



# 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
50	Shipping	124	1500
60	IT	103	1400
80	Sales	149	2500
90	Executive	100	1700
110	Accounting	205	1700
190	Contracting		1700

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



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

New  
row

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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
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_P
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	60	
104	Bruce	Ernst	BERNST	21-MAY-91	IT_PROG	6000	60	
107	Diana	Lorentz	DLORENTZ	07-FEB-99	IT_PROG	4200	60	
124	Kevin	Mourgos	KMOURGOS	16-NOV-99	ST_MAN	5800	50	

Update rows in the **EMPLOYEES** table.



EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	HIRE_DATE	JOB_ID	SALARY	DEPARTMENT_ID	COMMISSION_P
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-99	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.



## 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		
100	Finance		
50	Shipping	124	1500
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	1500
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];
```



## Data Manipulation - DELETE

DELETE FROM employees

WHERE department\_id=(SELECT department\_id FROM departments

WHERE department\_name LIKE "%Public%")

# Any Question?

