

## SQL Database Programming: Section 12-1 INSERT Statements

### Vocabulary

**USER** – Someone doing “real work” with the computer, using it as a means rather than an end

Consists of a collection of DML statements that form a logical unit of work.

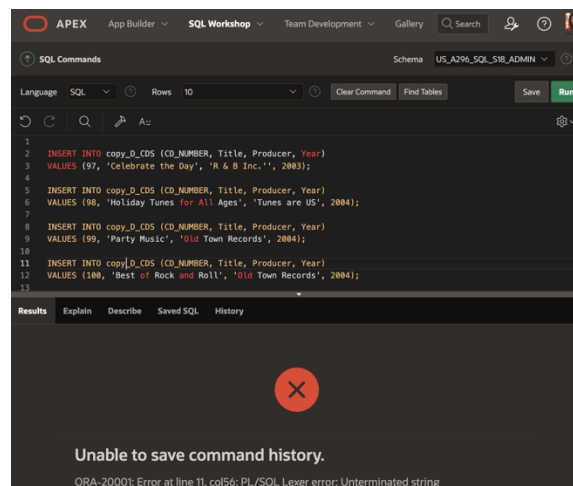
Fully and clearly expressed; leaving nothing implied

**INSERT statement** – Adds a new row to a table

### Try It/ Solve It

1. Give two examples of why it is important to be able to alter the data in a database.
  - 1) By being able to alter data in a database, a business or company can adapt to a fast-evolving world of operations. They can update specific information in the system.
  - 2) Same as above, because businesses and companies can update certain information in the system, this allows them to stay up-to-date with the current system they use.
2. DJs on Demand just purchased four new CDs. Use an explicit INSERT statement to add each CD to the copy\_d\_cds table. After completing the entries, execute a SELECT \* statement to verify your work.

CD_Number	Title	Producer	Year
97	Celebrate the Day	R & B Inc.	2003
98	Holiday Tunes for All Ages	Tunes are Us	2004
99	Party Music	Old Town Records	2004
100	Best of Rock and Roll	Old Town Records	2004



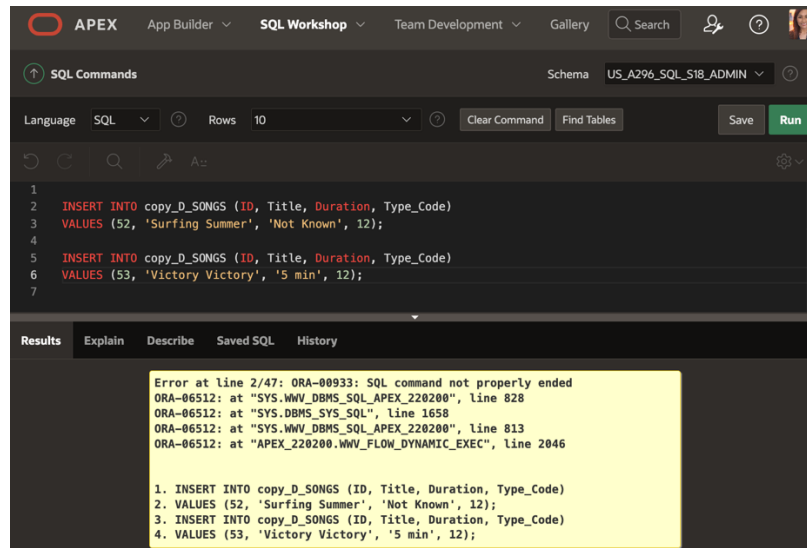
The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', 'Gallery', and a search icon. Below the navigation bar, the 'SQL Commands' tab is active, showing a list of SQL commands. The commands are as follows:

```
1 INSERT INTO copy_d_cds (CD_NUMBER, Title, Producer, Year)
2 VALUES (97, 'Celebrate the Day', 'R & B Inc.', 2003);
3
4 INSERT INTO copy_d_cds (CD_NUMBER, Title, Producer, Year)
5 VALUES (98, 'Holiday Tunes for All Ages', 'Tunes are Us', 2004);
6
7 INSERT INTO copy_d_cds (CD_NUMBER, Title, Producer, Year)
8 VALUES (99, 'Party Music', 'Old Town Records', 2004);
9
10 INSERT INTO copy_d_cds (CD_NUMBER, Title, Producer, Year)
11 VALUES (100, 'Best of Rock and Roll', 'Old Town Records', 2004);
12
13
```

Below the SQL commands, the 'Results' tab is active, displaying an error message: 'Unable to save command history.' The error message is accompanied by a red 'X' icon. The error details are: 'ORA-20001: Error at line 11, col56: PL/SQL: Lexer error: Unterminated string'.

3. DJs on Demand has two new events coming up. One event is a fall football party and the other event is a sixties theme party. The DJs on Demand clients requested the songs shown in the table for their events. Add these songs to the copy\_d\_songs table using an implicit INSERT statement.

ID	Title	Duration	Type_Code
52	Surfing Summer	Not known	12
53	Victory Victory	5 min	12



The screenshot shows the APEX SQL Workshop interface. The SQL Commands window contains the following code:

```
1
2 INSERT INTO copy_D_SONGS (ID, Title, Duration, Type_Code)
3 VALUES (52, 'Surfing Summer', 'Not Known', 12);
4
5 INSERT INTO copy_D_SONGS (ID, Title, Duration, Type_Code)
6 VALUES (53, 'Victory Victory', '5 min', 12);
7
```

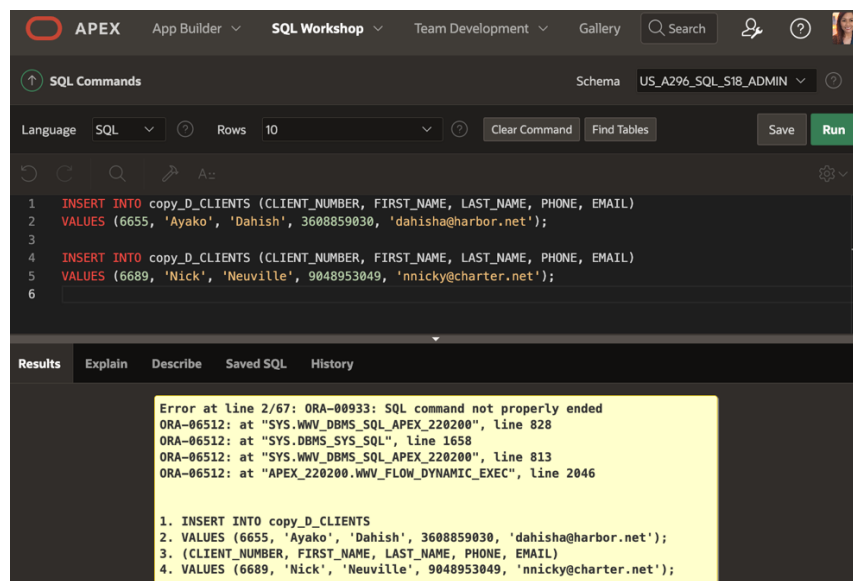
The Results window shows an error message:

```
Error at line 2/47: ORA-00933: SQL command not properly ended
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 828
ORA-06512: at "SYS.DBMS_SYS_SQL", line 1658
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 813
ORA-06512: at "APEX_220200.WMV_FLOW_DYNAMIC_EXEC", line 2046
```

The error message is repeated four times, corresponding to the four lines of the SQL command.

4. Add the two new clients to the copy\_d\_clients table. Use either an implicit or an explicit INSERT.

Client_Number	First_Name	Last_Name	Phone	Email
6655	Ayako	Dahish	3608859030	dahisha@harbor.net
6689	Nick	Neuville	9048953049	nnicky@charter.net



The screenshot shows the APEX SQL Workshop interface. The SQL Commands window contains the following code:

```
1 INSERT INTO copy_D_CLIENTS (CLIENT_NUMBER, FIRST_NAME, LAST_NAME, PHONE, EMAIL)
2 VALUES (6655, 'Ayako', 'Dahish', 3608859030, 'dahisha@harbor.net');
3
4 INSERT INTO copy_D_CLIENTS (CLIENT_NUMBER, FIRST_NAME, LAST_NAME, PHONE, EMAIL)
5 VALUES (6689, 'Nick', 'Neuville', 9048953049, 'nnicky@charter.net');
6
```

The Results window shows an error message:

```
Error at line 2/67: ORA-00933: SQL command not properly ended
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 828
ORA-06512: at "SYS.DBMS_SYS_SQL", line 1658
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 813
ORA-06512: at "APEX_220200.WMV_FLOW_DYNAMIC_EXEC", line 2046
```

The error message is repeated four times, corresponding to the four lines of the SQL command.

5. Add the new client's events to the copy\_d\_events table. The cost of each event has not been determined at this date.

ID	Name	Event Date	Description	Cost	Venue ID	Package Code	Theme Code	Client Number
110	Ayako Anniversary	07-Jul-2004	Party for 50, sixties dress, decorations		245	79	240	6655
115	Neuville Sports Banquet	09-Sep-2004	Barbecue at residence, college alumni, 100 people		315	87	340	6689

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. The user is logged in as 'Ma Raquel Soriano'. The 'SQL Commands' window is active, showing two SQL statements:

```

1 INSERT INTO copy_D_EVENTS (ID, NAME, EVENT_DATE, DESCRIPTION, COST, VENUE_ID, PACKAGE_CODE, THEME_CODE, CLIENT_NUMBER)
2 VALUES (110, 'Ayako Anniversary', 07-Jul-2004, 'Party for 50, sixties dress, decorations', '', 245, 79, 240, 6655);
3
4 INSERT INTO copy_D_CLIENTS (ID, NAME, EVENT_DATE, DESCRIPTION, COST, VENUE_ID, PACKAGE_CODE, THEME_CODE, CLIENT_NUMBER)
5 VALUES (115, 'Neuville Sports Banquet', 09-Sep-2004, 'Barbecue at residence, college alumni, 100 people', '', 315, 87, 340, 6689);
6

```

The 'Results' window at the bottom shows an error message:

```

Error at line 2/115: ORA-00933: SQL command not properly ended
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 828
ORA-06512: at "SYS.DBMS_SYS_SQL", line 1658
ORA-06512: at "SYS.WMV_DBMS_SQL_APEX_220200", line 813
ORA-06512: at "APEX_220200.WMV_FLOW_DYNAMIC_EXEC", line 2046

```

Below the error message, the SQL statements are repeated for reference:

```

1. INSERT INTO copy_D_EVENTS (ID, NAME, EVENT_DATE, DESCRIPTION, COST,
VENUE_ID, PACKAGE_CODE, THEME_CODE, CLIENT_NUMBER)
2. VALUES (110, 'Ayako Anniversary', 07-Jul-2004, 'Party for 50, sixties
dress, decorations', '', 245, 79, 240, 6655);
3. INSERT INTO copy_D_CLIENTS (ID, NAME, EVENT_DATE, DESCRIPTION, COST,
VENUE_ID, PACKAGE_CODE, THEME_CODE, CLIENT_NUMBER)
4. VALUES (115, 'Neuville Sports Banquet', 09-Sep-2004, 'Barbecue at
residence, college alumni, 100 people', '', 315, 87, 340, 6689);

```

6. Create a table called rep\_email using the following statement:

```

CREATE TABLE rep_email (
  id NUMBER(3) CONSTRAINT rel_id_pk PRIMARY KEY,
  first_name VARCHAR2(10),
  last_name VARCHAR2(10),
  email_address VARCHAR2(10))

```

<<< MORE ANSWERS CONTINUE ON THE NEXT PAGE >>>

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. The 'SQL Commands' tab is active, and the schema is set to 'US\_A296\_SQL\_S18\_ADMIN'. The language is 'SQL' and the number of rows to display is '10'. The SQL command entered is:

```
1 CREATE TABLE rep_email (
2   id NUMBER(3) CONSTRAINT rel_id_pk PRIMARY KEY,
3   first_name VARCHAR2(10),
4   last_name VARCHAR2(10),
5   email_address VARCHAR2(10))
```

The 'Run' button is highlighted in green. Below the command editor, the 'Results' tab is selected, showing the message 'Table created.' and the execution time '0.02 seconds'.

Populate this table by running a query on the employees table that includes only those employees who are REP's.

The screenshot shows the APEX SQL Workshop interface with the same schema and settings. The SQL command entered is:

```
1
2 INSERT INTO rep_email(ID, First_Name, Last_Name, Email_Address)
3   SELECT Employee_ID, First_Name, Last_Name, Email
4   FROM EMPLOYEES
5   WHERE JOB_ID LIKE '%REP%';
```

The 'Run' button is highlighted in green. Below the command editor, the 'Results' tab is selected, displaying a table with the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL
174	Ellen	Abel	EABEL
176	Jonathon	Taylor	JTAYLOR
178	Kimberely	Grant	KGRANT
202	Pat	Fay	PFAY
207	Sophia	Barbosa Souza	SBARBOSASOUZA
208	Diego	Silva Pinto	DSILVAPINTO
209	Sarah	Alves Rocha	SALVESROCHA
210	Lucas	Almeida Castro	ALMEIDACASTRO
212	Nick	Hooper	NHOOPER
215	Donna	Steiner	DSTEINER

At the bottom of the results, it states: 'More than 10 rows available. Increase rows selector to view more rows.'

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## SQL Database Programming: Section 12-2 Updating Column Values and Deleting Rows

### Vocabulary

**UPDATE statement** – Modifies existing rows in a table retrieves information from one table & uses the information to update another table

**Data Validation / Integrity Constraint** – Ensures that the data adheres to a predefined set of rules

**On DELETE Cascade** – Deletes information on a linked table based on what was deleted on the other table

**DELETE statement** – Removes existing rows from a table

### Try It/ Solve It

NOTE: Copy tables in this section do not exist

If any change is not possible, give an explanation as to why it is not possible.

1. Monique Tuttle, the manager of Global Fast Foods, sent a memo requesting an immediate change in prices. The price for a strawberry shake will be raised from \$3.59 to \$3.75, and the price for fries will increase to \$1.20. Make these changes to the copy\_f\_food\_items table.

2. Bob Miller and Sue Doe have been outstanding employees at Global Fast Foods. Management has decided to reward them by increasing their overtime pay. Bob Miller will receive an additional \$0.75 per hour and Sue Doe will receive an additional \$0.85 per hour. Update the copy\_f\_staffs table to show these new values. (Note: Bob Miller currently doesn't get overtime pay. What function do you need to use to convert a null value to 0?)

3. Add the orders shown to the Global Fast Foods copy\_f\_orders table:

ORDER_NUMBER	ORDER_DATE	ORDER_TOTAL	CUST_ID	STAFF_ID
5680	June 12, 2004	159.78	145	9
5691	09-23-2004	145.98	225	12
5701	July 4, 2004	229.31	230	12

4. Add the new customers shown below to the copy\_f\_customers table. You may already have added Katie Hernandez. Will you be able to add all these records successfully?

ID	FIRST_NAME	LAST_NAME	ADDRESS	CITY	STATE	ZIP	PHONE_NUMBER
145	Katie	Hernandez	92 Chico Way	Los Angeles	CA	98008	8586667641
225	Daniel	Spode	1923 Silverado	Denver	CO	80219	7193343523
230	Adam	Zurn	5 Admiral Way	Seattle	WA		4258879009

6. Global Fast Foods is expanding their staff. The manager, Monique Tuttle, has hired Kai Kim. Not all information is available at this time, but add the information shown here.

ID	FIRST_NAME	LAST_NAME	BIRTHDATE	SALARY	STAFF_TYPE
25	Kai	Kim	3-Nov-1988	6.75	Order Taker

7. Now that all the information is available for Kai Kim, update his Global Fast Foods record to include the following: Kai will have the same manager as Sue Doe. He does not qualify for overtime. Leave the values for training, manager budget, and manager target as null.

8. Execute the following SQL statement. Record your results.

```
DELETE from departments
WHERE department_id = 60;
```

9. Kim Kai has decided to go back to college and does not have the time to work and go to school. Delete him from the Global Fast Foods staff. Verify that the change was made.

10. Create a copy of the employees table and call it lesson7\_emp; Once this table exists, write a correlated delete statement that will delete any employees from the lesson7\_employees table that also exist in the job\_history table.

---

## SQL Database Programming: Section 12-3: DEFAULT Values, MERGE, and Multi-Table Inserts

### Try It/ Solve It

- When would you want a DEFAULT value?
- Currently, the Global Foods F\_PROMOTIONAL\_MENUS table START\_DATE column does not have SYSDATE set as DEFAULT. Your manager has decided she would like to be able to set the starting date of promotions to the current day for some entries. This will require three steps:
  - In your schema, Make a copy of the Global Foods F\_PROMOTIONAL\_MENUS table using the following SQL statement:

```
CREATE TABLE copy_f_promotional_menus  
AS (SELECT * FROM f_promotional_menus)
```

b. Alter the current START\_DATE column attributes using:

```
ALTER TABLE copy_f_promotional_menus  
MODIFY(start_date DATE DEFAULT SYSDATE)
```

c. INSERT the new information and check to verify the results.

INSERT a new row into the copy\_f\_promotional\_menus table for the manager's new promotion. The promotion code is 120. The name of the promotion is 'New Customer.' Enter DEFAULT for the start date and '01-Jun-2005' for the ending date. The giveaway is a 10% discount coupon. What was the correct syntax used?

3. Allison Plumb, the event planning manager for DJs on Demand, has just given you the following list of CDs she acquired from a company going out of business. She wants a new updated list of CDs in inventory in an hour, but she doesn't want the original D\_CDS table changed. Prepare an updated inventory list just for her.

a. Assign new cd\_numbers to each new CD acquired.

b. Create a copy of the D\_CDS table called manager\_copy\_d\_cds. What was the correct syntax used?

c. INSERT into the manager\_copy\_d\_cds table each new CD title using an INSERT statement.

Make up one example or use this data:

20, 'Hello World Here I Am', 'Middle Earth Records', '1998'

What was the correct syntax used?

d. Use a merge statement to add to the manager\_copy\_d\_cds table, the CDs from the original table. If there is a match, update the title and year. If not, insert the data from the original table. What was the correct syntax used?

4. Run the following 3 statements to create 3 new tables for use in a Multi-table insert statement. All 3 tables should be empty on creation, hence the WHERE 1=2 condition in the WHERE clause.

```
CREATE TABLE sal_history (employee_id, hire_date, salary)
```

```
AS SELECT employee_id, hire_date, salary
```

```
FROM employees
```

```
WHERE 1=2;
```

```
CREATE TABLE mgr_history (employee_id, manager_id, salary)
```

```
AS SELECT employee_id, manager_id, salary
```

```
FROM employees
```

```
WHERE 1=2;
```

```
CREATE TABLE special_sal (employee_id, salary)
```

```
AS SELECT employee_id, salary
```

```
FROM employees
```

```
WHERE 1=2;
```

Once the tables exist in your account, write a Multi-Table insert statement to first select the employee\_id, hire\_date, salary, and manager\_id of all employees. If the salary is more than 20000 insert the employee\_id and salary into the special\_sal table. Insert the details of employee\_id, hire\_date, and salary into the sal\_history table. Insert the employee\_id, manager\_id, and salary into the mgr\_history table.

You should get a message back saying 39 rows were inserted. Verify you get this message and verify you have the following number of rows in each table:

Sal\_history: 19 rows

Mgr\_history: 19 rows

Special\_sal: 1