Chapter 4

SQL Data Manipulation Language

SQL

- Consists of three types of statements
- Data Query Language:
  - SELECT statement
- Data Definition Language:
  - CREATE/DROP Table, others
  - Statements that modify the schema
- Data Manipulation Language
  - Statements that modify the content of tables

Data Manipulation Statements

- INSERT: adds one or more rows

- UPDATE: modifies one or more rows

- DELETE: removes one or more rows

INSERT Example

Example 24: Insert a row into the *Student* table supplying values for selected columns.

```
INSERT INTO Student
 (StdSSN, StdFirstName, StdLastName,
StdMajor)
 VALUES ('999999999','JOE','STUDENT','IS')
```

INSERT Example #2

Use a SELECT statement to generate rows for an INSERT statement

Example 24: Register all IS students in offering 1234.

```
INSERT INTO Enrollmen t
   SELECT 1234, StdSSN, NULL
   FROM Student
   WHERE StdMajor = 'IS'
```

UPDATE Example

Example 25: Change the major of a student, and increase his GPA.

```
UPDATE Student
  SET StdMajor = 'ACCT',
      StdGPA = StdGPA + .5
```

DELETE Example

Example 26: Delete all IS majors who are seniors.

```
DELETE FROM Student
 WHERE StdMajor = 'IS'
    AND StdClass = 'SR'
```

DELETE Example

- Use nested queries to test conditions on other tables
- Use for UPDATE statements also

Example 8: Delete offerings taught by Leonard Vince.
```
DELETE FROM Offering
  WHERE Offering.FacSSN IN
    ( SELECT FacSSN FROM Faculty
        WHERE FacFirstName = 'Leonard'
          AND FacLastName = 'Vince' )
```