

SQL SUPPLIMENT— VIEWS

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Views

- ❖ A **view** is like a “virtual” table
 - Defined by a query, which describes how to compute the view contents on the fly
 - DBMS stores the **view definition query** instead of view contents
 - Can be used in queries just like a regular table

Creating and dropping views

❖ Example: EECS495 roster

■ **CREATE VIEW** EECS495Roster **AS**
SELECT SID, name, age, GPA
FROM Student
WHERE SID IN (SELECT SID FROM Enroll
WHERE CID = 'EECS495');

Called "base tables"



❖ To drop a view

■ **DROP VIEW** *view_name*;

Using views in queries

❖ Example: find the average GPA of EECS495 students

- `SELECT AVG(GPA) FROM EECS495Roster;`
- To process the query, replace the reference to the view by its definition
- `SELECT AVG(GPA)
FROM (SELECT SID, name, age, GPA
FROM Student
WHERE SID IN (SELECT SID
FROM Enroll
WHERE CID = 'EECS495'));`

Why use views?

- ❖ To hide data from users
- ❖ To hide complexity from users
- ❖ Logical data independence
 - If applications deal with views, we can change the underlying schema without affecting applications
 - Recall **physical data independence**: change the physical organization of data without affecting applications
- ❖ To provide a uniform interface for different implementations or sources
- ☞ Real database applications use tons of views

Modifying views

- ❖ Does not seem to make sense since views are virtual
- ❖ But does make sense if that is how users see the database
- ❖ Goal: modify the base tables such that the modification would appear to have been accomplished on the view