

Tutorial 9

CSN-351/AID-523 Database Management Systems

1. Consider the following schedule for transactions T1, T2 and T3.

T1	T2	T3
Read(X)		
	Read(Y)	
		Read(Y)
	Write(Y)	
Write(X)		
		Write(X)
	Read(X)	
	Write(X)	

Which one of the schedules below is the correct serialization of the above?

- a. T1->T3->T2
 - b. T2->T1->T3
 - c. T2->T3->T1
 - d. T3->T1->T2
2. Consider the following four schedules due to three transactions (indicated by the subscript) using read and write on a data item x, denoted by R(X) and W(X) respectively. Which one of them is conflict serializable?
- a) R1(X); R2(X); W1(X); R3(X); W2(X);
 - b) R2(X); R1(X); W2(X); R3(X); W1(X);
 - c) R3(X); R2(X); R1(X); W2(X); W1(X);
 - d) R2(X); W2(X); R3(X); R1(X); W1(X);
3. Consider the following schedule S of transactions T1, T2, T3, T4:

T1	T2	T3	T4
Writes(X) Commit	Reads(X) Writes(Y) Reads(Z) Commit	Writes(X) Commit	Reads(X) Reads(Y) Commit

Which one of the following statements is CORRECT?

- S is conflict-serializable but not recoverable
- S is not conflict-serializable but is recoverable
- S is both conflict-serializable and recoverable
- S is neither conflict-serializable nor is it recoverable

4. Consider the following database schedule with two transactions, T_1 and T_2

$S = r_2(X); r_1(X); r_2(Y); w_1(X); r_1(Y); w_2(X); a_1; a_2$

where $r_i(Z)$ denotes a read operation by transaction T_i on a variable Z , $w_i(Z)$ denotes a write operation by T_i on a variable Z and a_i denotes an abort by transaction T_i .

Which one of the following statements about the above schedule is **TRUE**?

- S is non-recoverable.
 - S is recoverable, but has a cascading abort.
 - S does not have a cascading abort.
 - S is strict.
5. Check whether the given schedule S is view serializable or not.
If yes, then give the serial schedule.

$S : R1(A) , W2(A) , R3(A) , W1(A) , W3(A)$