ALTERNATIVE JOINS

MSiA 413
Week 7

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Announcements

- Homework grades should be accurate now
- Midterms still haven't been graded yet
  - They'll be done by Monday afternoon
- Homework 4 is due today
  - Any questions?

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Database Indices

- What are the reasons to use an index?
- What are reasons not to use an index?
- Given the following SQL queries, what would a good index be?
    - SELECT * FROM Movies WHERE Movies.movieName LIKE 'batman%' and Movies.releaseDate > 1990;
    - SELECT * FROM Movies GROUP BY Movies.Director;
    - SELECT * FROM Movies WHERE Movies.MovieName LIKE 'batman%' GROUP BY Movies.Director ORDER BY Movies.releaseDate ASC;
    - SELECT * FROM Movies WHERE Movies.movieName LIKE '%2' OR Movies.releaseDate = 1990;
- Assume that a disk access takes 10ms and a memory access takes 10us.
    - If we perform a range query on a table with 1M rows spread across four pages what is the worst-case time that a search without an index would take?
    - If we perform the same range query with an index, what would the worst-case time be? What about the average?

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Modifying Databases

- What is the difference between ALTER, UPDATE, INSERT?
- What is the difference between DELETE and DROP?
- How careful should you be about ALTER, UPDATE, and DROP?
- Write a SQL command to implement the following table

Transactions	
transactionID	integer
bankName	varchar(255)
customerId	integer
transactionValue	decimal(2)

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Alternative Joins

studentName	age	favoriteFood*
Alice	20	Avacados
Bob	21	Blueberries
Doug	22	Dill pickles

favoriteFood	calories
Avacados	200
Dill pickles	250
Ravioli	400

Given the database, what records will be returned if the following joins are performed?

- INNER JOIN
- NATURAL JOIN
- OUTER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN
- LEFT OUTER JOIN
- Exclusive LEFT JOIN

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Manipulating Joins

- How would make the following equivalent to SELECT * FROM table1
  - SELECT table1.* FROM table1 NATURAL LEFT JOIN table2
  - SELECT table1.* FROM table1 NATURAL FULL JOIN table2
- If a table has n_c columns and n_r rows, how many rows will result if you do a natural join with itself?

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Filtering with aggregation

- Given the following schema return the names of all the albums with artists that have switched labels twice

Albums	Artists	SignedLabel	Label
albumId	artistId	artistId*	labelId
albumName	artistName	labelId*	date
artistId*			

- Return the name of all the albums with artists that have not switched labels twice