata',5000,'04-MAR-2020', 'C');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E7', 'D4', 'SHREYA', 'Mahatma Gandhi Sarani','Gujarat',8000,'10-OCT-2020', 'A');

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E7', 'D4', 'ANWESHA', 'Hill Road','Darjeeling',2000,'03-FEB-2019', 'B');

INSERT INTO EMPLOYEE VALUES('E7', 'D4', 'ANWESHA', 'Hill Road','Darjeeling',2000,'03-FEB-2019', 'B')

*

ERROR at line 1:

ORA-02290: check constraint (SYSTEM.SALARY_RANGE) violated

NOTE: Here I have intentionally violated my mentioned constraint that BASIC must be between 5000-9000. I note that I get an error saying "Check constraint violated".

SQL> INSERT INTO EMPLOYEE VALUES('E8', 'D4', 'ANWESHA', 'Hill Road','Darjeeling',5500,'03-FEB-2019', 'B');

1 row created.

SQL> INSERT INTO LEAVE VALUES('L1', 'E4','EL', '02-MAR-2020','01-JUN2020');

1 row created.

SQL> INSERT INTO LEAVE VALUES('L2', 'E2','ML', '02-JUL-2020','10-SEP2020');

1 row created.

SQL> INSERT INTO LEAVE VALUES('L3', 'E5','ML', '15-NOV-2019','10-DEC2019');

1 row created.

SQL> INSERT INTO LEAVE VALUES('L4', 'E7','CL', '01-APR-2020','20-APR2020');

1 row created.

SQL> SELECT * FROM EMPLOYEE;

EMP_CODE	DEPT_CODE	EMP_NAME	ADDRESS	CITY	BASIC	JOIN_DATE	GRADE
E1	D2	DHRUV	20B Old P.O. Road	Kolkata	5500	06-JAN-19	B
E2	D1	KAVYA	35 Pali Hill	Mumbai	6000	02-JUN-20	A
E3	D2	PRIYA	14A Gopal Banerjee Lane	Kolkata	7000	06-JAN-20	C
E4	D5	DIVYA	Lajpat Nagar	Delhi	6500	10-AUG-19	B
E5	D3	JIGYASA	New Palace Lane	Pune	8000	01-MAR-19	A
E6	D3	SOURAV	51A Shyama Prosad Road	Kolkata	5000	04-MAR-20	C
E7	D4	SHREYA	Mahatma Gandhi Sarani	Gujarat	8000	10-OCT-20	A
E8	D4	ANWESHA	Hill Road	Darjeeling	5500	03-FEB-19	B

8 rows selected.

Problem 3:

3. a) Create a view showing employee code, name, dcode & Basic For a particular department.

b) Try to ensure a row into the view with valid department & also with invalid ones.

c) Find the newly inserted row in the table From which view was created.

d) Try to increment basic by Rs.100/-

e) Check it in the original table.

f) Delete the view.

Solution:

(a) SQL> CREATE VIEW EMPLOYEE_DETAILS AS

6

2 SELECT EMP_CODE, EMP_NAME, DEPT_CODE, BASIC

  3 FROM EMPLOYEE   4 WHERE DEPT_CODE = 'D3';

View created.

SQL> SELECT * FROM EMPLOYEE_DETAILS;

EMP_CODE   EMP_NAME   DEPT_CODE   BASIC

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E5   JIGYASA   D3   8000

E6   SOURAV   D3   5000

(b) SQL> INSERT INTO EMPLOYEE_DETAILS VALUES('E9', 'ANANYA', 'D7', 6700);

INSERT INTO EMPLOYEE_DETAILS VALUES('E9', 'ANANYA', 'D7', 6700)

*

ERROR at line 1:

ORA-02291: integrity constraint (SYSTEM.DEPT_FOREIGN_KEY) violated
- parent key not found

NOTE: Here I have intentionally tried to insert a row in the view with an invalid DEPT_CODE. I note that I have an error saying integrity constraint violated. This happens because there is no record in the Department table corresponding to the DEPT_CODE 'D7'.

SQL> INSERT INTO EMPLOYEE_DETAILS VALUES('E9', 'ANANYA', 'D4', 6700);

1 row created.

(c) SQL> SELECT * FROM EMPLOYEE

 2 WHERE EMP_CODE = 'E9';

EMP_CODE   DEPT_CODE EMP_NAME ADDRESS   CITY
BASIC JOIN_DATE GRADE

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E9   D4   ANANYA

6700

(d) SQL> UPDATE EMPLOYEE_DETAILS

2 SET BASIC = BASIC + 100;

2 rows updated.

(e) SQL> SELECT * FROM EMPLOYEE_DETAILS;

EMP_CODE EMP_NAME   DEPT_CODE   BASIC

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E5   JIGYASA   D3   8100

E6   SOURAV   D3   5100

SQL> SELECT * FROM EMPLOYEE;

EMP_CODE	DEPT_CODE	EMP_NAME	ADDRESS	CITY	BASIC	JOIN_DATE	GRADE
E1	D2	DHRUV	20B Old P.O. Road	Kolkata	5500	06-JAN-19	B
E2	D1	KAVYA	35 Pali Hill	Mumbai	6000	02-JUN-20	A
E3	D2	PRIYA	14A Gopal Banerjee Lane	Kolkata	7000	06-JAN-20	C
E4	D5	DIVYA	Lajpat Nagar	Delhi	6500	10-AUG-19	B
E5	D3	JIGYASA	New Palace Lane	Pune	8100	01-MAR-19	A

E6	D3	SOURAV	51A Shyama Prosad Road	Kolkata	5100	04-MAR-20	C
E7	D4	SHREYA	Mahatma Gandhi Sarani	Gujarat	8000	10-OCT-20	A
E8	D4	ANWESHA	Hill Road	Darjeeling	5500	03-FEB-19	B

(f) SQL> DROP VIEW EMPLOYEE_DETAILS;

View dropped.

🔲 *Problem 4:*

(a) Create a view showing Emp_Code, name, Dept_Name, basic, leave type, From date & to date.

(b) Try to insert a row in the view. Check what happens?

(c) Try to increment basic by Rs.100.

(d) Delete the view.

Solution:

(a) SQL> CREATE VIEW EMPLOYEE_LEAVE_DETAILS AS

  2   SELECT e.EMP_CODE, e.EMP_NAME, e. BASIC, e.DEPT_CODE, d.DEPT_NAME, l.TYPE, l.FROM_DATE, l.TO_DATE

  3   FROM EMPLOYEE e, DEPARTMENT d, LEAVE l

  4   WHERE e.DEPT_CODE = d.DEPT_CODE AND

  5   e.EMP_CODE = l.EMP_CODE; View created.

(b) SQL> INSERT INTO EMPLOYEE_LEAVE_DETAILS VALUES

 2 ('E10', 'PRAKASH', 5600,'D3', 'DEVELOPMENT', 'CL','02-JAN-2022', '20JAN-2022');

INSERT INTO EMPLOYEE_LEAVE_DETAILS VALUES

*

ERROR at line 1:

ORA-01779: cannot modify a column which maps to a non key-preserved table

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NOTE: Here I have tried to insert a row in the view EMPLOYEE_LEAVE_DETAILS and I have faced an error. This action is not possible as I am trying to insert some values in three tables simultaneously of which two table's Primary Key is not mentioned. **(C)** SQL> UPDATE EMPLOYEE_LEAVE_DETAILS

 2 SET BASIC = BASIC + 100;

SET BASIC = BASIC + 100

   *

ERROR at line 2:

ORA-01779: cannot modify a column which maps to a non key-preserved table

NOTE: Here I have tried to update the basic of each row in the view, the action is not possible.

(d) SQL> DROP VIEW EMPLOYEE_LEAVE_DETAILS;

View dropped.

☐ *Problem 5:*

(a) Create a table having Emp_code , Name, Dept_name, & basic From the existing tables along with the records of the employee who are in a particular department (say, d1) and with a basic Rs. 7000/-

(b) From the existing table, add the employees with the basic salary greater than or equal to 7000/-

(c) Alter the table to add a net pay column.

(d) Replace net pay with 1.5* Basic.

(e) Try to remove the net net pay column. [It may require no. of steps]

Solution:

 (a) SQL> CREATE TABLE PERSONNEL(

 2 EMP_CODE PRIMARY KEY, EMP_NAME, DEPT_NAME, BASIC)

 3 AS SELECT EMP_CODE, EMP_NAME, DEPT_NAME, BASIC FROM

EMPLOYEE, DEPARTMENT

 4 WHERE EMPLOYEE.DEPT_CODE = DEPARTMENT.DEPT_CODE

 5 AND BASIC = 7000 AND DEPARTMENT.DEPT_CODE = 'D3';

Table created.

(b) SQL> INSERT INTO PERSONNEL

2 SELECT EMP_CODE, EMP_NAME, DEPT_NAME, BASIC FROM EMPLOYEE, DEPARTMENT

3 WHERE EMPLOYEE.DEPT_CODE = DEPARTMENT.DEPT_CODE

4 AND BASIC >= 7000

5 AND EMP_CODE NOT IN

6 (SELECT DISTINCT EMP_CODE FROM PERSONNEL); 3 rows created.

(c) SQL> ALTER TABLE PERSONNEL ADD (NET_PAY NUMBER(9,2));
Table altered.

(d) SQL> UPDATE PERSONNEL SET NET_PAY = 1.5 * BASIC; 3 rows updated.

(e) SQL> ALTER TABLE PERSONNEL

 2 DROP COLUMN NET_PAY;

Table altered.

- ## *Problem 6:*

  Drop all the tables that you have created.

- ## *Solution:*

 SQL> DROP TABLE PERSONNEL;

 Table dropped.

 SQL> DROP TABLE LEAVE;

Table dropped.

SQL> DROP TABLE EMPLOYEE;

Table dropped.

SQL> DROP TABLE DEPARTMENT;

Table dropped.