

Day 4

Sunday, October 8, 2017 6:15 PM

Subquery - a query within the where clause of another query

Joins

- Joins two tables together
- We can access all columns from both tables when we do a join

Inner Join

- Retrieves only rows from both tables that have the specified column(s) in common

Left Join

- Will retrieve all rows from the left table
- Will retrieve only the rows in common from the right
- Example: find all users and their bank accounts but even if some users doesn't have a bank account we still want to see those users

Full Outer Join

- Retrieves all rows from both tables

Cross Join

- Cartesian product
- Joins everything to everything
- Does not require a specified column

Self Join

- When the same table is used on both sides of the join
- Example - finding an employee and their manager which is also a part of the employee table

Natural Join

- Implicitly joins based off all columns that have the exact name in both tables

ON vs USING

- With on you must specify the column in both tables that you want to join on
- With using you specify 1 column name but it must be the same name in both tables

Union/Intersect/Minus - operate on result sets not on tables

Union

- add all rows from both result sets together
- No duplicates

Union All

- Like union but shows duplicates

Intersect

- Keeps only records that are contained in both result sets

Minus

- Removes records from the first result set that are contained in the second

ACID - Acronym for transaction properties

- Atomic - Everything gets committed within the transaction or nothing does
- Consistent - Valid state to valid state - all constraints must be met for the transaction to commit
- Isolated - concurrent transactions do not effect the other
- Durable - Once the data is in there it will not become corrupted. Future failures on transactions will not corrupt the data already there.

Transaction Isolation levels

	Dirty read	Non repeatable read	Phantom read
Read uncommitted	Yes	Yes	Yes
Read committed	No	Yes	Yes
Repeatable read	No	No	Yes
Serializable	No	No	No

Dirty read - reading uncommitted data

Non repeatable read - occurs when the same row, read twice in one transaction, has different values both times (updates)

Phantom read - occurs when two identical queries are executed and the number or rows differs in each (inserts and deletes)