Section 7: Transactions Worksheet

Precedence Graphs

Consider the following transaction schedules. For each schedule, draw the precedence graph and indicate if it is conflict-serializable or not, by circling **Yes or No.**

1. Conflict-serializable: **Yes / No**

r1(A); w1(B); r2(B); w2(C); r3(C); w3(A);

2. Conflict-serializable: **Yes / No**

r1(A); r2(B); r3(B); w3(A); w2(C); r3(D); r3(C); w1(B);

Serialization Order

Consider a concurrency control manager 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.

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

    a. Is the schedule conflict-serializable? If yes, indicate a serialization order, e.g. T_1 -> T_2 -> T_3 , T_1 -> T_3 -> T_2, etc.

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

    a. Is the schedule conflict-serializable? If yes, indicate a serialization order.

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

    a. Is the schedule conflict-serializable? If yes, indicate a serialization order.