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Structured Query Language SQL

Lecture 9

DATABASE MODIFICATIONS

Database Modifications

- A modification command does not return a result as a query does, but it changes the database in some way.

- There are three kinds of modifications:
    1. *Insert* a tuple or tuples.
    2. *Delete* a tuple or tuples.
    3. *Update* the value(s) of an existing tuple or tuples.

Recap: Insertion

- To insert a single tuple:

    INSERT INTO <relation>

    VALUES (<list of values>);

Inserting many tuples

- We may insert the entire result of a query into a relation, using the form:

INSERT INTO <relation>

<query>;

Example

CREATE TABLE DisneyMovies(
        title VARCHAR (25),
        year INTEGER);
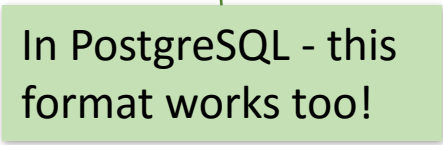
INSERT INTO DisneyMovies
        SELECT title, year
        FROM Movies
        WHERE studioName = 'Disney';

Aside: Inserting dates (PostgreSQL, Oracle)

Default date format: 'YYYY-MM-DD'

Example

INSERT INTO MovieStar(name, address, gender, birthdate)
VALUES('Julia Roberts', '123 Billings Rd.', 'F', '23-Feb-1963');

In PostgreSQL - this format works too!

Inserting dates (PostgreSQL): to_date

- More safe - construct value of date from user input using

TO_DATE (str, format)

Example
INSERT INTO MovieStar(name, birthdate)
VALUES('Dustin Hoffman', 'Aug 1963');
    Invalid input syntax for type date

INSERT INTO MovieStar(name, birthdate)
VALUES('Dustin Hoffman', **TO_DATE**('Aug 1963', 'Mon YYYY'));

Getting a Date out: to_char

Use to_char (value, format) to convert date value into a desired format

SELECT **TO_CHAR**(birthdate, 'YYYY') as birthyear

FROM MovieStar;

Deletion

- To delete tuples satisfying a condition from some relation:

  DELETE FROM <relation>

  WHERE <condition>;

Example

- Delete from the **Movie** table the Disney's movies:

  DELETE FROM Movies

  WHERE studioName ='Disney';

Example: Delete all Tuples

- Make the relation Movie empty:

  DELETE FROM Movies;

- No WHERE clause needed here.

Updates

- To change certain attributes in certain tuples of a relation:

  UPDATE <relation>

  SET <list of attribute assignments>

  WHERE <condition on tuples>;

Example

- Change the length of 'Godzilla' to 200.

  UPDATE Movies

  SET length = 200

  WHERE title = 'Godzilla';

Multiple updates in one statement

- Suppose that Julia Roberts's movies have approximately 20 min of info before starting.

- So, let's take that 20 min off.

```
UPDATE Movies
SET length = length - 20
WHERE (title, year) IN
        (SELECT movietitle, movieyear
        FROM StarsIn
        WHERE starname = 'Julia Roberts');
```