

Database Programming with SQL 15-2: DML Operations and Views Practice Activities

# Objectives

* Write and execute a query that performs DML operations on a simple view
* Name the conditions that restrict modifying a view using DML operations
* Write and execute a query using the WITH CHECK OPTION clause
* Explain the use of WITH CHECK OPTION as it applies to integrity constraints and data validation
* Apply the WITH READ ONLY option to a view to restrict DML operations

# Vocabulary

Identify the vocabulary word for each definition below.

|  |  |
| --- | --- |
| **ROWNUM** | A pseudocolumn which assigns a sequential value starting with 1 to each of the rows returned from the subquery |
| **WITH CHECK OPTION** | Specifies that INSERTS and UPDATES performed through the view can’t create rows which the view cannot select |
| **WITH READ ONLY** | Ensures that no DML operations can be performed on this view |

# Try It / Solve It

Use the DESCRIBE statement to verify that you have tables named copy\_d\_songs, copy\_d\_events, copy\_d\_cds, and copy\_d\_clients in your schema. If you don't, write a query to create a copy of each.

CREATE TABLE copy\_d\_songs

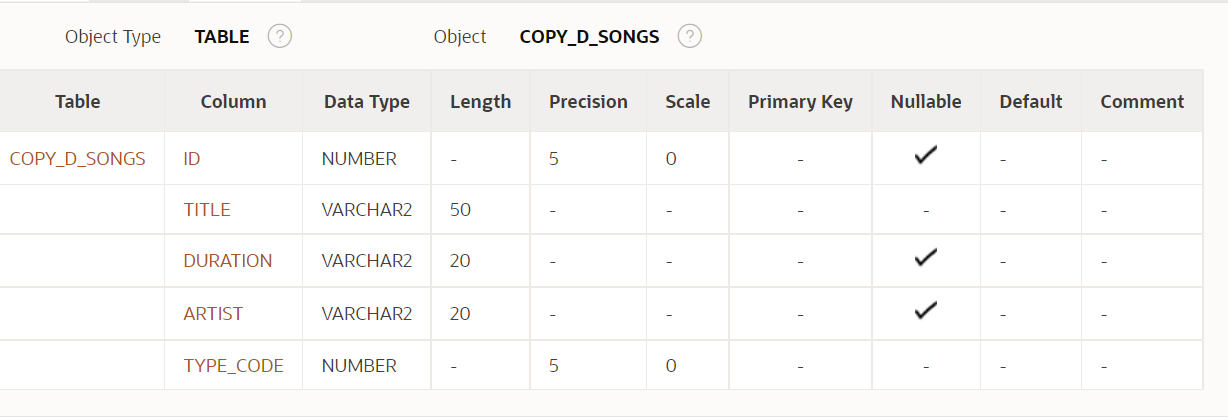
AS ( SELECT \* FROM d\_songs);

DESCRIBE copy\_d\_songs;

DESCRIBE d\_songs;

SELECT \* FROM d\_songs;

SELECT \* FROM copy\_d\_songs;



CREATE TABLE copy\_d\_events

AS ( SELECT \* FROM d\_events);

DESCRIBE copy\_d\_events ;

DESCRIBE d\_events;

SELECT \* FROM d\_events ;

SELECT \* FROM copy\_d\_events ;

Изображение выглядит как стол

Автоматически созданное описание

CREATE TABLE copy\_d\_cds

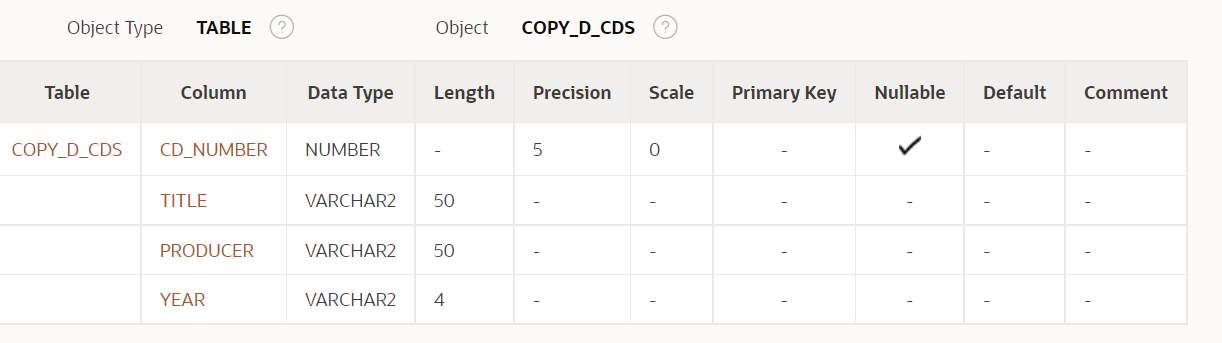
AS ( SELECT \* FROM d\_cds);

DESCRIBE copy\_d\_cds;

DESCRIBE d\_cds;

SELECT \* FROM d\_cds;

SELECT \* FROM copy\_d\_cds ;



CREATE TABLE copy\_d\_clients

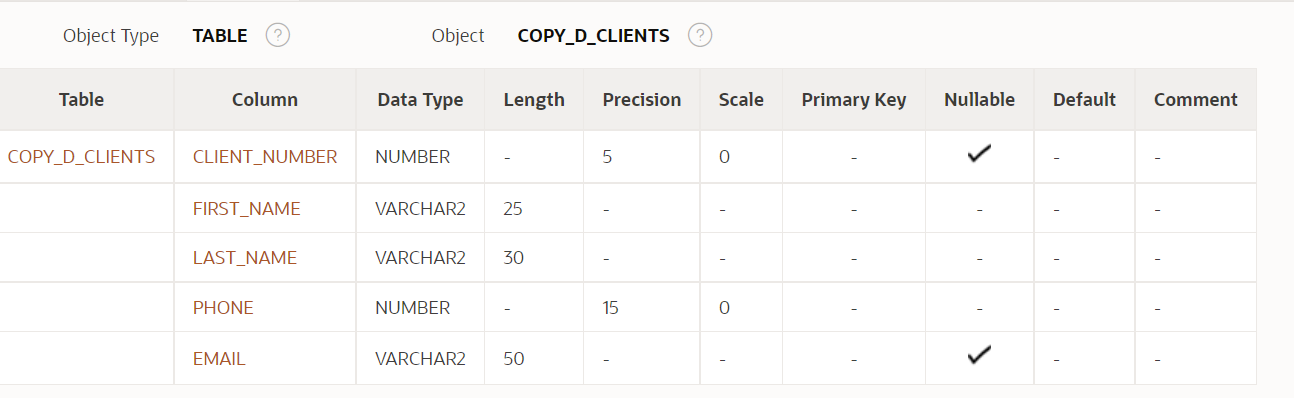
AS ( SELECT \* FROM d\_clients);

DESCRIBE copy\_d\_clients ;

DESCRIBE d\_clients;

SELECT \* FROM d\_clients ;

SELECT \* FROM copy\_d\_clients ;



1. Query the data dictionary USER\_UPDATABLE\_COLUMNS to make sure the columns in the base tables will allow UPDATE, INSERT, or DELETE. Use a SELECT statement. All table names in the data dictionary are stored in uppercase.

USER\_UPDATABLE\_COLUMNS describes columns in a join view that can be updated by the current user, subject to appropriate privileges.

**SELECT owner, table\_name, column\_name, updatable,insertable, deletable**

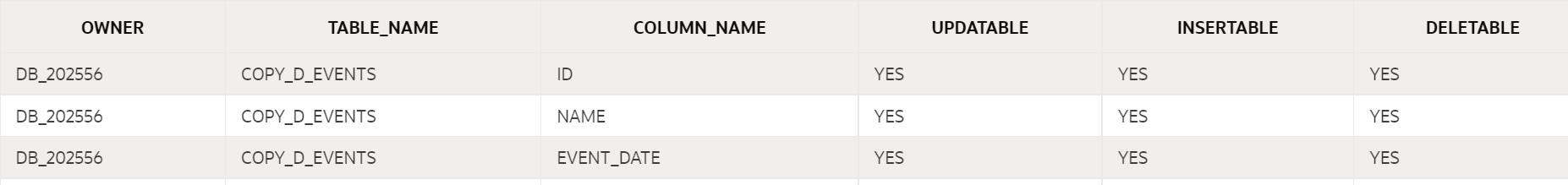
**FROM user\_updatable\_columns WHERE LOWER(table\_name) = 'copy\_d\_songs';**

Изображение выглядит как стол

Автоматически созданное описание

**SELECT owner, table\_name, column\_name, updatable,insertable, deletable**

**FROM user\_updatable\_columns WHERE LOWER(table\_name) = 'copy\_d\_events';**



**SELECT owner, table\_name, column\_name, updatable,insertable, deletable**

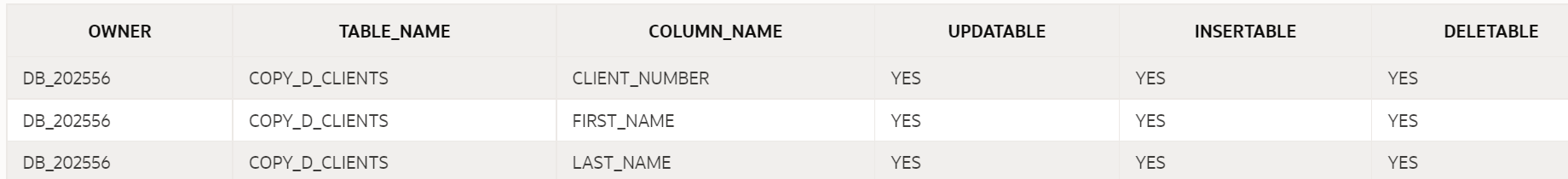
**FROM user\_updatable\_columns WHERE LOWER(table\_name) = 'copy\_d\_cds';**

Изображение выглядит как стол

Автоматически созданное описание

**SELECT owner, table\_name, column\_name, updatable,insertable, deletable**

**FROM user\_updatable\_columns WHERE LOWER(table\_name) = 'copy\_d\_clients';**



1. Use the CREATE or REPLACE option to create a view of *all* the columns in the copy\_d\_songs table called view\_copy\_d\_songs.

**CREATE OR REPLACE VIEW view\_copy\_d\_songs  AS**

**SELECT \***

**FROM copy\_d\_songs;**

**SELECT \* FROM view\_copy\_d\_songs;**

Изображение выглядит как стол

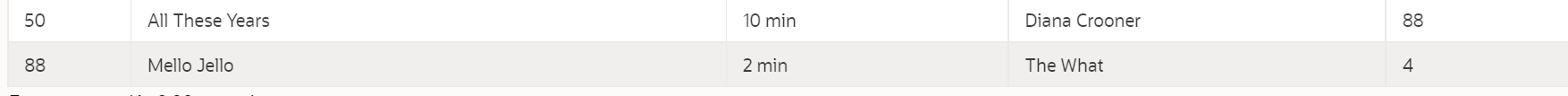
Автоматически созданное описание

1. Use view\_copy\_d\_songs to INSERT the following data into the underlying copy\_d\_songs table. Execute a SELECT \* from copy\_d\_songs to verify your DML command. See the graphic.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | TITLE | DURATION | ARTIST | TYPE\_CODE |
| 88 | Mello Jello | 2 | The What | 4 |

**INSERT INTO view\_copy\_d\_songs(id,title,duration,artist,type\_code)**

**VALUES(88,'Mello Jello','2 min','The What',4);**



1. Create a view based on the DJs on Demand COPY\_D\_CDS table. Name the view read\_copy\_d\_cds. Select all columns to be included in the view. Add a WHERE clause to restrict the year to 2000. Add the WITH READ ONLY option.

**CREATE OR REPLACE VIEW read\_copy\_d\_cds  AS**

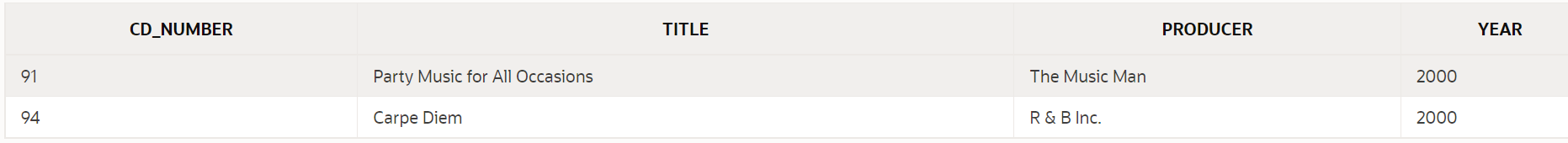
**SELECT \***

**FROM copy\_d\_cds**

**WHERE year = '2000'**

**WITH READ ONLY ;**

**SELECT \* FROM read\_copy\_d\_cds;**



1. Using the read\_copy\_d\_cds view, execute a DELETE FROM read\_copy\_d\_cds WHERE cd\_number = 90;

**ORA-42399: cannot perform a DML operation on a read-only view**

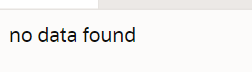
1. Use REPLACE to modify read\_copy\_d\_cds. Replace the READ ONLY option with WITH CHECK OPTION CONSTRAINT ck\_read\_copy\_d\_cds. Execute a SELECT \* statement to verify that the view exists.



1. Use the read\_copy\_d\_cds view to delete any CD of year 2000 from the underlying copy\_d\_cds.

**DELETE FROM read\_copy\_d\_cds**

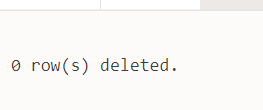
**WHERE year = '2000';**



1. Use the read\_copy\_d\_cds view to delete cd\_number 90 from the underlying copy\_d\_cds table.

**DELETE FROM read\_copy\_d\_cds**

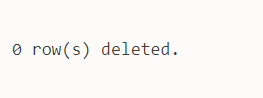
**WHERE cd\_number = 90;**



1. Use the read\_copy\_d\_cds view to delete year 2001 records.

**DELETE FROM read\_copy\_d\_cds**

**WHERE year = '2001';**



1. Execute a SELECT \* statement for the base table copy\_d\_cds. What rows were deleted?

Изображение выглядит как стол

Автоматически созданное описание

**Only the one in problem 7 above, not the one in 8 and 9**

1. What are the restrictions on modifying data through a view?

For simple views, all DML’s are OK, but for complex views:

**Delete restricted if it contains:**

Group functions

GROUP BY CLAUSE

DISTINCT

pseudocolumn ROWNUM  Keyword

**Modify restricted if it contains:**

Group functions

GROUP BY CLAUSE

DISTINCT

pseudocolumn ROWNUM Keyword

*Column defined by expressions*

**INSERT restricted if it contains:**

Group functions

GROUP BY CLAUSE

DISTINCT

pseudocolumn ROWNUM Keyword

Column defined by expressions

*Does not include NOT NULL columns in the base table.*

1. What is Moore’s Law? Do you consider that it will continue to apply indefinitely? Support your opinion with research from the internet.

**It roughly predicted that computing power nearly doubles every year. But Moore also said in 2005 that as per nature of exponential functions, this trend may not continue forever.**

1. What is the “singularity” in terms of computing?

**Is the hypothesis that the invention of artificial superintelligence will abruptly trigger runaway technological growth, resulting in unfathomable changes to human civilization.**

**3 Reasons To Believe The Singularity Is Near as per Greg Satell on Forbes:**

         **We’re Going Beyond Moore’s Law**

         **Robots Are Doing Human Jobs**

         **We’re Editing Genes**

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