CS3020 Database and Management Systems
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Exercise Sheet 7: Hand out 30.04.2022, Due 10.05.2022 - 23:59

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Assignment 1: Tranctions

(a) There are 3 transaction with 3, 2, 3 operations. How many schedules are possible to create from these three transactions? How many of them would be serial schedule?

(b) Are the following schedules equivalent?

T(1)	T(2)
R(A)	
W(A)	
	R(A)
	W(A)
R(B)	
W(B)	
	R(B)
	W(B)

T(1)	T(2)
	R(A)
R(A)	
	W(A)
	R(B)
	W(B)
W(A)	
R(B)	
W(B)	

(c) Is the following schedule is conflict serializable? Is it a recoverable schedule? Justify your answer.

T1	T2	T3	T4
	R(A)		
		W(A)	
W(B)			
	R(B)		
	W(C)		
			R(A)
			R(B)

Assignment 2: Concurrency & Deadlock

(a) What situation may arise if the following two transactions are running concurrently in a database.

- Find all instructors who join in 2023 from instructor table. (Consider the same structure of instructor table as mentioned in the slides)
- Insert a new instructor in the instructor table

(b) Does the schedule mentioned in 1c. satisfy 2P lock?

(c) Show that the following schedule has deadlock. Considering T1, T2, T3, and T4 have timestamp 5, 10, 15, 20. How the wait-die and wound-die methods will prevent the deadlock in the above schedule?

T1	T2	T3	T4
	W(A)		
		W(A)	
W(B)			
			R(A)
			R(B)
	R(B)		
	W(B)		