جامعة طرابلس
كلية تقنية المعلومات

Advanced Databases قواعد البيانات المتقدمة

ITSE312

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المحاضرة التاسعة – المعاينات

SQL Views

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  - What view is?
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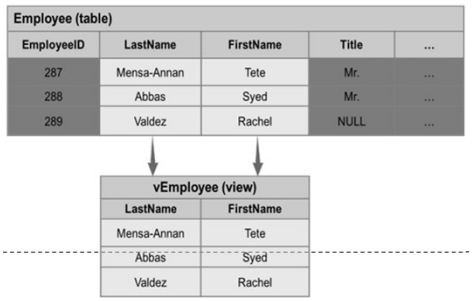
What view is?

- **A view** is a virtual table whose contents are defined by a query.
- Common examples of views are:
  - A subset of rows or columns of a base table
  - A union of two or more base tables
  - A join of two or more base tables
  - A statistical summary of a base table
  - A subset of another view, or some combination of views and base tables



Types of Views

- Standard views
  - Combine data from one or more base tables (or views) into a new virtual table
- Indexed views
  - Materialize (persist) the view through the creation of a unique clustered index on the view
- Partitioned views
  - Join horizontally partitioned data from one or more base tables across one or more servers

Advantages of Views

- Focus the data for a user
- Mask database complexity
- Simplify management of user permissions
- Improve performance
- Organize data for export to other applications

Creating and Modifying Views

- Use CREATE or ALTER VIEW SQL statement:

```
CREATE [OR ALTER] VIEW [ schema_name.] view_name [(column [
,...n ] ) ] [ WITH <view_attribute> [ ,...n ] ]
AS select_statement
[ WITH CHECK OPTION ]
[ ; ]

<view_attribute> ::= {[ ENCRYPTION ][ SCHEMABINDING ] }
```

- CHECK OPTION
  - Forces all data modification statements executed against the view to follow the criteria set within select_statement. When a row is modified through a view, the WITH CHECK OPTION makes sure the data remains visible through the view after the modification is committed.

Creating and Modifying Views

- SCHEMABINDING
  - Binds the view to the schema of the underlying table or tables. When SCHEMABINDING is specified, the base table or tables cannot be modified in a way that would affect the view definition. The view definition itself must first be modified or dropped to remove dependencies on the table that is to be modified.

Creating and Modifying Views

- Restrictions:
  - Cannot nest more than 32 levels deep
  - Cannot contain more than 1,024 columns
  - Cannot use COMPUTE, COMPUTE BY, or INTO
  - Cannot use ORDER BY without TOP

Deleting Views

- To Delete views use DROP VIEW SQL statement.

```
DROP VIEW [ schema_name.]view_name [ ...,n ] [ ; ]
```


Considerations for Modifying Data in a View

- Views do not maintain a separate copy of data (indexed views are an exception)
- Updates to views modify base tables
- Restrictions:
  - Cannot affect more than one base table
  - Cannot modify columns derived from aggregate functions or calculations
  - Cannot modify columns affected by GROUP BY, HAVING, or DISTINCT clauses
- Updates to views are restricted by using the WITH CHECK OPTION

What Is an Indexed View?

- A view with a unique clustered index
  - Materializes view, improving performance
  - Allows query optimizer to use view in query resolution
- Use when:
  - Performance gains outweigh maintenance overhead
  - Underlying data is modified infrequently
  - Queries perform a significant number of joins and aggregations

Views Examples

```
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE VIEW [dbo].[ListStudentDepartment]
AS
SELECT Departments.Title, Departments.PhoneNo AS DeptPhoneNo,
       Students.Id,Students.Name,
       Students.PhoneNo,Students.Semester,
       Students.Gender, Students.BirthDate,
       Students.Municipality
FROM   dbo.Students
       INNER JOIN dbo.Departments
       ON dbo.Students.DepartmentId = dbo.Departments.Id
GO
```

Views Examples

- ANSI_NULLS

Boolean Expression	SET ANSI_NULLS ON	SET ANSI_NULLS OFF
NULL = NULL	UNKNOWN	TRUE
1 = NULL	UNKNOWN	FALSE
NULL <> NULL	UNKNOWN	FALSE
1 <> NULL	UNKNOWN	TRUE
NULL > NULL	UNKNOWN	UNKNOWN
1 > NULL	UNKNOWN	UNKNOWN
NULL IS NULL	TRUE	TRUE
1 IS NULL	FALSE	FALSE
NULL IS NOT NULL	FALSE	FALSE
1 IS NOT NULL	TRUE	TRUE

- QUOTED_IDENTIFIER
  - When SET QUOTED_IDENTIFIER is ON (default), identifiers can be delimited by double quotation marks (" "), and literals must be delimited by single quotation marks (' '). All strings delimited by double quotation marks are interpreted as object identifiers.
- NOCOUNT
  - Stops the message that shows the count of the number of rows affected by a Transact-SQL statement or stored procedure from being returned as part of the result set.