Views

Views...

- A **view** is a virtual table...

- A view is based on **base tables** or **defining tables**

- In SQL, CREATE VIEW statement is used to define views...

Views… (contd.)

Example…

"Create a view of student names & their majoring department"

CREATE VIEW STUD_MAJ
AS
SELECT S.Name, D.Name
FROM   STUDENT S **INNER JOIN**
                DEPARTMENT D **ON**
                (S.Major = D.DeptID)

Views... (contd.)

Another example...

View of departments and their average salary

```
CREATE VIEW DEPT_SAL (Dept, AvgSalary)
AS
SELECT          D.Name, AVG(E.Salary)
FROM            EMPLOYEE E INNER JOIN
                     DEPARTMENT D ON
                (E.Dept = D.DeptID)
GROUP BY        D.Name
```

Views... (contd.)

- Now, we can query the view similar to a table...

Example..

"List the departments with average salary > 30,000"

SELECT	Dept
FROM	DEPT_SAL
WHERE	AvgSalary > 30,000

Views… (contd.)

- Dropping a view…
  - DROP VIEW DEPT_SAL

Views… (contd.)

- Updating a view can be ambiguous…
  - Views containing aggregate functions are not updateable

  - Example

    UPDATE DEPT_SAL

    SET AvgSalary = 40000

    WHERE Dept = "CSE"

  **This is not possible

Views... (contd.)

- Views containing a join can be ambiguous

A	B
b	1

B	C
1	d
1	e

A	B	C
b	1	d
b	1	e

A

B

$V1 = A \bowtie B$

UPDATE V1

SET A = a

WHERE C = e

Views... (contd.)

- Thus, in many DBMSs, views are updateable only if they are defined on a single base table.

Views are utilized for...

- Security mechanism
- Convenience

Views are not updatable if,

- Views with Joins
- Views with Grouping or Aggregation
- Views with DISTINCT or UNION
- Views with Subqueries in the SELECT List
- Views with Non-Key Preserved Tables
- Read-Only Views
- Views with Functions in the SELECT List