Week 3 Tutoring

CSE 180

Midterm

- Friday, October 20
- Lecture 1-4 -- NOT Lecture 5
- Practice Midterm:
    - 1, 2, 3, 4, 6, 8, 12, 14 and 15
    - Topics from the Practice Midterm ONLY
        - Relation Instances/Number of Tuples (1, 2)
        - 3-Value Logic (3)
        - UNION/INTERSECT (4)
        - Tuples from a SQL query (6, 8)
            - LIKE
            - ORDER BY
            - Understand the structure of queries
        - Query equivalence (12)
        - Write queries (14, 15)

3 Value Logic and NULL

You can only check if something is NULL using IS/IS NOT NULL

p	q	p OR q	p AND q	$p = q$
True	True	True	True	True
True	False	True	False	False
True	Unknown	True	Unknown	Unknown
False	True	True	False	False
False	False	False	False	True
False	Unknown	Unknown	False	Unknown
Unknown	True	True	Unknown	Unknown
Unknown	False	Unknown	False	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown

p	NOT p
True	False
False	True
Unknown	Unknown

SQL Queries

SELECT [DISTINCT] c1, c2, ..., cm

FROM R1, R2, ... Rn

[WHERE condition]

[ORDER BY <list of attributes [ASC | DESC]>

JOIN

R(A,B,C) and S(D,E,F)

- FROM R JOIN S ON R.A=S.D AND R.B=S.E ...
- Selects only tuples from R and S which satisfy R.A=S.C and R.B=S.D
- Types of joins:
    - JOIN
    - CROSS JOIN - not used in practice
    - NATURAL JOIN
    - (LEFT/RIGHT) OUTER JOIN - NOT on this midterm

Movies

movieTitle	year	length	genre	studioName	producerC#
Pretty Woman	1990	119	true	Disney	999
Monster's Inc.	1990	121	true	Dreamworks	223
Jurassic Park	1998	145	NULL	Disney	675

StarsIn

movieTitle	movieYear	starName
Pretty Woman	1990	Julia Roberts
Monster's Inc.	1990	John Goodman

FROM Movies JOIN StarsIn ON Movies.movieTitle = StarsIn.movieTitle

movieTitle	year	length	genre	studioName	producerC#	movieTitle	movieYear	starName
Pretty Woman	1990	119	true	Disney	999	PrettyWoman	1990	Julia Roberts
Monster's Inc	1990	121	ture	Dreamworks	223	Monster's Inc	1990	John Goodma

FROM Movies NATURAL JOIN StarsIn ON Movies.movieTitle = StarsIn.movieTitle

Natural Joins

- Attributes appear only once

movieTitle	year	length	genre	studioName	producerC#	movieYear	starName
Pretty Woman	1990	119	true	Disney	999	1990	Julia Roberts
Monster's Inc	1990	121	ture	Dreamworks	223	1990	John Goodma

Tuples returned by…

	DISTINCT	ALL
R UNION S	MIN(m+n, 1)	m+n
R INTERSECT S	MIN(MIN(m,n,), 1)	MIN(m,n)
R EXCEPT S	IF m>0 AND n=0 THEN 1 ELSE 0	MAX(m-n, 0)

Subqueries

Subquery or Inner query or Nested query is a query in a query. SQL subquery is usually added in the **WHERE** Clause of the SQL statement.

- Make sure you are writing legal queries but not comparing a single tuple to a group of tuples by using the following:
- < ANY, <= ANY, > ANY, >= ANY, <> ANY, = ANY < ALL, <= ALL, > ALL, >= ALL, <> ALL, = ALL