Midterm 2 Review
R.A = 6 / RS.C = 10

R_1 \( A(B, C) \)
R_2 \( A(B) \)
S(C, B, C, D)

\[ \sigma_{\bar{C}} \]

U

\[ \sigma_{\bar{C}} \]

A

B
$|R| = \# \text{ of tuples}$

$P = \# \text{ of tuples per disk page}$

$t = \# \text{ of keys per tree index page}$

$b = \# \text{ of tuples per buffer block (or bucket)}$

$S_d = \text{ Selectivity }$

$q \text{ has selectivity } \leq S$

$q \text{ where } S = \frac{10^4 |R|}{|R|}$

Metrics:
- Memory
- CPU cost
- IO cost
∀ tuples in S \frac{|Ω_{RB = Φ}|}{|R|} = S \cdot |R|
Objects

DB

Table

Row

Column

Cell

Set of rows

Page

Conflicts

R(A)

W(A)

W-W

W-R

R-W

Reads

writes

Commit

Abort

Schedule

Sequence of R+W

Serializable

- Identical output to a serial schedule
- Final DB state
- All XACT reads

Serial Schedules

- All ops one XACT at a time
Conflict Serializability

If T₁ writes to A then T₂ reads A if all conflicts are in same order.

View Serializability

T₁: W(A), T₂: r(A), T₃: W(A) can swap "hidden" ops.
- 2P Locking $\rightarrow$ Conflict serializability
- OCC $\rightarrow$ (Read, Val, Write)
- TS OCC $\rightarrow$ View ser (Allowing READ-WRITE conflicts based on validation step (typically conflict)
- $\uparrow$ Version