

CSE 344 Section 8 Worksheet

1. Consider a concurrency control manager that uses strict two phase locking that schedules three transactions:

- $T1 : R1(A), R1(B), W1(A), W1(B), Co1$
- $T2 : R2(B), W2(B), R2(C), W2(C), Co2$
- $T3 : R3(C), W3(C), R3(A), W3(A), Co3$

Each transaction begins with its first read operation, and commits with the Co statement. Answer the following questions for each of the schedules below:

- Is this schedule possible under a strict 2PL protocol?

Note: A common question is if conflict serializability implies the schedule is possible under a strict 2PL protocol, and the answer is Conflict Serializable \nrightarrow strict 2PL but strict 2PL \rightarrow Conflict Serializable

a. Schedule 1:

$R2(B), W2(B), R3(C), W3(C), R3(A), W3(A), Co3, R2(C), W2(C), Co2, R1(A), R1(B), W1(A), W1(B), Co1$

i. Is it possible under strict 2PL?

Yes

b. Schedule 2:

$R2(B), W2(B), R3(C), W3(C), R1(A), R1(B), W1(A), W1(B), Co1, R2(C), W2(C), Co2, R3(A), W3(A), Co3$

i. Is it possible under strict 2PL?

No: T2 holds L(B) thus R1(B) is not possible before Co2.

2. Answer the questions below by circling the correct answer.

i. A read-only transaction is a transaction that only reads from the database, without writing/inserting deleting. Any schedule with exclusively read-only transactions must be serializable

TRUE or FALSE

ii. If a schedule is in strict 2PL, does this imply that the schedule is conflict-serializable?

TRUE or FALSE

iii. If a schedule is conflict-serializable, does this imply that the schedule is possible in strict 2PL?

TRUE or FALSE