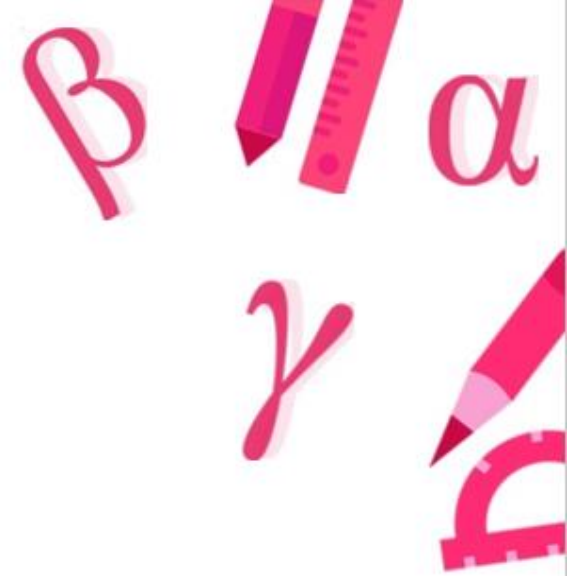


Database Design & Applications

The Database Language - Create View

Objective

- Creating View
- Updatable View
- WITH CHECK Option
- ALTER View
- DROP View



What is a View?

EMPLOYEES Table:

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALA |
|-------------|------------|------------|----------|--------------|-----------|------------|------|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-87 | AD_PRES | 240 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-89 | AD_VP | 170 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-93 | AD_VP | 170 |
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-90 | IT_PROG | 90 |
| 104 | | | | | | | 60 |
| 105 | | | | | | | 42 |
| 106 | | | | | | | 58 |
| 107 | | | | | | | 35 |
| 108 | | | | | | | 31 |
| 109 | | | | | | | 26 |
| 110 | | | | | | | 25 |
| 111 | | | | | | | 105 |
| 112 | | | | | | | 110 |
| 113 | | | | | | | 86 |
| 114 | Timothy | Gaeremynck | TGAEREM | 515.123.4444 | 24-MAY-99 | SA_REP | 70 |
| 170 | Kimberely | Grant | KGRANT | 515.123.1234 | 24-MAY-99 | SA_REP | 70 |
| 200 | Jennifer | Whalen | JWHALEN | 515.123.4444 | 17-SEP-87 | AD_ASST | 44 |
| 201 | Michael | Hartstein | MHARTSTE | 515.123.5555 | 17-FEB-96 | MK_MAN | 130 |
| 202 | Pat | Fay | PFAY | 603.123.6666 | 17-AUG-97 | MK_REP | 60 |
| 205 | Shelley | Higgins | SHIGGINS | 515.123.8080 | 07-JUN-94 | AC_MGR | 120 |
| 206 | William | Gietz | WGIEZT | 515.123.8181 | 07-JUN-94 | AC_ACCOUNT | 83 |

20 rows selected.

Why Use Views?

- To restrict data access
- To make complex queries easy
- To implement ROW and COLUMN level security.
- To present different views of the same data



Updatable Views

| Feature | Updatable Views |
|-------------------------------|-----------------|
| Number of tables | One |
| Contain functions | No |
| Contain groups of data | No |
| DML operations through a view | Yes |

Creating a View

- You embed a subquery within the CREATE VIEW statement.

```
CREATE VIEW view [(alias[, alias]...)]  
  AS subquery  
  [WITH CHECK OPTION];
```

- The subquery can contain complex SELECT syntax.

Creating a View

- Create a view EMPVU80, that contains details of employees in department 30.

```
CREATE VIEW empvu30
AS SELECT employee_id, last_name, salary
FROM employees
WHERE department_id = 30;
```

Creating a View

- Create a view by using column aliases in the subquery.

```
CREATE VIEW  salvu50
AS SELECT   employee_id ID_NUMBER, last_name NAME,
            salary*12 ANN_SALARY
FROM        employees
WHERE       department_id = 50;
```

- Select the columns from this view by the given alias names.

Retrieving Data from a View

```
SELECT *  
FROM salvu50;
```

| ID_NUMBER | NAME | ANN_SALARY |
|-----------|---------|------------|
| 124 | Mourgos | 69600 |
| 141 | Rajs | 42000 |
| 142 | Davies | 37200 |
| 143 | Matos | 31200 |
| 144 | Vargas | 30000 |

Creating a Complex View

Create a complex view that contains group functions to display values from two tables.

```
CREATE VIEW dept_sum_vu
  (name, minsal, maxsal, avgsal)
AS SELECT      d.department_name,
               MIN(e.salary),
               MAX(e.salary),AVG(e.salary)
  FROM         employees e, departments d
 WHERE        e.department_id =
             d.department_id
 GROUP BY     d.department_name;
```

Non-Updatable View

```
CREATE VIEW EMP_DEPT_VIEW  
AS  
SELECT employee_id, last_name, salary, dname  
from employee  
join  
department  
on employee.department_id=department.department_id;
```

```
Update EMP_DEPT_VIEW  
SET salary = salary *.01, dname = 'IT'  
WHERE Salary <5000;
```

Error: View or function 'EMP_DEPT_VIEW' is not updatable because the modification affects multiple base tables.

Non-Updatable View

```
insert into  
emp_dept_view(employee_id, last_name, salary, dname)  
values (111,'Roger',10000,'IT');
```

Error: View or function 'EMP_DEPT_VIEW' is not updatable because the modification affects multiple base tables.

- An UPDATE OR INSERT statement against a view can only effect one target table.

Non-Updatable View

- You can perform DML operations on updatable views.
- You cannot perform DML operations if the view contains the following:
 - Group functions
 - A GROUP BY clause
 - The DISTINCT keyword
 - Columns defined by expressions
 - NOT NULL columns in the base tables that are not selected by the view

WITH CHECK Option

- You can ensure that DML operations performed on the view stay within the domain of the view by using the WITH CHECK OPTION clause.

```
CREATE OR REPLACE VIEW empvu20  
AS  
SELECT* FROM employees  
WHERE department_id = 20  
WITH CHECK OPTION
```

- Any attempt to change the department number for any row in the view fails because it violates the WITH CHECK OPTION constraint.

Changing a View

Syntax:

```
ALTER VIEW view_name  
AS  
New_Select_Statement;
```

```
ALTER VIEW EMP_DEPT_VIEW  
AS  
SELECT employee_id, last_name, salary, hire_date, dname  
from employee  
join  
department  
on employee.department_id=department.department_id;
```

Removing a View

- You can remove a view without losing data because a view is based on underlying tables in the database.

```
DROP VIEW view_name
```

```
DROP VIEW EMP_DEPT_VIEW
```

THANK YOU!