FINAL EXAM

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Question 1

Q1.1.

- SQL does not know what a NULL value means
- Comparing with a NULL value has an *unknown* result
- SQL does not know whether that *unknown* is true or false
- A = NULL → unknown
- NULL = A → unknown
- A <> NULL → unknown
- NULL <> A → unknown
- Rules for **AND**
    - A **AND** true = A
    - A **AND** false = false
    - unknown **AND** unknown = unknown
- Rules for **OR**
    - A **OR** true = true
    - A **OR** false = A
    - unknown **OR** unknown = unknown
- Rules for **NOT**
    - **NOT** true = false
    - **NOT** false = true
    - **NOT** unknown = unknown

Q1.2.

Dirty read is when a transaction can read uncommitted data by another transaction.

An example is in page 76/195 in Part 8 of lecture slides.

$\tau_1 = A \geq 100?, A \coloneqq A + 400, B \geq 700? B \coloneqq B - 400$

$\tau_2 = A \geq 500?, A \coloneqq \text{A - } 300, \text{E} \coloneqq \text{ E } + 300$

Schedule

Readτ_1(A)	
	Readτ_2(A)
	Writeτ_2(A)
	Readτ_2(E)
	Writeτ_2(E)
	Commitτ_2

Writeτ_1(A)	
Readτ_1(B)	
Writeτ_1(B)	
Commitτ_1	

Instance (initial)

A	$500
B	$800
E	$0

Instance (final)

A	$900
B	$400
E	$300