

Data Manipulation Language (DML)

Insert - Update - Delete

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Data Manipulation - INSERT

Adding a New Row to a Table

DEPARTMENTS

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
30	Shipping	124	1500
40	IT	103	1400
50	Sales	149	2500
60	Executive	100	1700
110	Accounting	205	1700
190	Contracting		1700

70 | Public Relations | 100 | 1700 | **New row**

...insert a new row into the DEPARMENTS table...

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
30	Shipping	124	1500
40	IT	103	1400
50	Sales	149	2500
60	Executive	100	1700
110	Accounting	205	1700
190	Contracting		1700
70	Public Relations	100	1700

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Data Manipulation - INSERT

- **The first form does not specify the column names where the data will be inserted, only their values:**

```
INSERT INTO table_name VALUES (value1, value2, value3, ...);
```

- **The second form specifies both the column names and the values to be inserted:**

```
INSERT INTO table_name (column1, column2, column3, ...) VALUES  
(value1, value2, value3, ...);
```

Data Manipulation - INSERT

```
INSERT INTO departments  
VALUES (1,'Public Relations',100,1700)           1 row(s) inserted.
```

```
SELECT * FROM departments
```

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1	Public Relations	100	1700
10	Administration	200	1700
20	Marketing	201	1800

```
INSERT INTO departments  
(department_id, department_name, manager_id, location_id)  
VALUES (1,'Public Relations',100,1700)
```

Data Manipulation – INSERT NULL Values

1. Implicit Method

```
INSERT INTO departments (department_id,department_name) VALUES  
(2,'Purchising')
```

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1	Public Relations	100	1700
2	Purchising	-	-

2. Explicit Method

```
INSERT INTO departments VALUES (3,'Finance',NULL,NULL)
```

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1	Public Relations	100	1700
2	Purchising	-	-
3	Finance	-	-

Data Manipulation - INSERT

```
INSERT INTO employees  
(employee_id, first_name, last_name, hire_date, email, job_id)  
VALUES(1,'Saya','Ali',sysdate,'AAA','AD_VP')
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT
1	Saya	Ali	AAA	-	21-MAR-09	AD_VP	-	-

```
INSERT INTO employees (employee_id, first_name, last_name, hire_date, email, job_id)  
VALUES(2,'Aso','Ali','01/01/1986','BBB','AD_VP')
```

ORA-01843: not a valid month

```
INSERT INTO employees (employee_id, first_name, last_name, hire_date, email, job_id)  
VALUES(2,'Aso','Ali',TO_DATE('01/01/1986','DD/MM/YYYY'),'BBB','AD_VP')
```

INSERT using select statement

```
INSERT INTO sales_reps(id,name,salary,commission_pct) SELECT
employee_id,last_name,salary,commission_pct FROM employees WHERE
job_id = 'AD_PRES'
```

Data Manipulation - UPDATE

Changing Data in a Table

EMPLOYEES

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	HIRE_DATE	JOB_ID	SALARY	DEPARTMENT_ID	COMMISSION_PCT
100	Steven	King	SKING	17-JUN-87	AD_PRES	24000		90
101	Neena	Kochhar	NKOCHHAR	21-SEP-89	AD_VP	17000		90
102	Lex	De Haan	LDEHAAN	13-JAN-93	AD_VP	17000		90
103	Alexander	Hunold	AHUNOLD	03-JAN-90	IT_PROG	9000		90
104	Bruce	Ernst	BERNST	21-MAY-91	IT_PROG	6000		90
107	Diana	Lorentz	DLORENTZ	07-FEB-98	IT_PROG	4200		90
124	Kevin	Mourgos	KMOURGOS	16-NOV-99	ST_MAN	5800		90

Update rows in the EMPLOYEES table.



EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	HIRE_DATE	JOB_ID	SALARY	DEPARTMENT_ID	COMMISSION_PCT
100	Steven	King	SKING	17-JUN-87	AD_PRES	24000		90
101	Neena	Kochhar	NKOCHHAR	21-SEP-89	AD_VP	17000		90
102	Lex	De Haan	LDEHAAN	13-JAN-93	AD_VP	17000		90
103	Alexander	Hunold	AHUNOLD	03-JAN-90	IT_PROG	9000		30
104	Bruce	Ernst	BERNST	21-MAY-91	IT_PROG	6000		30
107	Diana	Lorentz	DLORENTZ	07-FEB-98	IT_PROG	4200		30
124	Kevin	Mourgos	KMOURGOS	16-NOV-99	ST_MAN	5800		50

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Data Manipulation - UPDATE

The UPDATE Statement Syntax

- **Modify existing rows with the UPDATE statement.**

```
UPDATE      table  
SET         column = value [, column = value, ...]  
[WHERE      condition];
```

- **Update more than one row at a time, if required.**



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Data Manipulation - UPDATE

- ✓ **UPDATE** employees
- ✓ **SET** department_id=70
- ✓ **WHERE** department_id=113
- UPDATE copy_emp
- SET department_id=110
- UPDATE employees
- SET job_id=(SELECT job_id FROM employees WHERE employee_id=205),
- salary=(SELECT salary FROM employees WHERE employee_id=205)
- WHERE employee_id=114

Data Manipulation - UPDATE

UPDATE copy_emp

SET department_id=(SELECT department_id FROM employees WHERE employee_id=100)

WHERE job_id=(SELECT job_id FROM employees WHERE employee_id=200)

Data Manipulation - DELETE

Removing a Row from a Table

DEPARTMENTS

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
30	Purchasing		
40	Finance		
50	Shipping	124	1600
60	IT	103	1400

Delete a row from the DEPARTMENTS table.

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
30	Purchasing		
50	Shipping	124	1600
60	IT	103	1400

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Data Manipulation - DELETE

The DELETE Statement

You can remove existing rows from a table by using the **DELETE** statement.

```
DELETE [FROM]    table  
[WHERE          condition];
```



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Data Manipulation - DELETE

DELETE FROM employees

WHERE department_id=(SELECT department_id FROM departments

WHERE department_name LIKE "%Public%)

Any Question?

